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ABSTRACTS OF SUBMISSIONS ACCEPTED FOR PRESENTATION

SCIENTIFIC ABSTRACTS

A COLORECTAL CANCER RISK ASSESSMENT TOOL FOR WOMEN DEVELOPED FROM DATA IN THE WOMEN'S HEALTH INITIATIVE
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BACKGROUND: Risk for colorectal cancer significantly increases starting at the age of 50 and is the rationale for initiating screening at this age. However, there is a lack of clinical tools that further stratify risk for individuals. A recent publication (2007) described a scoring system developed from data in the Physicians' Health Study (male only cohort) that identified men at increased risk for colorectal cancer based on easily obtainable clinical factors (age, smoking status, alcohol use, and body mass index). We developed a similar risk assessment tool for colorectal cancer in women participating in the Women's Health Initiative (WHI).
METHODS: The WHI is a national prospective study of women age 50–79 that focuses on strategies for preventing heart disease, breast and colorectal cancer, and fracture in postmenopausal women. We used the sub-cohort of 152,126 females in WHI who were free of colorectal cancer at the time of enrollment. The predictors of colorectal cancer were self-reported and identified using the baseline questionnaire. Chi-square tests were used to determine the significant predictors of incident colorectal cancer cases over the follow-up period. Cox regression models were generated to determine hazard ratios (HR) for those significant predictors. Each predictor in the final model was assigned a point value that corresponded to its HR rounded to the first decimal point. For each participant, the points were summed to create a risk prediction score for that participant. A Cox regression model was then used to determine the HR for colorectal cancer based upon the risk prediction score.
RESULTS: During the mean follow-up period of 7.7 years, 1321 incident cases of colorectal cancer were diagnosed in our study cohort. The following were significant independent predictors for colorectal cancer: (1) age (60–69 years- HR 2.0, 70–79 years- HR 3.3), (2) smoking status (past/current- HR 1.2), (3) body mass index (>25-HR 1.2), (4) diabetes (HR 1.5), and (5) physical activity (none- HR 1.3, some- HR 1.2). For each participant after summing the above significant risk factors, the point scores ranged from 0–8 with the risk for colorectal cancer increasing with higher scores. The mean point total for those without colorectal cancer was 3.8 whereas for those with colorectal cancer it was 4.5 ($p<0.0001$). The percentage of those with the highest scores (i.e., 6–8) were as follows: 6.1% of those without colorectal cancer and 11.7% with colorectal cancer ($p<0.0001$). The HR for developing colorectal cancer according to the point total are as follows: 1 point (HR of 1.0; 95% CI 0.6–1.7), 2 points (1.5; 0.9–2.4), 3 points (2.1; 1.3–3.4), 4 points (2.7; 1.7–4.4), 5 points (3.9; 2.4–6.2), 6 points (4.5; 2.7–7.5), 7 points (5.9 (3.6–9.9), and 8 points (5.4; 2.4–11.9).
CONCLUSION: Our scoring system was able to generate a risk prediction score for colorectal cancer that identified groups of women at increased relative risk based upon easily obtainable clinical factors (age, smoking status, body mass index, diagnosis of diabetes, and level of physical activity). Screening rates for colorectal cancer lag behind those for other preventive behaviors such as breast cancer screening with mammography. As risk communication potentially impacts colorectal cancer behavior, use of simple risk prediction scoring systems such as ours that further stratify the risk may be a meaningful clinical intervention that warrants further investigation.

A COMPARISON OF GENERAL MEDICAL INPATIENT CARE PROVIDED BY A HOSPITALIST-PHYSICIAN ASSISTANT MODEL WITH A TRADITIONAL RESIDENT BASED MODEL
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BACKGROUND: Residency reform in the form of work hour restrictions prescribed by ACGME in 2003 forced hospitals to find alternatives to residents for providing medical inpatient care. At our institution we created two hospitalist-physician assistant (H-PA) teams, in addition to the pre-existing 6 resident (RES) ward teams. Each H-PA team admitted 4–5 new patients every weekday. Patients were assigned to H-PA teams strictly based on the time of admission (7 AM–3 PM). Diagnosis, severity of illness or teaching value were not used as criteria to assign the patient to either type of team and patients once admitted, were not transferred from one type of general medicine team to another. We compared the outcomes of this unique physician assistant based model of care with the traditional resident based model of care.
METHODS: We conducted a retrospective cohort study using our institutions administrative database of general medical patients. Inclusion criteria were: age 18 years or older and completed hospitalization between Jan 2005 to Dec 2006. Admissions over the weekend and patients initially admitted to the ICU were excluded. By matching the discharging attending with the attending name on our department's inpatient ward block schedule we identified 1916 patients discharged by H-PA teams and 6535 patients discharged by RES teams. Team assignment was not possible for 1505 patients, using this approach and

they were excluded from the analysis. We used multivariable models controlling for age, race, gender, payer status, presence of primary care provider, source of admission (ER vs. non-ER) and Elixhauser co-morbidities to compare the outcomes of care by H-PA and RES teams. Random effects models were used to account for intra-patient correlation in outcomes.
RESULTS: As compared with patients cared for by RES teams, patients cared for by H-PA teams had a longer hospital stay (adjusted difference, 0.33 day; P=0.002) and higher costs (adjusted difference, $1452; P= 0.001) but a similar inpatient rate of death (odds ratio 1.35; 95% confidence interval [CI], 0.88 to 2.07) and 30-day readmission rate (odds ratio, 0.90; 95% CI, 0.76 to 1.06). The difference in cost is not significant when adjusted for LOS (adjusted difference, $347; P=0.10)
CONCLUSION: Our study shows that hospitalist –physician assistant teams may provide equal quality of care as compared to traditional resident based teams with respect to inpatient mortality and readmissions.The differences in length of stay and charges may be due to our unique staffing schedule and requires further exploration.Our study is limited by its non-randomized patient assignment, and its retrospective nature, but it provides an important insight into the performance of an alternate model of providing general medical inpatient care.

Outcomes of care of hospitalist-physician assistant teams as compared with resident teams. *adjusted for age, race, gender, payer status, presence of primary care provider, source of admission (ER vs. non-ER) and Elixhauser co-morbidities.

	Difference in LOS (days) (95% CI)	Difference in Charges (dollars) (95% CI)	Inpatient mortality Odds Ratio (95% CI)	30 day readmission Odds Ratio (95% CI)
Unadjusted	0.46 (0.24–0.39)	1949 (1091–2805)	1.4 (0.93–2.16)	0.91 (0.80–1.05)
Adjusted*	0.35 (0.13–0.56)	1452 (634–2270)	1.35 (0.88–2.07)	0.90 (0.76–1.06)

A COMPARISON OF SIMULATED PATIENTS VERSUS ACTUAL PATIENTS IN TEACHING COMMUNICATION SKILLS S.L. Clever[1]; R. Dudas[1]; D.M. Levine[1]; B. Solomon[1]; M. Goldstein[1]; J. Yeh[1]; A. Bertram[1]; J. Cofrancesco[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205020)*

BACKGROUND: Simulated patients (SPs) are frequently used to teach communication skills. This may be problematic: SP encounters may be viewed as artificial and students may feign empathic responses. To address this, we developed a registry of volunteer outpatients (VOs) to participate as first-year medical students learn communication skills.
METHODS: We asked primary care physicians to identify affable adult patients, then recruited patients by mailing a program brochure with a letter from that physician asking them to participate. VOs attended a 2-hour training session prior to their interviews. Student interviewed VOs on 4 different afternoons in our 12-room Simulation Center; on each day 8 rooms had a VO and 4 an SP, and 60 students conducted interviews. Students knew whether a patient was a VO or SP. Groups of 5 students and 1 faculty rotated through exam rooms so each student could take a PMH and FH or SH and receive feedback. The groups rotated to the next room, where the next student took a history. After each interview, students completed a modified Maastricht Assessment of SPs, rating aspects of the interview on a 4-point scale from Complete Agreement (4) to Complete Disagreement (1). We also conducted a focus group of students to further assess their perceptions. We used the natural logarithm of means to compare ratings of VOs to SPs, controlling for clustering. We used qualitative methods to evaluate the focus group transcript.
RESULTS: We recruited 19 patients, of whom 10 participated once, 5 participated 2 times, and 3 participated 3 or 4 times. The students' ratings of aspects of the interactions are below. In the focus group, students consistently said they preferred VOs to SPs because of their complexity, variety, and verisimilitude.
CONCLUSION: Students perceive greater educational value in their interactions with VOs versus SPs, and greater opportunity to develop relationships with authentic patients. This may aid their development as compassionate physicians who can understand and relate to patients' lives. VOs may represent an important innovation in communication skills training for medical students.

Students' Ratings of VO vs SP interactions

	VOs (N=161)	SPs (N=75)	
Question	Mean	Mean	P
I felt comfortable interviewing this patient.	3.52	3.41	.02
I am more comfortable obtaining a PMH and FH/ SH as a result of this encounter.	3.51	3.40	.17
The patient appeared to withhold information unnecessarily.*	3.66	3.51	.01
The patient was confrontational with me.*	3.87	3.80	.29
The patient was friendly to me.	3.83	3.60	<.001
I would recommend this patient for future medical student interviewing sessions.	3.78	3.52	<.001
I learned a lot in this session.	3.63	3.45	.017
I had the opportunity to develop a relationship with this patient.	3.32	3.09	.014
Overall, this interview met my training needs in developing communication skills.	3.58	3.31	<.001

***Reverse-scored**

A LITTLE BIT OF HOPE IN YOUR HEART: THE ASSOCIATION BETWEEN A 5-HTTLPR POLYMORPHISM AND HOPELESSNESS IN A CARDIOVASCULAR COHORT K.N. Kangelaris[1]; M.A. Whooley[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205813)*

BACKGROUND: Measures of hopelessness are associated with increased mortality in patients with chronic medical illness, even after accounting for severity of depression. A short (s) allele of the serotonin transporter gene (5-HTTLPR), has been associated with depression in patients with cardiovascular disease and with hopelessness among depressed cohorts. We evaluated the association between the 5-HTTLPR s allele, hopelessness, and depression to determine whether this allele could be implicated in the development of a sense of hopelessness among patients with cardiovascular disease.
METHODS: This was a cross-sectional study of 549 Caucasian patients in the Heart and Soul cohort. The primary outcome was measured hopelessness using the Everson two-item hopelessness scale. Scores ranged from 0 to 8 with scores of 3 or greater being scored as hopeless. The predictor variable was presence of 5-HTTLPR gene promoter s allele, which acts in an autosomal dominant fashion. Logistic regression was used to examine the association of the s allele with hopelessness, adjusted for age, gender, marital status, body mass index, exercise capacity, and current depression defined as a score of >=10 on the 9-item Patient Health Questionnaire.
RESULTS: Of 549 participants, 379 (69%) had one or two copies of the s allele (ss or sl), and 285 (52%) reported symptoms of hopelessness. Compared with patients who had two copies of the long allele (ll), those with the s allele had an increased odds of hopelessness (OR1.48, 95% CI 1.03 to 2.13, p=0.04). For the adjusted analysis, we accounted for age, marital status, gender, body mass index and exercise capacity. An interaction between current depression and s allele carrier status was found to be significant (p=0.02). There was a significant association found between hopelessness and s allele carrier status. Among patients (N=54) with current depression, the s allele was associated with a 10-fold greater risk of hopelessness (OR 10.38, 95% CI 1.41 to 76.40). In contrast, among patients without current depression (N=457), there was no significant association between the s allele and hopelessness (OR 1.44, 95% CI 0.95 to 2.19).
CONCLUSION: Our results suggest that among cardiovascular patients with depressive symptoms, 5-HTTLPR s allele carrier status may be associated with an increased risk of hopelessness. Further study should evaluate whether clinical outcomes in medically ill patients are associated with 5-HTTLPR status.

A LONGITUDINAL PROCESS BASED MEASURE OF PROVIDER ACTIVITY IN RELATION TO ELEVATED BLOOD PRESSURES IN A HIGH RISK POPULATION T.P. Hofer[1]; R. Holleman[2]; M.L. Klamerus[2]; E.A. Kerr[1]. [1]University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI. *(Tracking ID # 205987)*

BACKGROUND: Performance measures frequently focus on cross-sectional outcomes like a blood pressure (BP) over 140/90 that may be predominantly influenced by factors outside a providers control. We developed a longitudinal measure that quantifies the adequacy of response to an elevated blood pressure measurement over a defined period of observation. An elevated BP is seen as a stimulus that requires a response by the provider. That response is defined as a follow-up measurement or intensification of treatment. If an elevated BP is not followed by a response, the days until the next visit and BP measurement are defined as days of inactivity, providing the patient is not already on maximal therapy or hospitalized. We sought to define the frequency of days of inactivity in a population and the relation of this measure to patient factors.
METHODS: We conducted a cohort study of 1169 diabetic patients of 92 PCPs in 9 VHA facilities. Patients were enrolled if their triage BP prior to a primary care provider (PCP) visit was >=140/90. For the following 12 months, if more than 30 days elapsed after an elevated blood pressure without intensification or follow-up blood pressures we began counting inactive days until either event occurred. The count of days of inactivity did not include days where the patient was on 4 or more BP medications or was in the hospital. We used multilevel poisson regression to examine the impact of patient and provider factors on the rates of inactive days (accounting for the exposure represented by the number of days the patient was not on 4 drugs or in the hospital). We used a chart review based measure called the Cumulative Illness Rating Scale (CIRS) to measure complexity of care at enrollment.
RESULTS: The mean number of days of inactivity was 95 and the mean rate was 37% of days. 20% of the cohort were on 4 or more medications or in the hospital during the entire study period and thus had no days of inactivity. 55% of the cohort were eligible to accrue days of inactivity for the entire 12 months. The rate of inactive days increased with age (IRR 1.10 [1.08,1.13] r for age>75) and SBP at enrollment(IRR 1.02/10 mm Hg) and the average SBP during the previous year(1.05/10 mm Hg). Patients with higher complexity (by the CIRS score) had fewer inactive days although all of this relationship was accounted for by the number of visits in the year which was strongly inversely related to inactive days(IRR 0.22[0.21,0.23] for 6 or more visits).
CONCLUSION: We have constructed a longitudinal performance measure that measures actions taken in response to an elevated blood pressure. There is a substantial amount of inactivity by this measure. Patients with higher blood pressures have more inactivity even by a measure that does not require successful control but only timely follow-up or reasonable amounts of intensification (up to four meds). This may represent some missed opportunities for improved BP control. At least in part due to the design of the measure, more visits are associated with less inactivity. Performance measures that directly measure the processes of care that providers should be doing are likely to have better acceptance and potentially a larger impact on quality of care.

A LONGITUDINAL STUDY OF MISSED OPPORTUNITIES FOR DIAGNOSIS OF OVERWEIGHT AMONG YOUNG ADULTS IN AN ACADEMIC GENERAL MEDICINE CLINIC J.W. Tang[1]; R.F. Kushner[1]; J. Thompson[1]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 204058)*

BACKGROUND: Young adults (aged 18–35 years) who are overweight (Body Mass Index [BMI] 25-<30) are at increased risk for obesity. A prior study suggested low rates of physician diagnosis of overweight by sampling a cross-section of non-urgent clinic visits. No prior studies have looked longitudinally at physician diagnosis of overweight. We conducted a retrospective cohort study to determine the proportion of young adults that were overweight or became overweight during a 2–4 year period, the proportion of overweight patients who received a physician diagnosis of overweight, and the proportion of patients with missed opportunities for diagnosis at new or preventive visits.
METHODS: We used our electronic medical record (EMR) to identify a cohort of 6461 individuals who had a first visit to our academic general medicine clinic between 2004–6, were 18–30 years old, and who had at least one subsequent visit between 2004–8. We calculated BMI at each visit that weight was available using the last available height. Patients who had a baseline BMI ≥30 were excluded from these analyses. We classified patients as overweight if they had a BMI 25-<30 kg/m2 at any visit between 2004–6. We determined whether these patients were diagnosed as overweight based on whether any physician recorded a relevant ICD-9 code (278.00–278.02) for diagnosis of overweight or obesity in the past medical history, problem list, or encounter diagnosis at any point between 2004–8, allowing for a two year minimum follow-up time. We classified patients as becoming obese if they developed a BMI ≥30 during the observation period. To examine opportunities for diagnosis, we identified the number and types of visits (new or preventive, acute or other) for each patient. New or preventive visits were defined as those including ICD-9 codes specific to preventive visits (V70.0, V70.3, V70.5, V70.8, V72.31) or which were slotted to be 40 minutes in duration.
RESULTS: The sample included 6461 patients with a median of 4 clinic visits. 68.2% of patients had at least one new or preventive visit. BMI could not be calculated for 38.4% of patients, with virtually all cases due to missing height data. Height data were more likely to be available for patients with a new or preventive visit. Weight was recorded at an average of 57% of visits, and 10.1% of patients had no recorded weight. Of the 3931 individuals with measured height and weight, 29.6% were overweight between 2004–2006. 21.2% (530/2500) of females and 44.3% (634/1430) of males were overweight. Only 35 (3.0%) overweight patients received a physician diagnosis of overweight over a follow-up period of 2–4 years. 12.8% of overweight patients became obese (BMI>30) during subsequent follow-up through 2008. There were no differences in diagnosis rates by number or type of visit. Most overweight patients had a missed opportunity for diagnosis. Specifically, 73.7% had a new or preventive visit at the time of or subsequent to first calculated BMI 25-<30.
CONCLUSION: In this longitudinal analysis of young adults seen in an academic general medicine clinic, a third were overweight, but few (3.0%) of these individuals received a physician diagnosis of overweight. The vast majority of overweight patients were not diagnosed despite having had a new or preventive visit. Height data is often not recorded, which poses a barrier to efforts to routinely identify and recognize overweight patients. Interventions are needed to decrease missed opportunities for diagnosis of overweight.

A LOW-CARBOHYDRATE KETOGENIC DIET LOWERS BLOOD PRESSURE MORE THAN ORLISTAT PLUS A LOW-FAT DIET C.L. Boling[1]; A.S. Jeffreys[2]; J.R. Mcduffie[1]; S.C. Grambow[2]; E.Z. Oddone[2]; J. Bolton[2]; A.M. Chalecki[2]; W.S. Yancy[2]. [1]Durham Veterans Affairs Medical Center, Durham, NC; [2]Duke University, Durham, NC. *(Tracking ID # 205721)*

BACKGROUND: When used for weight loss, both the low-carbohydrate ketogenic diet (LCKD) and orlistat plus a low-fat diet (OLFD) have been shown to lower blood pressure (BP), but no randomized trial has compared them for this effect. Our objective was to determine whether the LCKD lowers BP more than OLFD.
METHODS: Veterans with a body mass index >27 kg/m2 were recruited from the Durham Veterans Affairs Medical Center outpatient clinics and randomly assigned to an LCKD without caloric restriction (n=72) or OLFD with calorie restriction (n=74). At entry LCKD participants were counseled to discontinue or reduce diuretic medication dosages due to the diet's known diuretic effect. Following published guidelines, BP was measured twice and averaged at each visit. We examined change in systolic (SBP) and diastolic (DBP) blood pressure from baseline using linear mixed-effects models. Reduction in antihypertensive medication was assessed as a dichotomous variable (reduced dose and/or number of medications vs. others).
RESULTS: Participants were 72% male, 55% Black, 42% White, 67% with hypertension; mean age was 52 years. Weight loss in the LCKD and OLFD arms was similar at 48 weeks (-11.4 vs. -9.6 kg; p=0.41). The mean change in SBP from baseline was greater in the LCKD than OLFD at 4 weeks (-0.5 vs. +0.1 mmHg; p<0.001), 24 weeks (-3.0 vs. +0.7 mm Hg; p<0.001) and 48 weeks (-5.9 vs. +1.5 mmHg; p<0.001). The mean change in DBP was greater in the LCKD than OLFD at 4 weeks (-1.1 vs. -0.7 mmHg; p=0.1), 24 weeks (-4.6 vs. -2.2 mmHg; p=0.02) and 48 weeks (-4.5 vs. +0.4 mmHg; p<0.001). More LCKD than OLFD participants had a reduction in BP medication at 48 weeks (47% vs. 21%).
CONCLUSION: The LCKD was more effective than OLFD for lowering blood pressure and reducing the need for antihypertensive medication despite similar weight loss between the groups. Our study shows that a dietary intervention worked better than a weight loss drug-diet combination for blood-pressure lowering. The LCKD holds potential to

improve the health and costs for patients through the reduction of weight, blood pressure, and blood pressure medications.

A MEDICATION RECONCILIATION AND EDUCATION STRATEGY FOR AMBULATORY CARE M.S. Wolf[1]; J. Webb[1]; D. Baker[1]; G.T. Makoul[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 206012)*

BACKGROUND: Prior studies have shown that patient-provider communication about medications is inadequate. Patients tend to have a limited understanding of medication instructions and warnings, and are often uncertain about side-effects. Moreover, ineffective communication and decision making may be one reason that many prescriptions go unfilled or unused. In addition, discrepancies between medication lists and actual use are common and have a detrimental impact on patient safety. Previous studies have not included patients in systematic efforts to redesign the process of reviewing current medications and discussing new medications. Our objective is to detail a practical medication reconciliation and patient education strategy for ambulatory practice in order to improve medication management and patient understanding of medications. The intervention uses a continuous quality improvement (CQI) approach to 1) engage both clinic staff and patients in medication reconciliation activities, and 2) leverage the electronic health record to support clinician communication around prescription medications and generate low literacy print materials explaining their use.
METHODS: A Patient-Physician working group was created consisting of clinic staff, physicians, and research staff (N=15) to create a medication reconciliation strategy for use in an ambulatory care. A protocol was created and initially pilot tested among clerical staff (n=4), nurses (N=4), physicians (N=2), and patients (N=45). The clinic protocol used patient information materials, medication organizers, and medication information sheets to assist in the medication reconciliation and patient education process. Post-pilot interviews were conducted among medical faculty and staff to determine feasibility; a sample of 20 nurse-patient encounters were timed before and during the pilot to assess the additional time these activities required with the identified protocol.
RESULTS: Preliminary data from our pilot test shows that the average time the reconciliation process added on to a nurse-patient encounter was 13 seconds. No problems were identified by clinicians or staff on the implementation of the reconciliation and education protocol. While not the intent of the pilot, 80% (n=36) of the patients' medication lists were reconciled by the physician during the clinical encounter.
CONCLUSION: This study integrates interventions that target patients, providers, and the overall practice system. Initial findings are promising, and the intervention currently being evaluated in a controlled trial, may likely prove to be effective with the potential for rapid adaptation and dissemination among those practices that use an EMR.

A META-ANALYSIS OF THE EFFICACY OF NON-PHYSICIAN BRIEF INTERVENTIONS FOR UNHEALTHY ALCOHOL USE: IMPLICATIONS FOR THE PATIENT-CENTERED MEDICAL HOME L.E. Sullivan[1]; J.M. Tetrault[1]; R.S. Braithwaite[2]; D.A. Fiellin[1]. [1]Yale University, New Haven, CT; [2]Yale University, West Haven, CT. *(Tracking ID # 205552)*

BACKGROUND: Unhealthy alcohol use is common in primary care yet few patients are counseled about their alcohol use by their physician. Physician-based brief interventions are modestly effective at decreasing alcohol consumption but physicians often do not have the time to conduct these interventions. Whether other personnel, in the context of the patient-centered medical home, could conduct effective brief interventions is not known. The purpose of this meta-analysis was to examine the efficacy of brief interventions by non-physician clinicians for patients with unhealthy drinking in primary care.
METHODS: We identified English language studies by searching the electronic databases; MEDLINE (1967 to January 2008), PsychInfo (1967-January 2008), the Cochrane Drug and Alcohol Group specialized register (to 1st quarter 2008), CINAHL (1982-January 2008), and the Social Sciences Citation Index (to 1st quarter 2008) and Science Citation Index (to 1st quarter 2008). Studies were included if they had alcohol as their primary focus, were based in primary care, were not solely physician-based, examined drinking outcomes, and consisted of a behavioral intervention. Three reviewers independently abstracted quantitative and qualitative data. A kappa statistic of 0.2 between the reviewers indicated 92% (fair) agreement on inclusion of studies. Study quality was evaluated according to U.S. Preventive Services Task Force criteria. Studies were excluded from the meta-analysis if they did not provide measures of central tendency and variance for drinking outcomes. We combined drinking outcomes at 6 months using the random effects method, performed sensitivity analyses excluding studies that contributed disproportionately to heterogeneity, and evaluated for publication bias. The meta-analysis was conducted with and without the one study that appeared to contribute disproportionate heterogeneity.
RESULTS: 13 randomized clinical trials met initial criteria. All studies had a usual care arm, consisting of brief advice from either a physician or other clinician. Sample sizes ranged from 28–1329 subjects, intensity of intervention ranged from a single 5 minute session to six 90-minute sessions. Six studies examined physician vs. non-physician clinician interventions, two examined physician plus non-physician clinician interventions, and five examined different intensities of non-physician clinician interventions. Eleven studies examined harmful/hazardous drinking and two studies examined alcohol abuse/dependence. The quality of seven studies was rated as fair while six were rated as poor. Seven studies (2633 patients) met criteria for inclusion in the meta-analysis. The interventions lowered the mean drinks per week by 1.7 standard drinks compared with the control arms (95% CI, -0.03–3.5; p=0.054). When excluding the one study that contributed disproportionate heterogeneity, the non-physician interventions lowered the mean standard drinks per week by 1.4 standard drinks compared to the control arms (95% CI, 0.3 to 2.4; p=0.012).
CONCLUSION: Non-physician interventions are effective in producing reductions in alcohol consumption at 6 months in unhealthy drinkers in primary care. These findings have implications for their implementation within the patient-centered medical home.

A MIND-BODY PROGRAM FOR OLDER ADULTS WITH CHRONIC LOW BACK PAIN: RESULTS OF A PILOT STUDY N.E. Morone[1]; B. Rollman[1]; L. Qin[1]; D. Weiner[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205786)*

BACKGROUND: Chronic pain is common among older adults; it is frequently under treated, and will only become a bigger problem with the aging of the American population. Low back pain is the most frequently reported regional musculoskeletal problem among older adults. Mind-body therapies for pain are poised to meet the demand for enhanced pain treatment in the older adult because they do not involve potentially toxic pharmacotherapy and address the psychological as well as physical dimensions of pain.
METHODS: We conducted a pilot randomized education controlled trial of a mind-body method known as mindfulness meditation among 40 older adults, age 65 years and older with chronic low back pain. We also piloted the education control program to inform the design of a future larger clinical trial. Chronic pain was defined as moderate pain that occurred daily or almost every day. Twenty participants were randomized to the intervention (an 8 week mindfulness meditation program modeled on the Mindfulness Based Stress Reduction program) and 20 were randomized to an education control program. The education program, like the intervention, consisted of 8 weekly 90 minute sessions and discussed topics such as causes of low back pain, pharmacotherapy for low back pain, nutrition and Alzheimer's disease. The same measures were obtained for both groups at baseline, at the end of the 8 week meditation or control program, and 4 months after program completion. Quality of life was measured with the SF-36 Pain scale and SF-36 Role Limitations Due to Emotional Problems scale, disability with the Roland and Morris Disability Questionnaire (that is specific to the low back), pain with the McGill Pain Questionnaire-Short Form and self-efficacy with the Chronic Pain Self-Efficacy Scale. We used descriptive statistics and generalized estimating equation to evaluate change over time between the two groups.
RESULTS: Sixteen participants (80%) completed the meditation program and 19 (95%) the education program. Mean age of the sample was 78 years for the intervention group and 73 years for the control group. This difference was statistically significant (P=0.03) and all outcome measures were adjusted for age during subsequent analyses. The SF-36 Role Limitations Due to Emotional Problems scale showed statistically significant improvement at program completion for the intervention group as compared to the control group (P=0.03). The other measures were not significant but in the expected direction for the intervention group and in the expected direction for the control group as well, both at program completion and 4 month follow-up. The meditation group practiced mindfulness meditation a mean of 5 days/week (range 1–7) and mean of 31 minutes/session (range 22–48). At 4 months follow-up 14/16 (88%) participants continued to meditate.

CONCLUSION: Mindfulness meditation may improve the quality of life of older adults with chronic low back pain. However, both the education control group and intervention group improved on most outcome measures suggesting the education control program had unexpected beneficial effects and possibly decreased the effect of the intervention. Designing an appropriate control group is a challenge to mind-body randomized controlled trials. Piloting the control program can inform the design of larger clinical trials.

A MORE COMPLETE PICTURE OF READMISSIONS FOR POTENTIALLY PREVENTABLE CONDITIONS – THE IMPACT OF INCLUDING VISITS TO THE ED C.A. Steiner[1]; M. Barrett[2]; J. Jiang[3]; B. Friedman[3]; C. Merrill[4]. [1]Agency for Healthcare Research and Quality, Rockville, MD; [2]Thomson Reuters, San Diego, CA; [3]AHRQ, Rockville, MD; [4]Thomson Reuters, Clifton, VA. *(Tracking ID # 205671)*

BACKGROUND: High hospital readmission rates for potentially preventable conditions may suggest substandard quality of hospital care or poor outpatient follow-up care. Previous research has primarily focused on inpatient (IP) readmissions without accounting for patient re-visits to the emergency department (ED). The primary objective of this study is to evaluate the additional utilization / cost impact of factoring in re-visits to the ED for selected potentially preventable conditions.
METHODS: This study was a two-year retrospective, observational cohort study using all-payer state-wide hospital IP and ED data from the 1995 – 1996 Health Care Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and State Emergency Department Databases (SEDD) for four states: AZ, NE, NY, and TN. State-specific results are not reported in this abstract, rather data are presented in aggregate for the four states. Study participants included patients admitted to the hospital or seen in the ED for five potentially preventable conditions as defined by the AHRQ Prevention Quality Indicators (PQIs) (based on principal diagnosis): asthma, diabetes, congestive heart failure (CHF), bacterial pneumonia, and pediatric gastroenteritis. Using encrypted patient identifiers and discharge dates, visits were aggregated by unique patients and the index visit was flagged. The main outcome measure was re-visits to the hospital and/or ED during the two-year period after the index encounter. Records were analyzed by several patient, payer, and geographic characteristics, including patient age, gender, expected payer, community-level income and urban-rural location.
RESULTS: ED visits more than doubled the number of encounters for the selected PQI conditions from 580,000 IP events to about 1.2 million events and increased hospital charges by $630 M to nearly $12B. About 84% of these visits were among patients seen once in the study period; 16% of patients experienced a re-visit for the same condition. Patients treated in the ED had more re-visits for the same condition than patients seen in the IP setting: the additional ED visit data increased the overall re-visit percentage by 23%. The impact of ED data varied by PQI condition. Pediatric gastroenteritis and asthma encounters occurred 84% and 78% of the time in the ED, respectively. In contrast, ED visits added relatively less for CHF, with ED data representing about 11% of all CHF visits. Visit rates differed substantially by patient populations, payer groups, and States. For example, the elderly were half as likely to use the ED for asthma visits compared to adults and children. From a payer / State perspective, uninsured children in NY seen for gastroenteritis had higher re-visit rates within one-month of their index visit compared to those who were always insured; whereas, the opposite was true for uninsured children in TN. These payer findings were largely influenced by the addition of ED data.
CONCLUSION: This innovative study demonstrates that a substantial portion of re-visits manifest as ED encounters cautioning against the sole use of IP stays as an indicator of hospital quality without accounting for patient visits to the ED. Findings can provide insights to policymakers when designing strategies to reduce visits for potentially preventable conditions. A more comprehensive analysis of hospital visits by including ED visits is likely to alter inferences and interventions aimed at reducing re- admission rates for potentially preventable conditions.

A MULTIMODALITY OUTPATIENT QUALITY IMPROVEMENT INTERVENTION USING PRECISION PERFORMANCE MEASUREMENT EMBEDDED WITHIN AN ELECTRONIC HEALTH RECORD S.D. Persell[1]; D.D. Kaiser[2]; N.C. Dolan[1]; E.M. Friesema[1]; J.A. Thompson[1]; B. Andrews[3]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL; [2]Northwestern Medical Faculty Foundation, Chicago, IL; [3]Northwestern University, Evanston, IL. *(Tracking ID # 205528)*

BACKGROUND: Quality improvement (QI) strategies such as audit and feedback, reminders, and clinical decision support (CDS) have achieved modest improvements. A limiting factor is that many apparent quality failures are due to unmeasured contraindications or patient refusals (exceptions). This limits the ability to identify patients with true quality deficits. Capturing exceptions should allow for more accurate measurement and more accurate CDS and outreach.
METHODS: The study was done at a large academic internal medicine practice (37 attendings, 43,900 patients per year) with an electronic health record (EHR). We programmed 16 chronic disease and preventive care quality measures into the EHR CDS and implemented a QI intervention for all patients in the practice consisting of reminders with linked order sets, standard ways to document patient or medical exceptions, and performance feedback and monthly lists of patients not receiving essential medications to physicians. We used recorded exceptions for focused QI activities (peer review and academic detailing, counseling about drug costs, and educational outreach to patients refusing services). The primary outcome was the proportion of patients eligible for each measure without a quality deficit (either met the measure or had an exception recorded). Secondary outcomes were (1) the proportion that met the measure and (2) the proportion with exceptions. We conducted time series analyses using data extracted from the EHR to determine changes in quality over the 10 months of the intervention and the statistical significance of changes in the rate of improvement during the intervention period compared to the previous year.
RESULTS: For 9 measures, the proportion of patients without a quality deficit improved significantly over the 10 month implementation: antiplatelet in coronary heart disease (CHD) (improved from 90.2% to 95.3%), lipid drug in CHD (87.9% to 93.2%), ACE inhibitor in diabetes (DM) and CHD (83.7% to 88.9%), beta blocker after myocardial infarction (91.0% to 94.3%), beta blocker in heart failure (HF) (83.6% to 89.8%), anticoagulation in atrial fibrillation (AFib) and HF (65.1% to 87.6%), LDL control in DM (52.8% to 58.2%), aspirin in DM (78.6% to 91.9%), and nephropathy screening or treatment in DM (81.2% to 86.8%) ($p<0.05$ for all changes in time trends). Many physicians reached 100% on these measures. For 4 other measures, the proportion without a quality deficit improved significantly, but the rate of improvement was not significantly different from the previous year: pneumococcal vaccination (81.1% to 89.2%); cervical cancer screening (80.5% to 87.2%), osteoporosis screening or treatment (77.9% to 82.5%); and colon cancer screening (58.2% to 60.7%); $p<0.001$ for improvement, $p>0.05$ for difference in rate of improvement. ACE inhibitor in HF, HbA1c control in DM, and mammography did not improve. Some measures improved largely due to an increase in patients receiving the service (e.g., aspirin in DM), while others (e.g. anticoagulation for AFib) changed largely from documentation of exceptions; most changes were a combination of both.
CONCLUSION: A multimodality QI intervention significantly improved quality for 9 of 16 measures; pre-existing improvement trends were sustained for 4 others. As the number of quality measures proliferates, this approach could help practices use EHRS to improve quality measurement, CDS and outreach, and achieve very high quality care for many measures simultaneously.

A MULTIVARIATE APPROACH TO IDENTIFYING DISPARITIES IN THE QUALITY OF CARE WITHIN A GENERAL INTERNAL MEDICINE PRACTICE M. Jean-Jacques[1]; S.D. Persell[1]; R. Hasnain-Wynia[1]; J.A. Thompson[2]; D.W. Baker[1]. [1]Northwestern University Feinberg School of Medicine, Chicago, IL; [2]Northwestern University, Chicago, IL. *(Tracking ID # 205825)*

BACKGROUND: Equity is an important element of quality. To track inequities in health care, experts recommend that health care organizations collect quality data stratified by race/ethnicity. However, it is important to adjust for socioeconomic status (SES) and other covariates to assess the true magnitude of disparities. Furthermore, focusing only on race/ethnicity may miss other important disparities, such as those due to age, gender, and health insurance. To more accurately identify disparities in the quality of care within an ambulatory care practice, we examined racial/ethnic differences in quality before and after adjusting for SES and other covariates.
METHODS: This study was conducted in an academic general internal medicine practice with 37 physicians serving 43,900 patients. Since 2006, the practice has used data from its comprehensive electronic health record system (EHRS) to assess quality of care for 18 measures

of preventive and chronic disease care. For each quality measure, we calculated the proportion of eligible patients with a quality deficiency as of January 1, 2008. We first used chi-square analysis to determine whether demographics (race/ethnicity, gender, and age), health insurance (commercial, Medicare, Medicaid, or self pay), or zip code-level measures of SES were univariate predictors of quality. Demographics and insurance are recorded in the EHRS by registration staff. SES was imputed using 2000 U.S. Census data on the median household income and proportion of high school graduates in the patient's zip code. We then used multivariate logistic regression models with the presence of a quality deficiency as the dependent variable and demographics, health insurance, and zip code-level SES as the independent variables to identify which factors were associated with having a quality deficiency.
RESULTS: In univariate analyses, we found significant racial/ethnic disparities in quality for 9 of the 18 measures. The absolute magnitude of the disparity ranged from 3.2% for cervical cancer screening to 14.1% for osteoporosis screening or treatment. After adjusting for demographic, insurance, and SES variables, the racial/ethnic disparity remained significant for 3 measures: antiplatelet therapy for patients with coronary heart disease, osteoporosis screening or treatment, and screening or treatment for diabetic nephropathy (OR 1.9, 1.8, and 0.6 respectively for black patients having a quality deficiency relative to white patients, $p<0.05$ for all). Significant disparities were also found by gender, insurance status, or SES for most quality measures by univariate analyses, and these remained significant for 3 of 5 measures by gender, 5 of 10 measures by insurance, and 2 of 4 measures by SES in multivariate models.
CONCLUSION: The observed patterns of healthcare disparities differed substantially depending on whether we examined the univariate or multivariate results. This suggests that current expert recommendations to collect and report quality data stratified by race/ethnicity are inadequate. Not adjusting for covariates can give spurious findings for the presence and magnitude of racial/ethnic disparities. Moreover, solely focusing on race/ethnicity obscures other important determinants of quality. The use of zip code-level, or even more specific geospatial, measures of SES provides a way to overcome the lack of direct data on patient income or education and allows for routine multivariate analysis of healthcare disparities to help inform improvement initiatives.

A NOVEL RISK INDEX PREDICTS DISABILITY OR DEATH IN HOSPITALIZED OLDER PATIENTS K.M. Mehta[1]; E. Pierluissi[1]; W. Boscardin[1]; K. Kirby[1]; C.S. Landefeld[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205702)*

BACKGROUND: More than 25% of hospitalized older adults are discharged with a new disability in activities of daily living. Our objective was to develop and validate a risk index to predict disability or death at hospital discharge among older adults who were independent in all activities of daily living (ADL) 2 weeks before hospitalization.
METHODS: We developed this prognostic index in 885 patients >70 yrs admitted to the general medical service of a teaching hospital (mean age, 78 years; 59% female; 1% died) and validated it in 753 patients >70 yrs admitted to another teaching hospital (mean age, 79 years; 63% female; 2% died). At baseline, two weeks before admission, all patients were independent in five ADLs (bathing, dressing, transferring from bed to chair, using a toilet and eating). New-onset disability was defined as dependence in >1 ADL at hospital discharge. Independent predictors of disability or death were identified using multiple logistic regression with a best subsets method of variable selection. Independent predictors were weighted to create a risk index.
RESULTS: Disability or death developed in 28% of the development cohort (242 disabled, 10 dead) and in 33% of the validation cohort (231 disabled, 15 dead). The average length of hospital stay was 6 days. In the development group, new-onset disability or death was associated ($P<0.01$) with 7 independent predictors, with the following proportions of disability/death and point weights: Age: 70–79 (new disability or death in 21%; 0 points), 80–89 (37%; 1 point), and 90 (60%; 2 points); Cognitive impairment defined as five or more errors on the Short Portable Mental Status Questionnaire or inability to perform the test (60% vs. 22%; 2 points); albumin <3.0 g/dl (50% vs. 26%; 2 points), acute stroke or metastatic cancer (53% vs. 25%; 2 points); dependence in three or more ADLs at admission (58% vs. 23%; 2 points); dependence in three or more instrumental activities of daily living two weeks before admission (67% vs. 25%; 2 points); and mobility two weeks before admission (14% if able to run short distance, 0 points; 30% if able to walk uphill,1 point; 48% if only able to walk a block or less, 2 points). The acute physiology score, a comorbidity score, and other specific diagnoses were not independent predictors of new disability or death. In the development group, new disability or death occurred in 10% of patients with 0 or 1 points, 25% with 2–3 points, 42% with 4–5 points, 70% with 6–8 points, and 97% with >9 points (ROC area 0.785). In the validation group, new disability or death occurred in 11% of patients with 0–1 points, 31% with 2–3 points, 46% with 4–5 points, 69% with 6–8 points, and 96% with >9 points (ROC area 0.776).
CONCLUSION: Using variables that are easily obtained at admission, this prognostic index accurately stratifies hospitalized older adults according to their risk of new-onset disability or death. This index demonstrates the importance of physical, cognitive, and nutritional reserve in avoiding functional decline in the hospital.

A PATIENT PANEL SUPPORT TOOL IMPROVED CARE IN DIABETES AND CARDIOVASCULAR DISEASE A.C. Feldstein[1]; N.A. Perrin[1]; R. Unitan[2]; A. Rosales[1]; G. Nicholas[1]; D.H. Smith[1]; M.M. Rix[1]; C.M. Davino[3]; W. Hu[1]; N. Louie Lee[3]. [1]The Center for Health Research, Kaiser Permanente Northwest, Portland, OR; [2]Northwest Permanente, Portland, OR; [3]Kaiser Permanente Northwest, Portland, OR. *(Tracking ID # 204714)*

BACKGROUND: Substantial differences exist between guideline recommendations for care of patients with diabetes mellitus (DM) or cardiovascular disease (CVD) and the care patients actually receive. Clinician access to patient panel data and to follow-up tools from electronic medical records, may improve care but studies documenting such improvements are lacking. The study objective was to evaluate whether a patient panel support tool (PST) assisted physicians in meeting care needs for patients with DM and CVD. The PST used in this study is an electronic interface that gathers and displays easily accessible information on patient care needs to clinicians in real time.
METHODS: A retrospective longitudinal cohort study was conducted among primary care providers (PCPs) at Kaiser Permanente Northwest, a not-for-profit group-model health maintenance organization that has used an electronic medical record since 1996. Qualifying PCPS had patient panels from 2005–2007, and at least 20 DM or CVD patients per month; 167 PCPs were entered in DM analyses and 143 in CVD analyses. Eligible patients were identified from electronic databases, had DM or CVD, and had at least 12 months of continuous membership; 30,273 DM and 26,414 CVD patients were included. The intervention consisted of use of an electronic PST that displays "care gaps" in screening, medication use, risk factor control, and immunizations for each patient in a PCP's panel, based on current evidence. The PST was gradually implemented in 2006 for all PCPs. Thus, we used 2005 as the pre-intervention period, 2006 as the intervention-implementation period, and 2007 as the post-intervention period. We estimated intervention effect using hierarchical linear models. The main study outcome measure was the mean percent of care needs met by PCPs (equally weighting indicators of monitoring and control of hemoglobin A1c, low-density lipoprotein cholesterol, and blood pressure; screening for retinopathy, nephropathy; and foot-health; use of aspirin, statin, angiotensin converting enzyme inhibitors, or beta blockers; and receipt of influenza and pneumococcal vaccinations
RESULTS: The mean unadjusted percent of care recommendations met by PCPs, per patient per month, for 2005, 2006, and 2007 was 63.5, 65.7, and 70.6, respectively, for DM, and 67.9, 69.4, and 72.6, respectively, for CVD patients. After adjusting for differences in PCP characteristics, patient characteristics, and pre-intervention trends, between 2005 (pre-intervention) and 2007 (post-intervention) DM patients had a mean improvement in having their care needs met of 7.64%, and CVD patients had a mean improvement in having their care needs met of 5.10% ($p<0.001$).
CONCLUSION: A PST increased the percent of care recommendations met for patients with DM and CVD. Our study is the first we know of to report on the effects of a PST on patient care. In the presence of an electronic medical record, the implementation of patient panel data and tools should broadly improve the ability of PCPs to meet care recommendations for their patients with DM and CVD. Further work will be necessary to optimize results and to determine if these interventions improve patient outcomes.

A PILOT EVALUATION OF PHYSICIANS' ADOPTION OF ROUTINE HIV SCREENING IN PRIMARY CARE L.E. Sullivan[1]; P.G. Bashook[2]; M. Bass[2]; M.I. Edison[2]; G. Berkenblit[3]; J. Cofrancesco[3]; R.L. Cook[4]; T. Korthuis[5]; J.M. Sosman[6]. [1]Yale University, New Haven, CT; [2]University of Illinois at Chicago, Chicago, IL; [3]Johns Hopkins University, Baltimore, MD; [4]University of Florida, Gainesville, FL; [5]Oregon Health & Science University, Portland, OR; [6]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 205342)*

BACKGROUND: Many questions exist about the feasibility and optimal strategies for implementing the CDC's HIV screening guidelines in office based primary care settings where HIV prevalence is often low. We used a mixed-methods approach to describe perceived successes and failures in implementing routine HIV screening in general medicine practices.
METHODS: The SGIM HIV Prevention Program initiated a 6-month multi-site pilot project to assess knowledge, attitudes and behaviors of a national cohort of practicing general internist Clinician Advisors (CA) as they attempted to implement the CDC's guidelines for routine HIV screening. Longitudinal data were collected through surveys at baseline, 3- and 6-months, weekly reports, monthly conference calls, and focus groups. We used standard qualitative data analysis methods to analyze conference call data (grounded theory techniques) and compared conference call findings with survey data to determine likely barriers and facilitators of HIV screening in primary care.
RESULTS: Eight practicing physicians participated as CAs: most were women (n=6) and 75% were white; average age was 42 years. Five were working in public general medicine clinics and all worked with resident physicians. At baseline, 6 of 8 CAs reported offering HIV screening to high-risk patients only, (injection drug users, men having sex with men, sexually active individuals, pregnant women) while 2 reported performing HIV screening on all patients. After 6 months, this increased to 6 of 8 CAs reporting that they offered routine HIV screening to all of their patients. The most frequent barriers identified at baseline included competing priorities at time of visit (8), lack of time (6), patient reluctance/refusal (5), cultural (4) or language (3) issues. After participating in the screening effort for 6 months, fewer CAs reported these barriers, but did report forgetting to ask (4), and viewing their patients as low risk (3). The CAs identified potential facilitators: risk reduction counseling training for office staff (5), screening promotion literature for patients (6), and reimbursement for screening (5). During the 6 months, CAs saw 2226 patients: 558 (25%) were determined to be eligible for routine screening, 330 (59%) were offered screening, 215 (65%) accepted, and none were positive for HIV infection. Overall themes at the end of the pilot study included: patient awareness of screening recommendations should occur prior to the clinician encounter; clinic-specific systems of care both facilitated and created barriers to the implementation of routine screening; CAs had difficulty transitioning to routine HIV screening when they have traditionally focused on risk-based screening; resident physicians were effective in implementing routine screening; and enthusiasm waned as the "clinic hassle factor" increased and no HIV cases were identified.
CONCLUSION: At baseline, the majority of general internist Clinician Advisors (CA) reported HIV screening only at-risk patients but this proportion increased during the evaluation period. Barriers to routine screening included time issues and patient refusal, while facilitators included staff and patient education, and increased reimbursement. Implementation strategies should encourage community awareness of the recommendations. Successful uptake of routine HIV screening must be clinical site and practice specific and providers need additional guidance in adopting routine as opposed to risk-based screening.

A PILOT STUDY OF ALCOHOL BRIEF INTERVENTION USING INTERACTIVE VOICE RESPONSE TECHNOLOGY IN PRIMARY CARE C.D. Maclean[1]; G. Rose[1]; T. Ferraro[1]; G. Badger[1]; J. Skelly[1]; J.E. Helzer[1]. [1]University of Vermont, Burlington, VT. *(Tracking ID # 204480)*

BACKGROUND: Interactive voice response (IVR) technology has been used to screen for alcohol use disorders and as an adjunct to alcohol treatment. Physician delivered Brief Intervention (BI) has been shown to reduce problem drinking in primary care, but is underused because of under-diagnosis, office visit time pressure, provider discomfort, and system-level impediments. We developed an IVR system to both screen for alcohol misuse and to deliver brief intervention advice—the IVR-BI system. The IVR-BI is designed to overcome barriers to provider BI and deliver the intervention to the greatest number of suitable patients. Our study objectives were to pilot test the IVR-BI for feasibility, patient acceptance, and clinical effect.
METHODS: Subjects were selected from patients presenting at a primary care practice in Burlington, Vermont. They completed a pre-visit IVR-screen including two items about alcohol: 1) "Do you feel you drink more than you should?" Responses: "Yes, No, Not sure" and 2) "How often do you drink more than [4 drinks (women) 5 drinks (men)] on a single occasion?" Responses: "Never; <1/month; 1/month; 1/week; Daily or almost daily". Positive screening for alcohol misuse was defined as "Yes" or "Not sure" for question 1, or any answer but "Never" for question 2. Screening results were printed for the patient and attached to the chart for provider review. Subjects who screened positive were invited to complete the IVR-BI which consisted of branching recommendations based on National Institute of Alcohol Abuse and Alcoholism guidelines. The IVR-BI supplied advice on low-risk drinking, goal setting, cutting down, quitting, and referral options for further evaluation and treatment. Two interviews were conducted following the IVR-BI. Four days after the clinic visit subjects were asked questions regarding their experience with the IVR system and their alcohol consumption during the two weeks prior to the office visit. At two weeks a second interview obtained subjects' interval alcohol consumption. Mean consumption pre and post intervention were compared using paired t-tests.
RESULTS: One hundred eighty-eight subjects completed the IVR screen and 83 (44%) screened positive. Of these 83 subjects invited to complete the IVR-BI, 38 (46%) initiated and 34 (41%) completed the IVR-BI. Thirty subjects (36%) completed the follow up interview comprising the study population. The median age was 43 years (range 24–64) and 57% were male. The IVR-BI was evaluated favorably by participants. Most (80%) said the IVR-BI made them more aware of how much they were drinking, and 40% said it motivated them to make a change. 45%discussed their drinking with their provider during the office visit that followed the IVR-screen. Of those 14 subjects, most (75%) were as comfortable or more comfortable with the IVR-BI compared with the provider discussion. Most subjects reported being equally honest in reporting drinking behavior to the IVR system compared with the provider. Regarding consumption, subjects reduced their drinking from 10.4 to 7.4 drinks per week after the IVR-BI [mean change -3.0, 95% CI:-6.2 to 0.2 p=0.06]. Additionally, mean number of drinks per drinking day decreased from 2.9 to 2.2 [mean change -0.7, 95% CI: -1.6 to 0.1 p=0.09].
CONCLUSION: IVR technology is a feasible method for conducting alcohol screening and brief intervention in a primary care setting. Pilot data suggest a beneficial effect on alcohol consumption. A large scale randomized trial is planned.

A PILOT STUDY USING PARTIAL MEAL REPLACEMENT FOR WEIGHT LOSS IN LOW-INCOME PATIENTS A. Barnes[1]; K. Goodrick[2]; V.N. Pavlik[1]; O. Olivarez[3]; D.J. Hyman[1]. [1]Baylor College of Medicine, Houston, TX; [2]University of Texas Medical School, Houston, TX; [3]Harris County Hospital District, Houston, TX. *(Tracking ID # 205673)*

BACKGROUND: Overweight and obesity disproportionately affect ethnic minority and low-socioeconomic groups.(1) Estimates suggest that as many as 80% of primary care patients seen in public hospital outpatient facilities are overweight or obese.(2, 3) Partial meal replacements (PMR) have been shown to induce significant weight loss in obese individuals.(2, 7–13) Studies report that individuals who use PMR as a part of their diet strategy find compliance easier than other diet plans.(7) The current pilot study was designed to examine weight loss using PMR in a low-income patient population. Data from the study will add to the literature regarding the use of PMR in outpatient clinics as well as its utility in low-income patients.
METHODS: Adult patients who were referred to an existing multidisciplinary (physician, health education, dietitian) weight management clinic in a large public healthcare system in the southwest United States were invited to participate in an 8 week meal replacement pilot study. Twenty-one patients consented to participate and 19 completed the study. Pilot study participants completed the Impact of Weight Quality of Life Questionnaire (IWQOL) at the beginning and end of the study. The use of PMR was described by the clinic dietitian. Patients were given meal replacement products (Slim-Fast, Slim-Fast Foods, Co., Fl, USA) at no charge: 2 meals and 2 snacks in either liquid or bar form. Patients were asked that their third meal of the day follow the sensible plate model (1/4 protein, 1/4 carbohydrate, and 1/2 vegetables). Patients returned to clinic for weight measurement and follow up every 2 weeks following the standard protocol for the clinic for a total of 8 weeks. Study participant weight loss was compared via a retrospective chart review to 11 patients within the weight management clinic who were seen within a year of the study, who had 8–11 week follow up weights measured, and who did not use meal replacement.
RESULTS: The average baseline weight and BMI of PMR participants was 264.46 lbs and 43.94, respectively. The average baseline weight

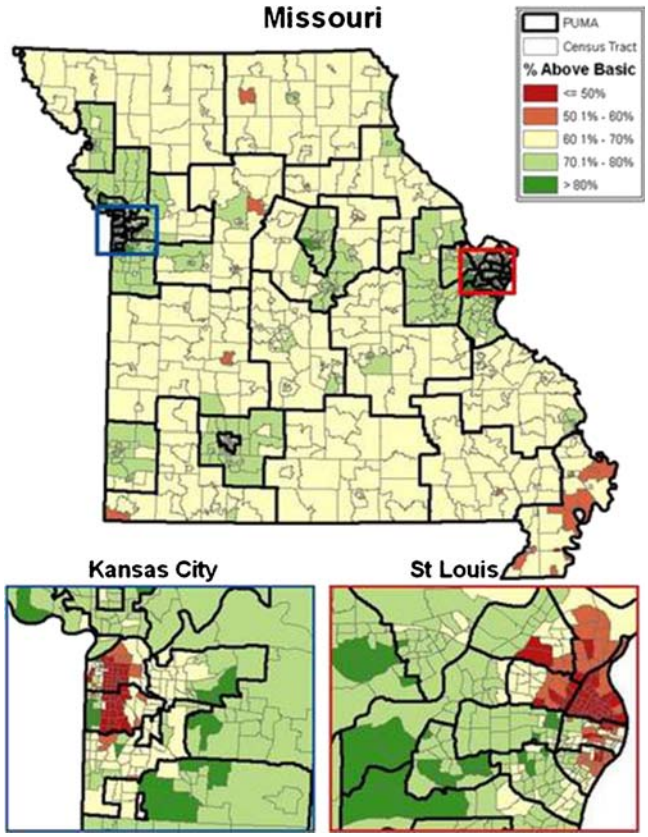
and BMI of comparison patients was 291.41 lbs and 48.51, respectively. PMR participants and comparison patients within the weight management clinic both lost a significant amount of weight (6.84 lbs [CI 95=3.83, 9.86] and 5.57 lbs [CI 95=2.74, 8.41], p<0.001). There was no statistically significant difference in weight change over 8–11 weeks between the groups. Meal replacement participants experienced improved quality of life in five domains as measured by the IWQOL. There was greatest improvement in perceived the domain of physical function.
CONCLUSION: Patients in this low-income population were able to understand and use a partial meal replacement plan for weight loss. Low-income patients using PMR can lose a significant amount of weight.

A POSITIVE PHQ-2 DEPRESSION SCREEN AMONG HOSPITALIZED CHF PATIENTS PREDICTS CARDIOVASCULAR MORBIDITY AT 6-MONTHS FOLLOW-UP B.L. Rollman[1]; B. Herbeck Belnap[1]; S. Mazumdar[1]; P. Houck[1]; D.M. Mcnamara[1]; R.J. Alvarez[1]; H.C. Schulberg[2]; C.F. Reynolds[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Cornell University School of Medicine, White Plains, NY. *(Tracking ID # 205360)*

BACKGROUND: Congestive heart failure (CHF) affects over 5 million Americans, with more than 660,000 newly diagnosed cases, 280,000 deaths, and $35 billion in direct and indirect costs yearly. Various care management programs to improve delivery of evidence-based CHF interventions have been developed and proven effective at reducing hospital readmissions and cardiovascular morbidity. Still, patients continue to experience 20–25% annual mortality following hospitalization for CHF. One potential contributor to persistently poor outcomes is unrecognized and/or inadequately treated depression. Approximately 11–50% of CHF patients report elevated levels of mood symptoms depending on treatment setting, disease severity, and screening strategy. Yet while strong evidence links mood symptoms to increased morbidity and mortality independent of cardiac disease severity, CHF patients are not routinely screened for depression. A recent American Heart Association science advisory advocated use of the time-efficient two-item Patient Health Questionnaire (PHQ-2) to screen patients with cardiovascular disease for depression (Circulation, 2008; 118:1768). However, the practicality of this strategy has yet to be tested, and it is unclear whether screening and treating CHF patients for depression will improve clinical outcomes.
METHODS: We administered the PHQ-2 to CHF patients hospitalized with an ejection fraction (EF) <40% and NYHA class II-IV symptoms prior to discharge from 4 Pittsburgh-area hospitals. We categorized those who endorsed either item as having a positive screen for depression (PHQ-2 (+)), and those who endorsed neither item as having a negative screen (PHQ-2 (-)). We collected sociodemographic and clinical data at baseline, then followed patients up to 6-months later to determine rehospitalization and vital status. We applied Kaplan-Meier analyses to determine rates of death and/or first rehospitalization, and log-rank tests to evaluate differences for statistical significance.
RESULTS: Over a 10-month period ending 10/31/08, hospital staff collected HIPAA consents from 632 inpatients of whom 461 (73%) consented to undergo our screening procedure; 405 (88%) completed the PHQ-2; and 384 (95%) met all other eligibility requirements. Compared to PHQ-2 (-) patients (n=64), PHQ-2 (+) patients (n=320) were younger (65 vs. 71), more likely to have NYHA III/IV symptoms (66% vs. 23%), and to report lower levels of mental (SF-12 MCS: 44.3 vs. 59.5) and physical health-related quality of life (SF-12 PCS: 31.3 vs. 34.8) (all p<0.001). However, the two groups were similar on other sociodemographic (e.g., 69% male, 85% White) and baseline clinical characteristics (e.g, 26% mean EF, 50% history of myocardial infarction, 40% with diabetes, 73% using an angiotensin converting enzyme inhibitor. We confirmed vital status on all 384 enrolled patients as of 11/1/08, and identified 35 deaths within 6-months from their date of study enrollment. Of these, 32 (91%) occurred among PHQ-2 (+) patients. By 6-months follow-up, 13% of PHQ-2 (+) patients died and 28% either died or were rehospitalized for cardiovascular reasons vs. 8% (p=0.25) and 12% (p=0.05), respectively, for PHQ-2 (-) patients.
CONCLUSION: Clinicians can use the PHQ-2 to efficiently screen CHF patients for depression and identify those at elevated risk for cardiovascular morbidity. Adequately powered clinical trials remain necessary to assess the impact of routine screening and treatment of depression among CHF patients on clinical outcomes.

A PREDICTIVE MODEL TO MAP HEALTH LITERACY N. Lurie[1]; L. Martin[1]; T. Ruder[1]; B. Ghosh-Dastidar[2]; D. Sherman[3]; J. Escarce[2]; C. Bird[2]; A. Fremont[2]. [1]RAND Corporation, Arlington, VA; [2]RAND Corporation, Santa Monica, CA; [3]AIR, Washington, DC. *(Tracking ID # 204307)*

BACKGROUND: Low health literacy (HL) is a formidable barrier to reducing gaps in quality and improving outcomes. Data on HL levels of local populations could inform priorities for community intervention, but HL screening of individuals is cumbersome, and population level estimates of health literacy that could inform priorities for community intervention are lacking. We developed a predictive model of HL using data from a national assessment of HL and the US Census.
METHODS: We used data from the 18,581 respondents to the 2003 National Assessment of Adult Literacy (NAAL), a nationally representative survey that measured functional HL on a 0–500 point scale. The NAAL also categorized HL of individuals as below basic, basic, intermediate or proficient. We used linear and probit regression, respectively, to predict mean HL scores or the probability of having above basic' (AB) HL. Independent variables in the final model included: age, sex, race, education, poverty level, living in an MSA, language spoken, and years in US. Then, applying coefficients to census data, we estimated the mean HL score and the % with AB HL for across the population for census tracts in Missouri (MO). We used these estimates to generate maps of population-level HL by tracts and larger areas built up from tracts.
RESULTS: The linear and probit models explain about 30% and 21% of the variance in HL respectively, compared to 15% and 9.5% explained by education alone, the single best predictor of health literacy in the NAAL. All variables contributed significantly to in the model at p<.05 or less. Models did not differ significantly across regions of the country or age groups. The estimated % of population with HL AB within census tract ranged from 30% to 87%; most tracts had 60–70% of the population at the AB level. The map shows the estimated mean HL score for each census tract in MO. The maps also discriminate low HL areas from those with low income or education alone.
CONCLUSION: A multivariable predictive model using widely available census data explains twice as much of the variance in HL as education alone, and can be used to identify the 'hot spots' of low HL. These, in turn can help determine where community-level interventions to address HL might best be placed.



Percent of Census Tract Residents Scoring at the 'Above Basic' Level of Health Literacy

A QUALITATIVE EVALUATION OF TRAINEE ATTITUDES ABOUT CHRONIC NONCANCER PAIN ACROSS GRADUATE MEDICAL EDUCATION PROGRAMS L. Yanni[1]; C. Huynh[1]; J.M. Ketchum[1]; S.E. Harrington[2]; S.A. Amin[1]; R.K. Matsuyama[1]; P.J. Coyne[1]; B.A. Johnson[1]; M.J. Fagan[3]; L.G. Clark[4]. [1]Virginia Commonwealth University, Richmond, VA; [2]University of Arkansas, Little Rock, AR; [3]Brown University, Providence, RI; [4]University of Massachusetts, Worcester, MA. *(Tracking ID # 205697)*

BACKGROUND: Published studies and clinical observation demonstrate that trainees reflect negative viewpoints and often use derogatory language when describing clinical scenarios or patients with chronic noncancer pain (CNCP). The objective of this study was to evaluate trainee attitudes, including empathy and compassion (professional competency), toward patients with CNCP. Differences in qualitative responses by gender, year of training, and Graduate Medical Education (GME) programs were sought.
METHODS: We developed a Graduate Medical Education CNCP Survey. The final 68 items for the survey instrument were adapted from published instruments and included qualitative (open-ended) questions. Trainees (N=430) representing 16 different GME programs from 3 medical schools were invited to participate in the online survey using Inquisite software. Investigators used content analysis to evaluate responses. Descriptive statistics (percentages) as well as chi-square tests were utilized.
RESULTS: The survey response rate was 57% (246/430); 44% were male and 56% were female. Thirty-three percent were PGY-1, 25% were PGY-2, and 42% were PGY-3 or greater. Respondents were divided into: Generalists (69.5%): Family Medicine, Internal Medicine, Internal Medicine-Pediatrics; Non-surgical specialties (21.1%): Neurology, Physical Medicine & Rehabilitation, Psychiatry, and Fellowships (Geriatrics, Hematology/Oncology, Infectious Disease, and Rheumatology); and Surgical specialties (9.3%): Anesthesiology, Neurosurgery, and Orthopedics. Responses to the request to describe "characteristics of patients with chronic pain" were categorized as psychological (e.g. "depressed," "anxious"), negative/derogatory (e.g. "manipulative," "lazy"), and positive (e.g. "thankful," "motivated") among others. Most respondents (71%) used psychological terms, an attribute that increased with year of training (PGY-1=62%, PGY-2=67%, and PGY-3 or greater=80%). Respondents in Non-surgical specialties were more likely than either Surgical specialties or Generalists to use psychological terms (91% versus 76% and 65% respectively; p=0.0035). Thirty percent of respondents used negative/derogatory terms. PGY-3 or greater were more than twice as likely as PGY-1 or PGY-2 (44% versus 21% and 20%, respectively; p=0.0007) to use negative/derogatory terms. Only 6% of respondents used positive terms. Respondents completed the following statement, "working with patients with chronic pain is " Responses were categorized as neutral (e.g. "complex," "challenging"), positive (e.g. "interesting," "pleasure"), negative (e.g. "aggravating," "dissatisfying"), or conditional (if X then Y). Most responses were neutral (63%) followed by negative (34%) and positive (6%). Some responses were conditional (11%) based on the following subcategories: management (46%), misuse (19%), and psychosocial issues (12%).
CONCLUSION: Psychological terms were most commonly used to characterize patients with chronic pain in accordance with the prevalence of psychological issues in this population. Negative/derogatory terms were frequently used by trainees, a finding that increased with year of training. Given this erosion of professional competency over time, early and sustained training interventions across GME programs are needed to foster empathy and compassion. Analysis of the conditionality of "working with patients with chronic pain is...," suggests that trainee attitudes may improve with adequate preparation for dealing with the subcategories mentioned.

A QUALITATIVE STUDY OF DECISION CONTROL PREFERENCES AT THE END OF LIFE M.T. Hughes[1]; J. Kub[2]; D.P. Sulmasy[3]; P.B. Terry[2]; M.T. Nolan[2]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]Johns Hopkins University, Baltimore, MD; [3]St. Vincent Hospital, New York, NY. *(Tracking ID # 206111)*

BACKGROUND: Terminally ill patients vary widely in their preferences for control over medical decisions and the weighting of input from physicians and family. To enrich our understanding of the results from our quantitative study on control preferences, we performed qualitative interviews on a subset of patients shortly after diagnosis of a life-limiting illness.
METHODS: Fourteen purposefully selected participants were recruited from the larger, longitudinal study of patients with advanced congestive heart failure (CHF), amyotrophic lateral sclerosis (ALS), and advanced cancer (CA). Subjects were asked to sort cards representing levels of decision control ranging from "independent" through "shared" to "reliant" on the physician or family. Then patients were asked in semi-structured interviews to explain their control preferences in relation to key topics: illness experience, knowledge of disease, recent decisions, social context, and relationships. Interviews were audiotaped and transcribed, and the transcripts were reviewed to ensure accuracy. Field notes complemented the interview transcripts. The qualitative team developed codes and applied them to the data. Double coding by the interviewer and an "analysis partner" ensured trustworthiness and validity of the results. NVivo software was used to facilitate data categorization and retrieval. Once all interviews were coded, a coding summary of all excerpts coded as "healthcare decision" or "other decision" was generated. Two members of the research team analyzed the coding summary report to discover overarching themes.
RESULTS: Subjects had a range of demographic characteristics: diagnosis (7 CHF, 4 ALS, 3 CA), age range (41–78 years), advance directive completion (42%), designated physician (internist, cardiologist, neurologist, oncologist), designated surrogate (spouse, adult child, sibling, friend), and type of decision. Control preferences in the card sorts for conscious and unconscious scenarios showed wide variability. Several qualitative themes emerged: -**Trust**: whether to share control with physician or become reliant depends on trust. Trust is earned through expert knowledge, listening to patient viewpoint, and/or having long-term relationship -**Impact of illness**: past experiences with treatment influence current decisions (e.g. more skeptical of physician input if bad outcome in past); symptoms influence perception of how much control patient has (see no choice but to try things doctor offers) -**Certainty**: No way out of disease and end is certain. When things are more certain (e.g. death imminent), patients tend toward independent decisions and to see decisions as black and white when unconscious. -**Control is a mental attitude**: exerting decisional control can be a means of overcoming disabilities; passivity in exercising control can be culturally shaped -**Family involvement in conscious decisions is seen through the lens of self** (e.g. their input bolsters the patient's independent decision) -**Family involvement in unconscious decisions is complex**: family has to use judgment to know when patient's wishes should take effect, family may need physician's input, patients sharing control may be a way to acknowledge burden on family.
CONCLUSION: Decision control preferences are complex. While a card sort may capture a basic truth about the patient's preferences, multiple factors influence exactly how that patient defines those preferences. More research is needed to understand what is being shared in shared decision-making.

A RANDOMIZED CONTROLLED TRIAL OF COPAYMENT REDUCTIONS FOR BLOOD PRESSURE MEDICATION: THE COLLABORATION IN HYPERTENSION TO REDUCE DISPARITIES (CHORD) TRIAL K.G. Volpp[1]; A. Troxel[2]; J. Long[1]; S. Ibrahaim[3]; D. Appleby[4]; J. Smith[5]; J. Jaskowiak[6]; P. Wang[4]; J.H. Holmes[4]; D. Frosch[7]; K. Armstrong[8]; M. Helweg-Larsen[9]; J. Doshi[2]; S. Kumanyika[4]; K. Enge[9]; R. Townsend[4]; N. Joshi[10]; S.E. Kimmel[2]. [1]Center for Health Incentives, Leonard Davis Institute of Health Economics, University of Pennsylvania and CHERP, Philadelphia Veterans Affairs Medical Center, Philadelphia, PA; [2]Center for Health Incentives, Leonard Davis Institute of Health Economics, University of Pennsylvania, Philadelphia, PA; [3]CHERP, Veterans Administration Hospital, Pittsburgh, PA; [4]University of Pennsylvania, Phila, PA; [5]Cheyney University, Cheyney, PA; [6]University of Pennsylvania, Philadelphia, PA; [7]UCLA, Los Angeles, CA; [8]Center for Health Incentives, Leonard Davis Institute of Health Economics, University of Pennsylvania; CHERP, Philadelphia VA Medical Center, Philadelphia, PA; [9]Dickinson College, Carlisle, PA; [10]Pinnacle Health, Harrisburg, PA. *(Tracking ID # 205306)*

BACKGROUND: Nearly two-thirds of Americans with hypertension (HTN) have poorly controlled hypertension, which puts them at risk for substantial morbidity and mortality. Poor adherence to prescribed medication regimens is an important factor in poorly controlled hypertension. Value-based insurance designs, in which copayments are lowered for services of relatively high benefit, are garnering widespread attention as a way to improve adherence and patient outcomes. We undertook this study to examine whether lowering patient copayments

for blood pressure medications among patients with poorly controlled hypertension significantly improved blood pressure control.

METHODS: We conducted two randomized trials of interventions to improve blood pressure control involving a total of 816 patients with poorly controlled hypertension from 3 Pennsylvania hospitals. In the first (COPAY ELIGIBLE, n=479), participants were randomly assigned to receive incentives equivalent to reductions in copayments from $8 per medication per month to $0 for each anti-hypertensive prescription filled, a computerized behavioral intervention (CBI), both copay reduction and CBI, or usual care. In the second, among patients who didn't pay copayments (COPAY EXEMPT, n=336) participants received rewards that effectively lowered copayments from $0 per medication per month to negative $8, a CBI, both copay reduction and CBI, or usual care. In each trial, individual participants were randomized evenly to the four arms with stratification by site, systolic blood pressure (<160, >=160), and income. The primary outcome was change in blood pressure 12 months post-enrollment, and the study was powered to detect a 10 mm difference in systolic blood pressure between arms. This paper reports on the findings of the financial incentive interventions.

RESULTS: There were no significant interactions between the incentive interventions and the CBI interventions. Blood pressure decreased among all participants over the 12 months of the study, but there was no significant difference in results between the financial incentive groups and the control groups. Among patients in the COPAY ELIGIBLE study, systolic blood pressure within the incentive group dropped 13.2 mm on average, vs. 15.2 mm for the control group (difference=2.0, [95% CI=-2.3 to 6.3], p=0.36.) The proportion of patients whose blood pressure was under control at 12 months post-enrollment was 29.5% in the incentive group vs. 33.9 in the control group (OR=0.8; [95% CI=0.5 to 1.3], p=0.36). Within the COPAY EXEMPT group, the results showed a mean 13.7 mm drop for the incentive group vs. a 10.0 mm decline for the control group (difference=-3.7 [95% CI=-9.0 to 1.6], p=0.17.) Blood pressure control was achieved by 35.6% of the incentive group vs. 27.7% of the control group (OR=1.4, [95% CI=0.8 to 2.5]; p=0.19.)

CONCLUSION: Among patients with poorly controlled blood pressure, neither financial incentives that effectively eliminated copayments for blood pressure medications or that paid patients for filling prescriptions improved blood pressure control. Reductions in copayments may be a less effective means of improving intermediate outcomes than had been anticipated.

A RELIABLE METHOD FOR OUTPATIENT CODING: IMPLICATIONS FOR AN INTERNAL MEDICINE RESIDENCY PROGRAM S. Kapa[1]; T.J. Beckman[2]; S. Cha[1]; F.S. Mcdonald[2]. [1]Mayo Clinic, Rochester, MN; [2]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205397)*

BACKGROUND: The success of an internal medicine practice depends on accurate billing. However, numerous studies have demonstrated poor reliability, even among coding specialists. Inaccurate coding may result in over-billing, which is considered Medicare fraud and may result in serious legal repercussions. It is thus essential that coding specialists and physicians understand Medicare billing components, that documentation reflects the level of complexity of physician-patient encounters, and that resident physicians receive education on coding. Our objectives were to determine the reliability of an instrument to determine appropriate codes and to assess financial implications of inappropriate coding for an internal medicine residency program.

METHODS: One hundred notes from January 2005 were randomly selected from a resident outpatient practice. An instrument structured on Medicare billing standards was used by three independent coding specialists to determine appropriate codes. Interrater reliability was assessed for the three coding specialists. Current Procedural Terminology (CPT) codes derived from this assessment were compared between the coding specialists and residents. All billing codes were then converted into U.S. dollars based on the national Medicare reimbursement list. Differences in under or over-billing across 3 years of residency training were determined using the Kruskal-Wallace statistic.

RESULTS: Interrater reliability of CPT components among coding specialists was excellent with kappa ranging from 0.76 for exam to 0.94 for diagnosis. Of 100 notes, all coding specialists agreed on the final code for 80 notes and 2 of 3 agreed for the remaining 20. Fifty-five percent of notes were underbilled by $45.26 per note and 18% were over-billed by $51.29 per note. The percent of appropriately coded notes was 16.1% for PGY1s, 26.8% for PGY2s, and 39.3% for PGY3s (p<0.05). Underbilling was 74.2% for PGY1s, 48.8% for PGY2s, and 42.9% for PGY3s (p<0.01). There was significantly less overbilling among PGY1s compared with PGY2s and PGY3s (9.7% versus 24.4% and 17.9% respectively; p<0.05).

CONCLUSION: We report a reliable billing method within resident clinics at a large academic medical center. This method may be useful for reducing costs and the potential liability associated with inaccurate billing. This study exposed large financial losses, which in turn were attributable to junior more than senior residents. We anticipate that our method will enhance educational interventions that are designed to improve resident physicians accuracy in assigning billing codes.

A SCRIPT CONCORDANCE TEST (SCT) TO MEASURE CLINICAL REASONING FOR MANAGING GERIATRIC URINARY INCONTINENCE (UI) R. Tunuguntla[1]; J.G. Ouslander[2]; S. Symes[3]; F. Phancao[4]; B. Charlin[5]; R. Gagnon[5]; B.A. Roos[6]; J.G. Ruiz[7]. [1]1University of Miami Miller School of Medicine and Miami VA GRECC, Miami, FL; [2]University of Miami, Boca Raton, FL; [3]University of Miami, Miami, FL; [4]Jackson Memorial Hospital, Miami, FL; [5]University of Montreal, Montreal, Quebec; [6]University of Miami, Miami VA GRECC and Stein Gerontological Institute, Miami, FL; [7]University of Miami Miller School of Medicine, Miami VA GRECC and Stein Gerontological Institute, Miami, FL. *(Tracking ID # 205539)*

BACKGROUND: Clinical reasoning, also known as problem solving, is a major domain of clinical competence, comprising a group of cognitive skills involved in patient evaluation and management. The SCT (script concordance test) assesses clinical reasoning in contexts of uncertainty, which are very common in primary care practice including urinary incontinence (UI). Although a relatively new method, the SCT has demonstrated good reliability and validity. Aim: To validate a SCT to measure the clinical reasoning skills of medical trainees related to managing geriatric UI.

METHODS: An expert in geriatric UI and 2 board-certified geriatricians developed 155 SCT questions related to geriatric UI. After a review of the questions by an urologist and a geriatrician with expertise in UI, the researchers selected 100 questions covering the major clinical topics in UI. The SCT requires 3 components: (1) a clinical vignette requiring consideration of several options (diagnosis, management, or intervention); (2) a 5-point Likert scale capturing examinee responses; (3) a scoring method that accounts for variation of answers among a group of experts (members of panel of reference) and gives partial credit (in proportion to the number of experts selecting the same response) to candidates who choose an answer other than the majority answer. A reference panel of 15 board-certified geriatricians took this test. All items with negative total correlation were discarded; the remaining questions were used to calculate the global score. Differences within and between groups' means were examined by 1-way analysis of variance (ANOVA). In the next validation phase the SCT was administered to 10 "senior" (beyond 12 months of training) and 9 "junior" geriatric medicine fellows (6 months into their training), 24 internal medicine residents (PGY1-PGY3), and 13 senior medical students (MS3–4).

RESULTS: Cronbach's alpha for the final 70 questions was 0.82. The mean score for the reference panel was 79±7, senior fellows 69±11, junior fellows 66.4±7, internal medicine residents 66±6.5, and medical students (MS3 and MS4) 63.6±9.

CONCLUSION: The initial geriatric UI SCT demonstrated good reliability and construct validity between a reference panel and other trainees and should be a useful tool to assess clinical geriatric UI practice.

A TAXONOMY OF REASONS FOR NOT PRESCRIBING GUIDELINE-RECOMMENDED MEDICATIONS: RESULTS FROM PHYSICIAN FOCUS GROUPS M. Steinman[1]; S. Patil[1]; P. Kamat[1]; S. Knight[1]. [1]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 204769)*

BACKGROUND: Clinicians have a variety of reasons for not prescribing guideline-recommended medications, yet research on physician nonadherence to guidelines is hindered by the absence of an accepted taxonomy by which these reasons can be categorized and thereby better studied and understood. We used physician focus groups to develop a taxonomy of reasons for not prescribing guideline-recommended medications for patients with heart failure.

METHODS: We convened 7 focus groups with a total of 30 physicians covering a range of clinical specialties and levels of training. Using semi-structured probes and concept mapping techniques, we assessed physician reasons for non-prescribing of guideline-recommended drugs for heart failure, and evaluated how physicians categorized these reasons into conceptual groupings.
RESULTS: Across our focus groups, reasons for not prescribing guideline-recommended drugs fell into 4 broad categories: clinical contraindications (such as contraindicating comorbidities), patient factors (such as patient preferences), physician factors (such as skepticism of drug benefits), and systems factors (such as co-managing patients with physicians in different health systems). There was substantial overlap among these categories, and physicians placed a number of reasons for non-prescribing at the intersection of two or more categories. For example, reasons for non-prescribing related to drug safety fell at the intersection of several categories, reflecting the contribution of clinical contraindications, patient's ability to manage their drugs, physician risk tolerance, and access to care that allows for appropriate monitoring of adverse drug effects.
CONCLUSION: Physicians were able to identify and categorize reasons for not prescribing guideline-recommended drugs for heart failure. This taxonomy will assist research and quality improvement efforts to understand the reasons behind – and appropriateness of – non-adherence to clinical practice guidelines.

ABERRANT BEHAVIORS AND SUBSTANCE ABUSE AMONG PATIENTS ON CHRONIC OPIOIDS: ARE RESIDENTS PARTICULARLY VULNERABLE? J.L. Colburn[1]; D.A. Rastegar[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205798)*

BACKGROUND: Prescription drug use is a growing problem in the United States and many patients receive prescription opioids for chronic pain despite the lack of good evidence for its efficacy. Aberrant behaviors are commonly seen among patients on chronic opioids and are associated with active substance use disorders. Resident physicians may be particularly vulnerable to patients who abuse prescription drugs, but there is little data on the prevalence of this problem among patients followed by resident physicians, particularly in comparison with attending physicians. The purpose of this study was to compare patients prescribed opioids by resident and attending physicians in an academic general internal medicine practice.
METHODS: Patients were identified from a log of controlled substance prescriptions maintained by nursing staff in the practice and were included if they had been prescribed an opioid in the calendar year of 2007 and had received at least three consecutive months of opioid medications. The electronic outpatient records of each patient were reviewed to collect demographic information, including history of substance use disorders, active psychiatric illness and current smoking. Aberrant behaviors during the calendar years of 2007 and 2008 were also documented; including: 1. Running out of medication early or requesting a refill earlier than due date, 2. Reporting lost or stolen medications, 3. Receiving opioid medications from more than one provider, 4. Forging or altering a controlled-substance prescription, 5. Diversion of opioids. Records were also reviewed for evidence of an active substance use disorder while on prescribed opioids, including: addiction treatment, overdose or intoxication, positive urine toxicology for non-prescribed substances. Bivariate analysis was used to analyze the association between aberrant behaviors and demographic factors and the type of provider (resident or attending physician). To date, fifty percent of the charts have been reviewed (101 attending patients and 140 resident patients).
RESULTS: Patients on chronic opioids followed by attendings were more likely to be female (70% vs. 54%, p=0.04) while those followed by residents were more likely to be active smokers (59% vs. 38%, p<.01). Attending patients tended to be older (mean age of 56 vs. 51, p=0.05) and to be more likely to have an active psychiatric diagnosis (66% vs. 52%, p=0.08). More of the patients followed by a resident exhibited aberrant behaviors, but this difference was not statistically significant (37% vs. 28%, p=0.26). Patients followed by residents were significantly more likely to have evidence of an active substance use disorder while on prescribed opioids (20% vs. 4%, p=0.02). A small number of patients in each group had their opioids discontinued during this period because of concerns over abuse (4% of attending patients vs. 6% of resident patients, p=0.73).
CONCLUSION: Our findings support previous studies that show that aberrant behaviors and active substance use disorders are common among patients on chronic opioids. Our preliminary data suggests that this may be more of a problem among patients followed by house officers. We plan to collect more data and perform additional analyses to study this problem further.

ABERRANT USE OF OPIOID ANALGESICS IN INDIVIDUALS WITH A HISTORY OF SUBSTANCE ABUSE L. Hansen[1]; J. Penko[2]; D. Guzman[2]; M. Kushel[2]. [1]Yale University School of Medicine, New Haven, CT; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205118)*

BACKGROUND: When prescribing opioid analgesics, clinicians experience a tension between enabling opioid abuse and undertreating pain. Little is known about the prevalence of aberrant opioid behaviors-behaviors suggesting abuse-in high risk populations. We assessed the frequencies of aberrant opioid analgesic behavior in a population with prevalent substance abuse and measured associations between aberrant behaviors and substance abuse disorders.
METHODS: We conducted a cross-sectional study co-enrolling 285 participants from the Research on Access to Care in the Homeless (REACH) cohort, a community-based sample of homeless/marginally housed HIV-positive adults. Participants completed interviewer-administered and audio-computer administered questionnaires assessing demographic information, aberrant behaviors, and pain. The Diagnostic Interview Schedule IV (DIS-IV) substance abuse modules were also administered. We measured 19 aberrant behaviors, classifying 10 behaviors as "major" behaviors (e.g. snorting, crushing, injecting or selling opioid analgesics) and 9 less worrisome behaviors as "minor" (e.g. borrowing opioid analgesics). Our primary dependent variable is lifetime aberrant behavior (categorized as major, minor, or none). The primary independent variable is lifetime history of a substance abuse disorder as diagnosed by the DIS-IV. We used polytomous logistic regression to measure associations between lifetime history of a substance abuse disorder and lifetime aberrant behavior.
RESULTS: The study population was two-thirds male (65.3%) and 61.5% non-White race/ethnicity. Two thirds of the population (64.2%) described moderate or severe pain within the last week and 24.3% reported mild pain. Most individuals with pain had symptoms for more than 6 months (90.0%). Of those with moderate or severe pain, 59.7% reported taking prescribed opioid analgesics within 90 days. Substance abuse history was common with 88.4% reporting a lifetime history of either heroin, cocaine, or methamphetamine abuse. One third of the population (29%) had no lifetime history of any opioid analgesic aberrant behavior and half (52.3%) had no lifetime history of any major aberrant behavior. Two-thirds (64.5%) had no history of any (major or minor) aberrant behavior in the past 90 days. We describe the prevalence of major aberrant behaviors in Table 1. Major aberrant behaviors were found to be associated with a diagnosis of lifetime history of cocaine abuse (Adjusted Odds Ratio (AOR) 2.84 [95% CI 1.54 to 5.24]), methamphetamine abuse (AOR 3.29 [95% CI 1.66 to 6.52]), and opioid abuse (AOR 3.63 [1.57 to 8.41]).

Prevalence of Major Aberrant Behaviors (n=285)

	Lifetime		Past 90 day	
Aberrant Behavior	**n**	**%**	**n**	**%**
Used opioid analgesics "to get high"	102	35.8%	32	11.2%
Sold opioid analgesics	50	17.5%	15	5.3%
Snorted, crushed, injected, or smoked opioid analgesics	45	15.8%	10	3.5%
Traded street drugs to get opioid analgesics	37	13.0%	10	3.5%
Exchanged opioid analgesics for sex or other drugs	23	8.1%	4	1.4%
Stole opioid analgesics from an individual	17	6.0%	8	2.8%
Licked or dissolved and injected transdermal fentanyl	16	5.6%	5	1.8%
Performed sex to get opioid analgesics	13	4.6%	2	0.7%
Stole opioid analgesics from a pharmacy, hospital or clinic	8	2.8%	1	0.4%
Attempted to forge a prescription for opioid analgesics	11	3.9%	1	0.4%

CONCLUSION: This population is at high risk for aberrant behaviors; aberrant behaviors are common but not universal. Significant associations exist between prior substance abuse and aberrant opioid analgesic behavior. In light of the high risk for aberrant behaviors and high risk for undertreated pain, clinicians must seek better ways of determining who can safely use opioid analgesics.

ACCESS TO PREVENTIVE CARE AND TREATMENT FOR CHRONIC CONDITIONS IN CLIENTS BEING TREATED FOR SUBSTANCE USE DISORDERS R.A. Benjamin-Johnson[1]; A. Moore[2]; J. Gilmore[3]; K. Watkins[4]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, CA; [3]Behavioral Health Services, Inc., Gardena, CA; [4]RAND Corporation, Santa Monica, CA. *(Tracking ID # 204085)*

BACKGROUND: Clients of publicly funded substance abuse treatment may represent a population with limited access to care. Substance abuse treatment programs have traditionally been separate, in space and time, from primary medical care, a situation exacerbated by the increase in 'carved-out' behavioral health care in the public sector. This fragmentation may be an additional barrier to care among low-income patients. Chronic illnesses are more prevalent among substance-dependent patients and access to medical care for substance-dependent patients with chronic illness improves substance abuse outcomes.
METHODS: We conducted a cross-sectional survey to describe access to a usual source of care, use of preventative services, and chronic conditions among 254 outpatient and residential adult clients enrolled in drug and alcohol treatment at seven sites in Los Angeles County. Preventive care measures were those recommended by the United States Preventive Services Task Force and included blood pressure screening, serum cholesterol screening, and age appropriate cancer screenings. Clients eligible to participate were 18 years or older, fluent in English or Spanish, and were not federal probationers.
RESULTS: Of 417 participants enrolled in treatment during the study period, 254 completed the survey. Mean age was 38.4 years (10.45 SD), and mean days in treatment were 89 (80 days SD). Eighty percent of participants identified as an ethnic or racial minority. Half of participants reported a non-emergency department usual source of care. Half of all participants visited a doctor or emergency room during the treatment episode. Nearly all participants reported blood pressure screening, whereas half reported at least one serum cholesterol screening. Among women, half reported cervical cancer screening and almost one-third of eligible women had received a mammogram in the last 12 months. Just over one-third of participants older than 50 reported being screened for colon cancer at least once. Fifty percent of clients surveyed reported one or more chronic illnesses. Two-thirds of clients with current health concerns reported no physician care for those concerns. Forty-one percent of participants were obese, having a measured BMI greater than 30 kg/m2. Three-quarters of participants were current tobacco users and one-third rated their general health as 'fair' or 'poor.'
CONCLUSION: When comparing our participants to a low-income population in Los Angeles County interviewed in the 2007 California Health Interview Survey (CHIS) fewer had a non-emergency department usual source of care. Among women in our survey, receipt of cervical cancer screening was similar to the low-income population in CHIS. Receipt of cholesterol screening and colon ca screening were both lower in our sample than a similar population in CHIS. Use of mammography in our sample was also lower than in a similar low-income population. Our findings suggest that efforts to both link patients to a usual source of care and to increase use of preventive services could be directed to periods of substance-abuse treatment.

ACCESS TO PRIMARY PERCUTANEOUS CORONARY INTERVENTION FOR ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION: A GEOGRAPHIC ANALYSIS A.B. Patel[1]; J.V. Tu[2]; N.M. Waters[3]; D. Ko[2]; M. Eisenberg[4]; T. Huynh[4]; S. Rinfret[5]; M.L. Knudtson[1]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]Institute for Clinical Evaluative Sciences, Toronto, Ontario; [3]George Mason University, Fairfax, VA; [4]Division of Cardiology, McGill University Health Center, Montreal, Quebec; [5]Department of Medicine, Université de Montréal, Montreal, Quebec. *(Tracking ID # 204936)*

BACKGROUND: Primary percutaneous coronary intervention (PCI) is the preferred treatment over fibrinolysis for ST-segment elevation myocardial infarction (STEMI). Current American and European guidelines suggest performing PCI within 90 minutes of the first medical contact. Time to transport has been recognized as one barrier to STEMI treatment within recommended time frames. Geographic Information Systems (GIS) have proven to be a valuable tool for studying transportation and access to health services. This study uses GIS to evaluate the areas and populations in Canada with access to a PCI facility within a 60, 90 and 120 minute prehospital time period.
METHODS: Travel along the road network was evaluated from census Dissemination Areas (DA) to PCI facilities. Detailed road network data from DMTI Spatial Inc. were used in ArcGIS 9.2 to calculate travel time by ground. Time to dispatch, time to patient and time at patient scene were considered in the overall access times. The adult population numbers from the Statistics Canada 2006 census were extracted for those DAs with access to STEMI within 60, 90 and 120 minute prehospital time periods. Sensitivity tests were performed to evaluate how changes in prehospital time would affect the proportion of the population with access. The effect of adding hypothetical new PCI facilities on timely population access was also examined.
RESULTS: Figure 1 shows that only a small proportion of Canada's geographic surface area is accessible to PCI facilities within 60 minutes. Despite this, Canada's population distribution is such that 59.1% of the population can access PCI within a 60 minute period. The population proportion with 60 minute access varied widely across provinces, from a low of 16.0% in New Brunswick to a high of 75% in Ontario. The population access increased when considering 90 and 120 minute prehospital times. The strategic addition of a single hypothetical facility to four selected provinces could increase the population proportion with timely PCI access by 3.0% to 4.1%, depending upon the province in which it is located. Approximately 600,000 adults would gain access in such a scenario of new facilities.

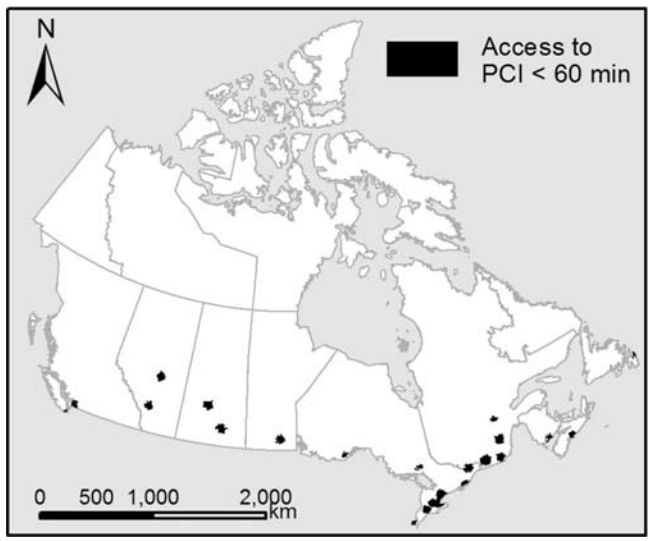


Figure 1: Geographic access to percutaneous coronary intervention (PCI) in Canada

CONCLUSION: Only a subset of Canada's population can achieve timely access to PCI facilities for primary PCI, and the proportion with such access varies widely across provinces. Such information demonstrates the value of GIS as a tool for informing the regional organization of tertiary care, and for strategizing around the addition of new PCI facilities.

ACCULTURATION AND SELF-REPORTED HYPERTENSION AND DIABETES IN LATINO SUBGROUPS: THE CALIFORNIA HEALTH INTERVIEW SURVEY 2001–2005 L. Lopez[1]; L.P. Pabon-Nau[2]; L.S. Hicks[1]. [1]Harvard University, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205944)*

BACKGROUND: Little is known whether acculturation factors impact hypertension and diabetes prevalence among Latino adult subgroups. We tested the hypothesis that diabetes and hypertension prevalence among U.S. Hispanics vary by country of origin and by degree of acculturation.

METHODS: We examined the adult participants in the 2001, 2003, and 2005 California Health Interview Survey (CHIS). We stratified the analysis by self-identified Latino subtypes categories: Mexico (n=19336), Central America (n=2370), South America (n=666), Puerto Rico (n=370), Latinos having two or more countries of origin (n=1901), and other Latino (n=925). We also analyzed non-Latinos by self-identified race: Afircan-American (n=7409), White (n=92,214). We used self-reported English language ability and years in the US (<=1 yr, 2–4 yrs, 5–9 yrs, 10–14 yrs, 15+ yrs) as measures of acculturation and assessed presence of participants' self-reported hypertension/diabetes by race/ethnicity, Latino subtype, and acculturation. Using multivariable logistic regression, we assessed the relationship of these characteristics to self-reported hypertension/diabetes adjusting for patients' comorbid disease, health care utilization, insurance status and socio-economic status.
RESULTS: We found that over 40% of all participants lived in the US for greater than 15 years. Insurance rates ranged from 62% for Central Americans to 91% for non-Latino Whites. Hypertension prevalence was lowest in South Americans (16%) and highest in African-Americans (34%). Diabetes prevalence was lowest in South Americans (4%) and highest in other Latino (12%). After multivariable adjustment, hypertension was less likely to be reported by Mexicans (OR 0.49 [95% CI: 0.37, 0.65]) and Central Americans (OR 0.61 [CI: 0.45, 0.83]), relative to non-Latino Whites. Diabetes prevalence was not different among Latino subtypes compared to non-Latino Whites. Those participants with less than 15 years in the US were less likely to report hypertension and diabetes (OR range 0.33–0.64) compared to those residing in the US for greater than 15 years. English language ability did not influence self-reported prevalence of either disease. There was a significant interaction between Latino subtype, acculturation and hypertension and diabetes prevalence. Living in the US for less than 15 years was associated with a disproportionately lower prevalence of hypertension and diabetes among Mexican (p<0.003) and Central American (p=0.04) immigrants compared to other Latino subtypes.
CONCLUSION: We found significant heterogeneity in hypertension but not diabetes prevalence among Latino subtypes in California compared to non-Latino Whites after adjustment for differences in health care utilization and access. Those participants with less than 15 years in the US were less likely to report hypertension and diabetes. Further we found that the degree of acculturation may be an important predictor of disease prevalence among Latino subgroups. Future work examining ethnic differences in hypertension prevalence and outcomes should account for the heterogeneity among Latino participants based on their country of origin and degree of acculturation to the US.

ACHIEVEMENT OF BLOOD PRESSURE CONTROL TARGETS AT A SINGLE VISIT DOES NOT ADEQUATELY REFLECT QUALITY OF ANTIHYPERTENSIVE CARE E.A. Kerr[1]; R. Holleman[2]; J.D. Piette[1]; S.L. Krein[1]; T.P. Hofer[1]. [1]Ann Arbor VA Center for Clinical Management Research and University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI. *(Tracking ID # 204968)*

BACKGROUND: Performance measures for hypertension care used by the Veterans Health Administration (VHA) and the National Committee on Quality Assurance focus on the achievement of specific blood pressure (BP) control targets (e.g., BP<140/90) at a single visit within an evaluation period. In contrast, clinical action measures consider good quality to have been met not only if the BP is at target but also when appropriate clinical action has been taken (e.g., medication intensification or achievement of maximal recommended therapy or no change in therapy due to contraindications). We evaluated how many patients who did not meet a target based outcome measure for BP at a single visit would have met a more rational clinical action measure. We also examined patient clinical characteristics associated with the likelihood of meeting the action measure.
METHODS: We conducted a cohort study of 1169 diabetic patients of 92 PCPs in 9 VHA facilities. Patients were enrolled if their triage BP prior to a primary care provider (PCP) visit was >=140/90. Medications and BP values were obtained from automated data. We assessed adherence to BP medications in the year prior to the visit using a measure of refill gaps. We reviewed medical records for information on comorbidities and PCPs' documentation of home BP readings and repeat BP readings at the visit. We classified comorbidities as unrelated or discordant with hypertension (e.g., pain, cancer, respiratory) or concordant (e.g., diabetes, cardiac, renal disease). For patients with BP>=140/90 at the visit, we determined the proportion that would have met a clinical action measure because they had medications intensified (addition or change of medication) within 3 months, or were already on 4+ BP medications, had a diastolic BP<65 at the visit, or a repeat BP<140/90 within 3 months. We constructed a multi-level multivariate logistic model to assess the association between patient clinical characteristics (visit systolic BP, mean prior year systolic BP, number of concordant and discordant conditions, documentation of adequate home BPs, adherence, age) and meeting the clinical action measure.
RESULTS: Within the same visit, PCPs documented a repeat BP<140/90 for 246 of the 1169 patients with high triage BPs. The remaining 923 would have been considered to have poor quality if existing performance measures were applied at that visit. However, 744 of the 923 (81%) met the clinical action measure: 580 had medication intensification within 3 months; 80 were on 4+ BP medications; 35 had a diastolic BP<65; and 49 had a BP<140/90 within 3 months. Factors associated with higher probability of meeting the action measure included having a more concordant conditions (OR 1.23 [1.06, 1.42]) and higher mean BP (OR 1.19 [1.05,1.36]). Higher levels of non-adherence (OR 0.98 [0.97,0.99]) and PCP documentation of lower home BPs (OR 0.24 [0.14, 0.41]) were associated with lower likelihood of meeting the measure.
CONCLUSION: 80% of diabetic patients with poor quality because of a high BP value at a single visit received good quality as defined by a BP clinical action measure. Despite the measure's focus on processes of care and ability to account for treatment contraindications and BP variability, 20% of patients did not meet the measure. Patients who reported lower home BPs were less likely to meet the measure. As use of BP self-monitoring expands, we need to consider ways to use home measurements systematically both in clinical practice and performance measurement.

ACHIEVING UNIVERSAL HIV SCREENING–PREDICTORS OF WHAT INFLUENCES SCREENING. J. Martinez[1]; M. Stefan[2]; K. Crawford[3]; S. Wu Sun[4]; I. Modak[5]. [1]Cornell University, NY, NY; [2]Baystate Medical Center, Springfield, MA; [3]Moses Cone Health System, Greensboro, NC; [4]Mount Vernon Hospital, NY, NY; [5]Methodist Dallas Medical Center, Dallas, TX. *(Tracking ID # 204228)*

BACKGROUND: Over 1,000,000 persons in the US are living with HIV/AIDS, with 24% unaware of their HIV status. In 2006, the CDC recommended universal HIV screening. However it remains unclear who is being routinely screened for HIV. This study seeks to evaluate the characteristics of patients that are being tested compared to those who are not.
METHODS: Patients were recruited from 9 academic internal medicine clinics. Patients were eligible if they were 18–64 years old, fluent in English or Spanish and received continuity care at the clinic. Participants completed a 76 item survey which assessed demographics, HIV risk factors, knowledge, beliefs, attitudes and characteristics of patient-MD interactions. An HIV knowledge score was generated. Descriptive statistics were complied. Bivariate analyses were performed and variables with a p-value of <0.1 were included in a logistic regression model to determine characteristics most associated with HIV screening.
RESULTS: From the 443 patients who completed the surveys 61% (256 patients) reported being screened for HIV. From the total, 68% were female, mean age was 45, and majority were non-white (67%). In the bivariate analyses, MD recommendation (92% vs 50%), patient's own request (96% vs 19%), younger age (66% vs 58%), more knowledge about HIV and HIV screening (86% vs 70%), agreement with CDC recommendations (74% vs 27%), being comfortable with their doctor (64% vs 38%) and using street drugs within the last 5ys (78 vs 51%) were all strongly associated with testing. In logistic regression, MD recommendation (OR 4.51), agreement with the CDC recommendations (OR 3.55) and patients' asking for the test (OR 122.0) remained significant.
CONCLUSION: Although per the 2006 recommendations all patients in our cohort should have been screened for HIV, only 61% reported being screened. This rate is far better than past reports. Our data suggest that a patient request is the strongest predictor of HIV screening. Therefore, simple waiting room prompts and public education campaigns may represent the most efficient interventions to approach CDC universal HIV screening goals.

ACID-SUPPRESSIVE MEDICATION USE AND THE RISK FOR HOSPITAL ACQUIRED PNEUMONIA S.J. Herzig[1]; M.D. Howell[1]; L. Ngo[1]; E.R. Marcantonio[1]. [1]Harvard Medical School, Boston, MA. *(Tracking ID # 203849)*

BACKGROUND: The use of acid-suppressive medication has been steadily increasing, particularly in the inpatient setting, despite lack of

an accepted indication in the majority of these patients. Several studies have demonstrated an association between acid-suppressive medication and community acquired pneumonia. We examined the association between acid-suppressive medication and hospital acquired pneumonia (HAP) in a large prospective cohort.
METHODS: All patients admitted to a large, urban academic medical center in Boston, Massachusetts from 1/04 through 12/07, at least 18 years of age and hospitalized for 3 or more days were eligible for inclusion. Admissions with time spent in the intensive care unit were excluded. Data were collected from electronic medical information databases at the medical center. Acid-suppressive medication use was defined as any order for a proton-pump inhibitor or histamine-2-receptor antagonist. The primary outcome was HAP, defined as any ICD-9 code for bacterial pneumonia listed as a secondary discharge diagnosis. Secondary outcomes included the subcategories or aspiration and non-aspiration pneumonia. We performed a validation of outcomes in 100 randomly selected admissions. Unadjusted incidence rates in exposed and unexposed patients were compared with Fisher's Exact Test. We adjusted for confounders using both traditional multivariable logistic regression with GEE to control for repeated admissions, as well as propensity matched analysis. We controlled for 49 variables, chosen on clinical grounds based on hypothesized association with either acid-suppressive medication or HAP, including demographics, comorbidities, and concurrent medication use.
RESULTS: 63,878 admissions comprised the final cohort (median age= 54 years; 37% men). Acid-suppressive medication was ordered in 52% of admissions and HAP occurred in 2220 admissions (3.5%). The unadjusted incidence of HAP was higher in the group exposed to acid-suppressive medication relative to the unexposed group (4.9% versus 2.0%, OR=2.6, 95% confidence interval [CI] 2.3–2.8). Using multivariable logistic regression, the adjusted odds ratio of HAP in the group exposed to acid-suppressive medication was 1.3 (95% CI 1.2–1.4). There was a stronger association between acid-suppressive medication and aspiration pneumonia in particular (OR=1.4), however the association remained significant for both aspiration and non-aspiration pneumonia (p 0.0001 for both). The matched propensity score analyses yielded nearly identical results. In a prespecified subgroup analysis, the association was significant for proton-pump inhibitors (OR=1.3, 95% CI 1.2–1.4), but not for histamine-2 receptor blockers (OR=1.1, 95% CI 1.0–1.3). Our chart validation demonstrated a 1% outcome misclassification rate (95% CI 0%-3%). Even if the true error rate lied at the upper bound of our confidence limit, our result would still retain statistical and clinical significance with an odds ratio of 1.2.<
CONCLUSION: In this large hospital-based pharmacoepidemiologic cohort, acid-suppressive medication use was associated with 30% increased risk of HAP. This association was stronger for aspiration than for non-aspiration pneumonia, and significant for proton-pump inhibitors, but not histamine-2 receptor blockers. In light of the increasingly prevalent use, lack of evidence-based indications, and demonstrated risk, we believe that further scrutiny is warranted regarding inpatient prescribing practices of these medications.

ACTIVATING SENIORS TO IMPROVE CHRONIC DISEASE CARE
D. Frosch[1]; D. Rincon[1]; S. Ochoa[1]; C.M. Mangione[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 204265)*

BACKGROUND: Older Americans bear the brunt of the chronic disease burden. Patient activation – defined as being able to self-manage symptoms and problems, engaging in activities that maintain functioning and reduce health declines, and being involved in clinical decision-making – has been shown to improve chronic disease health outcomes. However, delivering interventions to activate patients in clinical settings is challenging. The present study explored the impact of an activation intervention delivered in community senior centers.
METHODS: *Setting*: Participants (N=116) were recruited from two community senior centers in low (n=63) and middle income (n=53) neighborhoods in Los Angeles. *Intervention*: Participants were invited to attend group screenings of video programs intended to educate and motivate active management of chronic conditions. Screenings were scheduled over the course of 12 weeks. Programs focused on coronary artery disease, congestive heart failure, diabetes and chronic low back pain. Each program screening was followed by a moderated discussion that reinforced the importance of active patient participation in chronic disease management. *Design*: This pragmatic randomized trial used an encouragement design to increase seniors' attendance at the group screenings of video programs. One senior center was randomly assigned to the encouragement condition, in which participants received a $50 gift card if they attended at least 3 group screenings. Participants in the non-encouraged senior center received no incentive for attending group screenings. Participants completed surveys, including the previously validated Patient Activation Measure (PAM), at baseline, immediately following the intervention period (12 weeks) and at 6 months.
RESULTS: On average participants were 72 years old (SD=8.1) and 94% reported having at least one chronic disease (Median=2). Participants attending the encouraged senior center were significantly more likely to attend 3 or more group screenings (77.8% vs. 47.2%, p=.001). Controlling for chronic disease burden, participants who attended 3 or more group screenings (n=74, 64%) showed significant increases in PAM scores over time (p=.001; see Figure 1). Participants who attended 3 or more group screenings were significantly more likely to report vigorous physical activity on 2 or more days per week (OR=4.6, p=.003), reported greater intentions to ask their physician questions (p=.001), and better health-related quality of life (p=.02) at 6-month follow-up.

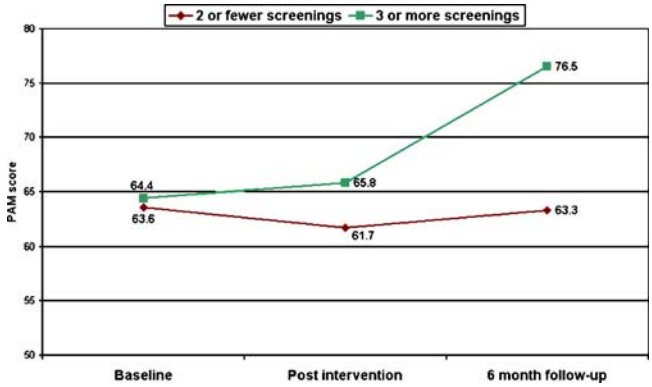


Figure 1: Patient activation scores by group screening attendance

CONCLUSION: Delivering a patient activation intervention in community senior centers shows considerable promise. Participants who attended 3 or more group screenings showed significantly higher patient activation scores, reported more vigorous physical activity, greater intentions to ask their physician questions and better health-related quality of life. Future large-scale replications of this intervention will need to examine whether self-reported behavior changes also translate into improvements in clinical measures of chronic disease management. (ClinicalTrials.gov identifier: NCT00651495)

ACTIVATION AND COGNITIVE ADAPTABILITY: CORRELATIONS WITH HEALTH OUTCOMES AMONG VETERANS WITH INFLAMMATORY BOWEL DISEASE
G. Munson[1]; K.A. Wallston[2]; R.S. Dittus[3]; T. Speroff[3]; C.L. Roumie[2]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]VA Tennessee Valley Healthcare, Vanderbilt University, Nashville, TN; [3]VA Tennessee Valley Healthcare System, Vanderbilt University, Nashville, TN. *(Tracking ID # 203780)*

BACKGROUND: Inflammatory bowel disease is a chronic disease with a remitting and relapsing course that imposes psychosocial stress. Understanding a patient's capacity to adapt to inflammatory bowel disease is likely essential to promoting beneficial health behaviors and avoiding exacerbations. However, prior research suggested that patients' adaptive capacities to stress did not correlate with health-related quality of life. We examined two adaptive capacity measures, previously used with chronic diseases but not inflammatory bowel disease, and their association with disease-specific quality of life.
METHODS: Cross-sectional mail survey of 477 veterans at VA-Tennessee Valley Healthcare System with inflammatory bowel disease. The Patient Activation Measure assesses knowledge, skill, and confidence in self-health management. The Cognitive Adaptability Index measures perceived competence and dispositional optimism. Primary outcome was health-related quality of life as measured by the Short Inflammatory Bowel Disease Questionnaire. Bivariate analysis assessed unadjusted correlations. Sequential multivariate linear regression tested relationships within a theoretical model by calculating the variation in each dependent variable accounted for by independent variables (R-squared statistic).

RESULTS: 260 surveys were returned with usable data (54.5%). Median age was 63 years (range 19–91); 90.8% were men. A majority (86.9%) self-identified as white. Fifty percent reported having ulcerative colitis, 36.5% Crohn's disease, and 12.3% uncertain type. Self-reported disease duration was 0–9 years (31.9%), 10–19 years (31.2%), and >20 years (33.5%). Unadjusted bivariate analysis revealed positive correlations between both adaptive capacity measures and Short Inflammatory Bowel Disease Questionnaire scores (correlation coefficient=0.35 and 0.60, respectively; p<0.0001). Multivariate model including the Patient Activation Measure accounted for 26% of the variation in Short Inflammatory Bowel Disease Questionnaire scores, while the model including the Cognitive Adaptability Index accounted for 50% (p<0.0001).
CONCLUSION: There are positive, highly significant correlations between adaptive capacities and health-related quality of life in patients with inflammatory bowel disease. Side-by-side use of the Patient Activation Measure and Cognitive Adaptability Index also revealed an unexpected finding – the Cognitive Adaptability Index that is not healthcare-specific correlates more strongly with health-related quality of life and accounts for more of the variation in Short Inflammatory Bowel Disease Questionnaire scores than the healthcare-specific Patient Activation Measure. Our findings suggest that measurement of cognitive adaptability, especially by use of the Cognitive Adaptability Index, may have the ability to predict future health. Even minimal increases in patient adaptability via patient-oriented interventions have the potential to dramatically improve patient outcomes.

ADHERENCE OF PATIENTS WITH PRESCRIBED MEDICATIONS AFTER DISCHARGE FROM AN URBAN PUBLIC HOSPITAL MEDICINE SERVICE. L.I. Wasserman[1]; V. Perel[1]; N.R. Shah[1]. [1]New York University, New York, NY. *(Tracking ID # 205966)*

BACKGROUND: Decisions about the timing of safe discharge from an inpatient hospital stay are often based on the assumption that patients will continue to take prescribed medications after they have left the hospital. Published studies report a wide range of rates of non-adherence, with 6 to 27% of patients not filling their prescriptions in a timely fashion after hospital discharge. We hypothesize that the patients in our urban public hospital have higher non-adherence rates than previously published. We studied the timeliness and completeness of discharge prescription fills by these patients.
METHODS: From August through December 2008, we prospectively enrolled adult patients from the inpatient internal medicine services of two attending physicians in a public tertiary care teaching hospital in New York City. Inclusion Criteria: 1) Patients had to have public or private insurance with pharmacy benefits. 2) Patients had to receive a prescription for at least one new medication not prescribed prior to hospital admission. 3) While in the hospital, patients had to be able to provide identifying information for the pharmacy from which they planned to obtain their prescriptions. Exclusion criteria: 1) Patients who were uninsured (which meant that patients received their discharge medications from the hospital pharmacy). 2). Patients who did not have a pharmacy they had previously obtained prescriptions from on a regular basis. We obtained demographic and clinical data from the hospital medical record. Ten to fourteen days after discharge, we contacted the patients' pharmacies and obtained information regarding timeliness and completeness of prescription fills.
RESULTS: We enrolled twenty-eight patients and collected complete data for 27. Seventy-two percent of the patients were male. The mean age was 58 years old and mean length of stay 5.7 days. The most common admission diagnosis categories were cardiovascular disease (56% of patients), infectious disease (26%), renal disease (15%), and gastrointestinal disease (11%). Thirty-six percent of patients had prescriptions covered by Medicaid alone, 29% by Medicaid with Medicare, 14% by Medicare alone, and 4% by private insurance. By 10–14 days after discharge, 11 patients (41%) had not filled any of their prescriptions. Eight patients (30%) filled all of their prescriptions. Of those patients who filled any prescriptions 78% did so within 4 days of discharge. Four of the 28 patients (14%) returned to our hospital for an emergency room visit or hospital admission during the study period. None of these patients filled all of their prescriptions.
CONCLUSION: The rate of medication non-adherence is higher among patients discharged from our urban public hospital than in previously published reports, with 67% of patients failing to fill all medications prescribed on discharge. Patients who failed to fill all of their prescriptions were more likely to visit the emergency room or require readmission. Further research is needed to identify predictors that identify patients at risk of non-adherence with prescriptions at hospital discharge and design interventions to minimize this risk.

ADHERENCE TO SMOKING CESSATION GUIDELINES IN THE EMERGENCY DEPARTMENT D.A. Katz[1]; M. Vander Weg[2]; A. Nugent[3]; R. Kim[4]; M. Graham[4]; J. Holman[5]; S.L. Hillis[2]; M.G. Titler[6]. [1]Veterans Affairs Medical Center/University of Iowa, Iowa City, IA; [2]University of Iowa/Iowa City VA Medical Center, Iowa City, IA; [3]University of Iowa Carver College of Medicine, Iowa City, IA; [4]University of Iowa College of Public Health, Iowa City, IA; [5]Veterans Affairs Medical Center, Iowa City, IA; [6]University of Michigan School of Nursing, Ann Arbor, MI. *(Tracking ID # 205091)*

BACKGROUND: The Society for Academic Emergency Medicine (SAEM) recommends use of the Agency for Healthcare Research and Quality (AHRQ) Smoking Cessation Guideline by emergency clinicians. The focus on acute care, time pressure, and lack of resources hamper the delivery of smoking cessation services in the ED, however. The aims of this study are: 1) to evaluate current practices of smoking cessation assessment and counseling in the ED, and 2) to identify characteristics of ED smokers associated with receipt of guideline-recommended cessation services.
METHODS: We conducted a baseline face-to-face interview of adult smokers (>18 years old) who presented to one University ED by private vehicle or on a walk-in basis and who smoked more than 5 cigarettes per day (cpd). The baseline interview included questions about demographics, comorbid conditions, smoking-related beliefs, and other items pertaining to smoking cessation. To assess performance of guideline-recommended actions by ED staff, we conducted a telephone interview of study patients shortly after the ED visit (typically within 48–72 hours). We used logistic regression to explore the following potential predictors of being asked about smoking and receiving brief cessation advice: sociodemographic variables (age, gender, race, education), prior diagnosis of smoking-related illnesses, Fagerström Test for Nicotine Dependence score, readiness to quit smoking (Contemplation Ladder), and depressed mood (score >10 on the Patient Health Questionnaire depression module, PHQ9).
RESULTS: Of 247 ED smokers who agreed to participate, 200 (81%) completed the post-ED interview and comprised the analytic sample. Thirty-six percent of study patients believed that they had a smoking-related medical problem, and 21% had concern that their acute symptoms might be related to smoking. On the Contemplation Ladder (range 0–10), 40% scored 8 or higher, where 8 corresponds to "starting to think about how to change my smoking patterns." The majority of study patients were asked about smoking status (67%), but only 27% received any advice to quit and only 20% were asked about willingness to quit. Only 14% of patients received any assistance in quitting (self-help material, help in setting quit date, discussion of pharmacotherapy) and only 4% received a referral for telephone counseling. In multivariable models, female gender (OR 0.5, 95% CI=0.2–1.0) and depressed mood (OR 0.3, 95% CI=0.1–0.6) were negatively associated with being asked about smoking. Older patients (OR 1.04, 95% CI=1.01–1.07 per year), those with <12 years of education (OR 3.7, 95% CI=1.5–9.0), and those reporting concern that acute symptoms were smoking-related (OR 3.0, 95% CI=1.3–7.0) were more likely to receive advice to quit. Older patients (OR 1.04, 95% CI=1.01–1.08 per year) were also more likely to be asked about willingness to quit.
CONCLUSION: Although many ED smokers experience a "teachable moment" and are motivated to quit smoking, the ED encounter remains an underutilized opportunity to encourage smoking cessation. Based on the strength of evidence from primary care settings, ED clinicians should receive training and systems support to initiate cessation counseling for all smokers once these patients' acute care needs have been addressed.

ADHERENCE TO TAMOXIFEN AND AROMATASE INHIBITORS AMONG WOMEN WITH INCIDENT BREAST CANCER. L. Nekhlyudov[1]; L. Li[1]; D. Ross-Degnan[1]; A. Wagner[1]. [1]Harvard Medical School/Harvard Pilgrim Health Care, Boston, MA. *(Tracking ID # 205231)*

BACKGROUND: Adjuvant hormonal therapy for breast cancer with tamxofen and/or aromatase inhibitors has been shown to reduce the rates of recurrence and mortality. Prior studies revealed that discontinuation of tamoxifen before completion of therapy is common. The goal of this study was to document patterns and predictors of adherence with

adjuvant tamoxifen and aromatase inhibitors among insured women with incident breast cancer.

METHODS: Using claims data of a New England Health insurer, we identified women who initiated adjuvant hormone therapy for incident breast cancer between January 2000 and August 2006 and obtained state-based cancer registry data for these women. We used descriptive statistics to assess patterns of adjuvant hormone therapy non-adherence and extended Cox regression modeling to identify predictors of adjuvant therapy discontinuation over 5 years following diagnosis. Non-adherence was defined as medicine possession ratio (MPR) less than 80% for the time window under consideration; discontinuation as a gap in dispensing of 60 days.

RESULTS: Among 2,207 women with early stage breast cancer, 1,408 initiated hormone therapy within 12 months after diagnosis; 769 (54.6%) used tamoxifen alone, 354 (25.1%) used an aromatase inhibitor alone and 285 (20.3%) switched from one agent to the other. Over the course of the 60 month observation period, between 19% and 41% of women who had not discontinued therapy were non-adherent. In adjusted analyses, age was a significant predictor of discontinuation in the first year. Compared to women under age 50, women aged 50–59 were less likely to discontinue adjuvant therapy [HR 0.69, 95%CI, 0.48–0.99] whereas women aged 60–69 and women aged 70 and older were more likely to discontinue [HR 1.51, 95%CI 1.04–1.99] and [HR 1.99, 95%CI 1.35–2.93], respectively. Age 70 years [HR 2.01, 95%CI 1.21–3.34] and the number of inpatient days in the prior 12 months [HR 1.44, 95%CI 1.22–1.70 per 10-day increase] were significant predictors of discontinuation beyond the first year. Race, education, income, year of diagnosis, breast cancer treatment, and number of outpatient visits were not related to adjuvant therapy discontinuation.

CONCLUSION: Adherence to hormonal therapy is suboptimal, particularly among older women, irrespective of the agent used. Oncologists and/or primary care providers caring for breast cancer survivors should encourage women to continue hormonal therapy as advised by treatment guidelines and address potential barriers to adherence.

ADVISORY COLLEGE PROGRAM: IMPLEMENTATION AND STUDY OF A NOVEL ADVISING SYSTEM TO PROMOTE PERSONAL WELLNESS AND CAREER DEVELOPMENT AMONG MEDICAL STUDENTS

E.A. Sastre[1]; A.E. Fleming[2]; E.E. Burke[2]; E. Silverstein[2]; A.I. Kupperman[2]; J.A. Rymer[2]. [1]Society of General Internal Medicine, Nashville, TN; [2]Vanderbilt University Medical Center, Nashville, TN. *(Tracking ID # 206065)*

BACKGROUND: Current rates of medical student depression and burnout as well as a lack of mentoring relationships between students and faculty highlight the failure of traditional one-on-one faculty advising systems to meet the needs of undergraduate medical students. We developed an Advisory College Program whose aim is to support a core group of faculty for the purpose of promoting personal wellness and professional development. We studied the impact of the new Advisory College Program as compared to the former Faculty Advisory Program on students' perceptions of wellness promotion and career advising.

METHODS: We replaced the traditional one-on-one Faculty Advisory Program in July 2007 with an Advisory College Program consisting of four advisory colleges each co-led by two Advisory College Directors and supported by approximately six Faculty Affiliate Advisors representing a variety of clinical disciplines from the School of Medicine. Each college is comprised of one quarter of the students from each of the four years of medical school. Each college promotes personal wellness and career development through the organization of college-wide activities and one-one-one mentoring. We developed two parallel questionnaires to evaluate the former Faculty Advisory Program and the new Advisory College Program simultaneously. The Faculty Advisory Program survey was provided to second and third year medical students at the beginning of the 2007–2008 academic year. The Advisory College Program survey was delivered to first and second year medical students at the end of the academic year. Data from the surveys was evaluated to compare the perceived effectiveness of the two advising systems.

RESULTS: Seventy-six of an eligible 103 first year medical students (73.7%) completed the Advisory College Program survey. Sixty-five of an eligible 109 second year students (59.6%) and 93 of 106 third year students (87.7%) completed the Faculty Advisory Program survey. Survey results demonstrated that while 58% of the students in the Faculty Advisory Program had never been contacted by their advisor, all students within the new Advisory College Program reported having contact with their advisor and 50% reported greater than 6 contacts in the preceding year. Only 25% of students in the old system compared to 87% in the new system reported at least two meaningful interactions with their assigned advisor in the last year ($p<0.001$). Regardless of the system surveyed, over 94% of students agreed that both wellness and career advising is important to them. Students were significantly more satisfied with wellness promotion (72% vs. 25%, $p<0.001$) and career advising (42% vs. 17%, $P<0.001$) in the Advisory College Program as compared to the Faculty Advisory Program. Comparison of parallel questions from the two surveys demonstrated a significant improvement in students' satisfaction with the number of advisor-initiated contacts, advisors' awareness of the academic schedule and advisor approachability in the Advisory College Program ($p<0.001$).

CONCLUSION: We have described the implementation of a new Advisory College Program for undergraduate medical students. We have found significant improvements in students' overall satisfaction with both wellness promotion and career advising in the new system compared to a traditional Faculty Advisory Program. Novel systems that increase student-faculty interactions and enhance one-on-one student advising may improve student wellness and career success.

AFTER THE CAREER DEVELOPMENT AWARD: CAREER EXPERIENCES OF RACIAL/ETHNIC MINORITY ACADEMIC PHYSICIAN FACULTY

M. Nunez-Smith[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 206076)*

BACKGROUND: Diversifying the racial/ethnic composition of physician faculty is a priority for academic medical centers. Although there is an important focus on increasing diversity in the pipeline, little is known about the career trajectories of racial/ethnic physicians at later career stages. Therefore, we identified a population of physicians who self-identify as racial/ethnic minorities who demonstrated early success towards the pursuit of careers in academic medicine and sought to: 1) identify the structures and experiences that contributed to their career successes and hurdles and 2) describe the career trajectories and transitions among racial/ethnic minority physicians who began their careers as academic medical school faculty.

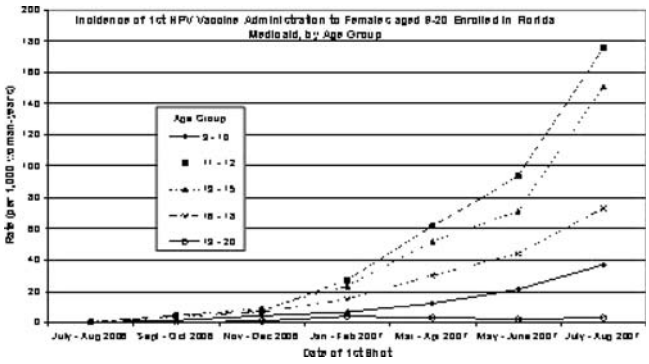
METHODS: We conducted a mixed methods study, including in-depth interviews (A) and a questionnaire (B) with former recipients of the Minority Medical Faculty Development Program (MMFDP), a career development award established by the Robert Wood Johnson Foundation in 1983 with the objective of increasing the number of racial/ethnic minority faculty who could attain senior rank in academic medicine. Data collection and analysis is complete. A. We recruited a purposeful sample of MMFDP awardees with attention to representation across the variables of gender, academic rank, current work setting, age, race/ethnicity, and geographic location. The sample size was determined by thematic saturation. Audiotaped, telephone interviews were facilitated by use of a standard interview guide and single interviewer. Transcripts were professionally prepared before independent coding by three researchers using the constant comparative method. Coding discrepancies were resolved by negotiated group consensus. B. A 27-item, web-based questionnaire was developed based upon analysis of the in-depth interviews and existing career trajectory instruments. All MMFDP recipients were sent an initial e-mail invitation. Weekly follow-up e-mails were sent to non-responders for one month following the first e-mail. Standard frequency analysis was used to describe the proportion of the sample responding affirmatively to each item.

RESULTS: A. We interviewed 13 past MMFDP awardees. Seven participants are academic faculty and six participants were non academic. The taxonomy that emerged from data analysis included: 1) Aspects of the MMFDP that facilitated career success; 2) Aspects of the MMFDP that hindered career success; 3) Career transitions and trajectories; 4) Recommendations to support diversity among academic medicine faculty. Illustrative quotes related to each of these themes will be presented. B. Sixty-nine past MMFDP awardees completed the survey (69% response rate). Data describing career trajectories and the degree to which several MMFDP aspects influenced career success will be presented. Interestingly, more than 50% of academic faculty stated that they are considering leaving their current academic institution within 3 years. The top five workplace characteristics influencing the decision to leave or to stay at an academic institution were identical: a) opportunities for career advancement, b) opportunities to collaborate with other faculty, c) clarity of productivity expectations, d) relationships with leadership, and e) climate or racial/ethnic discrimination.

CONCLUSION: Lessons learned from the career experiences of past MMFDP awardees can provide better understanding regarding policy strategies that retain and support academic faculty diversity.

AGE AND RACE-SPECIFIC RATES OF HPV VACCINE INITIATION AMONG FEMALES AGED 9 – 20 ENROLLED IN FLORIDA MEDICAID
R.L. Cook[1]; J. Zhang[2]; H.G. Steingraber[2]; T.L. Kauf[1]; B.A. Brumback[1]; T.A. Arcomone[1]; C. Mallison[3]. [1]University of Florida, Gainesville, FL; [2]Florida Center for Medicaid and the Uninsured, Gainesville, FL; [3]Florida Agency for Health Care Administration, Gainesville, FL. *(Tracking ID # 205874)*

BACKGROUND: The Gardasil HPV vaccine was approved by the FDA in June, 2006, and recommended by the Advisory Committee for Immunization Practices in March, 2007. Specific recommendations are to vaccinate girls aged 11–12, with catch-up vaccination for women up to age 26. The objectives of this study were to determine age- and race-specific rates of uptake of the HPV vaccine during the initial year after vaccine approval.
METHODS: Using administrative Medicaid data for the period 7/1/06 – 8/31/07, we identified all enrolled females aged 9 – 20 (n=416,829). Overall and group-specific rates of first HPV vaccine administration were calculated by dividing the number of females who received their first HPV vaccine by the number of enrolled women within each time interval. Rates were determined for consecutive 2-month intervals and adjusted to rates per 1000 woman-years. The work was supported in part by a research grant from Merck.
RESULTS: 9612 women received their first HPV vaccination through Florida Medicaid during the follow-up period. Vaccination rates increased over time and were still increasing at censorship. During the final 2-month interval (July-August, 2007), vaccination rates were highest in girls aged 11–12 (175 vaccinations per 1000 woman-years), followed by ages 13–15 (151 vaccinations), ages 16–18 (73 vaccinations), 9–10 (37 vaccinations), and were lowest in women aged 19–20 (3.1 vaccinations per 1000 woman years) (Fig 1). When examined by race/ethnicity, vaccination rates at each time point were lowest among black women compared to white and Hispanic women.
CONCLUSION: Vaccination rates increased initially after the ACIP recommendation, mostly among females aged 11 – 15. Few women aged 19 – 20 had received the vaccine, despite recommendations and access to vaccine coverage. Strategies to improve HPV vaccination rates to young women seen in internal medical practice may be needed. These initial data also suggest the possibility of racial disparities in HPV vaccine uptake. Future analyses will examine trends over the subsequent year and examine individual, provider, and system level variables associated with HPV vaccine uptake.



AGE AT FIRST ALCOHOL INTOXICATION: ASSOCIATION WITH ALCOHOL, TOBACCO, CANNABIS AND OTHER SUBSTANCE USE AMONG 19 YEAR-OLD SWISS YOUNG MEN.
N. Bertholet[1]; J. Gaume[1]; M. Faouzi[1]; G. Gmel[1]; J. Daeppen[2]. [1]Alcohol Treatment Center, Department of Community Medicine and Health, Lausanne University Hospital, Lausanne, ; [2]Alcohol Treatment Centre, Department of Community Medicine and Public Health, University of Lausanne, Lausanne, Vaud. *(Tracking ID # 205092)*

BACKGROUND: Alcohol use, alcohol intoxication, tobacco, cannabis and other drug use are frequent among young Swiss men. The association between age at first alcohol intoxication and other substance use is of interest from both clinical and public health perspectives.
METHODS: A census of Swiss francophone 19 year-old men consecutively reporting for processing at the army recruitment in Lausanne, Switzerland were assessed via a self-report survey that included: number of drinks (i.e., 10 g ethanol each) and number of drinking occasions with six or more drinks over the past 12 months; age at first alcohol intoxication; current tobacco and cannabis use; and lifetime use of other (illegal) substances, including prescription drug abuse. Weekly risky drinking was defined as >21 drinks per week and risky single occasion drinking (RSOD) as 6 or more drinks per occasion. Associations between age at first intoxication and current weekly risky drinking, RSOD, current tobacco and cannabis use, and lifetime use of other drugs were determined through logistic regression models. Poisson regressions that allowed for over-dispersion were used to model number of standard drinks per week and RSOD episodes per month at age 19, based on age at first intoxication.
RESULTS: Of the 12,133 young men presenting for the mandatory army recruitment procedures, 9,686 (80%) completed the survey. Of these, 8,687 (90%) reported at least one episode of alcohol intoxication, with a median age (Interquartile range [IQR]) at first intoxication of 15 years (14, 16), 6 (1, 16) drinks/week, and 2 (0, 4) RSOD episodes of binge drinking/month. Prevalence of current tobacco and cannabis use was 50.2% and 44.6% respectively. Lifetime use of other drugs was 17.2%. Odds ratio (95% CI) for subjects with a first alcohol intoxication before the age of 15 showed they were more likely than subjects with a first intoxication at age 15 or older to present weekly risky drinking [3.2 (2.8, 3.6)], RSOD [2.3 (2.1, 2.6)], current tobacco [2.6 (2.4, 2.8)], cannabis use [2.7 (2.5, 3.0)], and lifetime use of other drugs [3.5 (3.1, 3.9)]. For each age from 13 to 19 years, the occurrence of first intoxication was associated with a 15.6% (95% CI 14.6, 16.6) increase in the number of drinks per week and a 14.7% (13.7, 15.6) increase in the number of RSOD episodes per month.
CONCLUSION: Among 19 year-old Swiss men, the prevalence of alcohol intoxication is elevated, with the age at first intoxication for half of them being less than 15 years. Since early alcohol intoxication is associated not only with heavier alcohol use at age 19 but also with increased risk of tobacco, cannabis and other drug use, physicians should consider age at first intoxication both as a potential target for counseling and as a potential indicator of later alcohol and other substance use.

AGGRESSIVENESS OF END-OF-LIFE CARE FOR OLDER CANCER PATIENTS IN THE VA VERSUS THE PRIVATE SECTOR
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BACKGROUND: Studies suggest that treatment of older cancer patients at the end of life has become increasingly aggressive over time, despite the absence of evidence that aggressive care at the end of life is associated with better outcomes. Integrated health care delivery systems may be better suited to limit overly aggressive care than non-integrated systems. We compared aggressiveness of care at the end of life for older individuals with metastatic cancer cared for in the Veterans Affairs Health system (VA) with that for older individuals cared for in the private sector under fee-for-service Medicare arrangements.
METHODS: We used propensity score methods to match 2713 men in the VA health system who were diagnosed with stage IV lung or colorectal cancer in 2001–2002 and died by the end of 2005 with 2713 similar men living in areas covered by Surveillance, Epidemiology, and End Result (SEER) registries enrolled in fee-for-service Medicare. Patients were matched on age, race/ethnicity, marital status, region, cancer type, year of death, comorbidity, and area-level indicators of socioeconomic status. We assessed receipt of chemotherapy within 14 days of death, intensive care unit (ICU) admissions within 30 days of death, and more than 1 emergency room visit within 30 days of death.
RESULTS: Before matching, men in the VA system were younger, more likely to be black or Hispanic versus white, unmarried, living in the South, and living in areas of lower socioeconomic status (all P<.001); these differences were no longer present after matching. Among matched cohorts, men treated in the VA were less likely than men treated in the private sector to receive chemotherapy within 14 days of death (4.3% vs. 7.6%, P<.001) or to be admitted to an ICU within 30 days of death (11.6 vs. 20.0, P<.001), and were similarly likely to have more than one emergency room visit within 30 days of death (12.6 vs. 13.1, P=.65).
CONCLUSION: Older men with metastatic lung or colorectal cancer who are treated in the VA health system were less likely to have aggressive chemotherapy and intensive care unit stays at the end of life than similar men treated in the private sector. This may result from the absence of financial incentives for providing care in the VA or because

the VA's integrated delivery system is structured better to understand wishes of patients and/or to limit what may be potentially futile medical care. Additional studies are needed to assess whether men who undergo less aggressive care at the end of life also experience better outcomes.

AGREEMENT OF RESIDENT VENOUS THROMBOEMBOLISM RISK STRATIFICATION USING A VTE PROTOCOL FOR HOSPITALIZED MEDICAL PATIENTS. M. Beck[1]; L. Scalzi[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 205626)*

BACKGROUND: Current data demonstrates that only 43% of high-risk medical patients receive VTE prophylaxis and up to 25% of low-risk patients receive it inappropriately (1). The American College of Chest Physicians (ACCP) recommends that every hospital should have a formal, active strategy to assist clinicians in appropriate VTE prophylaxis. Although VTE risk assessment tools are widely available (e.g. www.hospital medicine.org) none are validated or have been evaluated for inter-rater reliability when utilized by physicians in training. However, at most tertiary medical centers, VTE risk assessment stratification is usually performed by residents. We created a VTE prophylaxis protocol and sought to determine the inter-rater reliability among internal medicine residents.
METHODS: We retrospectively identified 21 randomly selected patients, >18 years of age who were admitted to medical services through the Hershey Medical Center (HMC) emergency room (ER). Each patient had an ER summary that included a history and physical, admitting laboratory and/or radiologic studies, assessment and plan. A convenience sample of internal medical residents were provided identical de-identified ER admission summaries from these 21 patients. They were given copies our of VTE protocol and asked to provide each patient with a total numeric risk score, risk stratification score (low, moderate, high), and a VTE prophylaxis plan based on the risk-stratification (early mobilization, pharmacoprophylaxis, mechanical prophylaxis, or dual modality). Inter-rater reliability for patient risk stratification was rated by kappa coefficient.
RESULTS: Twenty-three non-selected resident reviewers participated, representing 30% of the residents in HMC's Internal Medicine and Medicine-Pediatrics training programs. Fifteen (65%) were interns, five (22%) were second year residents and 3 (13%) were third year residents. Approximately one-third, eight out 21 patients (38%) were stratified as low risk, 7/21(33%) were moderate-risk, and 6/21 (29%) were high-risk. In the low-risk patients, the residents correctly chose to not implement any prophylaxis 84% of the time. In the moderate to high-risk patients, residents implemented some form of prophylaxis 90% of the time. The overall kappa coefficient for risk stratification agreement was 0.51 (95% CI 0.5, 0.53).
CONCLUSION: This is the first study that evaluates a VTE protocol for resident inter-reliability at a teaching medical center. A k coefficient of 0.51 represents acceptable agreement for risk-stratification. We also demonstrated that by using our protocol, 90% of medical patients in the moderate to high-risk range, would have received some form of VTE prophylaxis, and 16% of low-risk patients would receive prophylaxis inappropriately. Larger studies examining resident decision making using protocols for VTE prophylaxis with validation are warranted. Additionally, studies that examine resident adherence to VTE prophylaxis protocols that couple an integrated clinical decision support system and resident education, are also warranted.

ALCOHOL-RELATED PREDICTORS OF POSTOPERATIVE DELIRIUM IN MAJOR HEAD AND NECK CANCER SURGERY S. Shah[1]; H.G. Weed[1]. [1]Ohio State University, Columbus, OH. *(Tracking ID # 203775)*

BACKGROUND: Although alcoholism is a risk factor for postoperative complications, the correlations of specific alcohol-use-related findings with specific postoperative complications have not been investigated. Furthermore, screening questionnaires for alcoholism can be time consuming. Therefore, knowing which alcohol-use-related findings best identify patients at risk for postoperative complications might help to make preoperative evaluation more effective and more efficient. The objective of this study was to investigate the correlation of specific preoperative alcohol-use-related findings with postoperative delirium.
METHODS: The study population was an inception cohort of 805 patients undergoing medical evaluation from 1994 through 2004 prior to major surgery to resect squamous cell carcinoma of the head and neck. Fifteen variables were analyzed for correlation with postoperative delirium: 5 medical variables, 2 surgery variables, and 8 alcohol-use questions. Nine of the 15 variables were alcholol-related: 1 blood test (MCV) and the 8 alcohol-use questions. The alcohol-use questions were modified versions of the 4 CAGE questions, plus 4 additional questions: most recent alcohol use, longest abstinence from alcohol in the preceding 12 months, "blackouts" associated with drinking in the preceding 12 months, and any prior experience of alcohol withdrawal. Logistic regression with step-wise selection was used to determine correlation.
RESULTS: Ninety-two (11.4%) of the 805 surgeries were complicated by postoperative delirium. After logistic regression, seven variables remained significantly correlated with postoperative delirium: age (OR: 1.05/year, p<0.01), pre-existing cognitive impairment (OR: 2.65, p= 0.02), poor functional status (OR: 2.23, p=0.02), duration of surgery (OR: 1.003/minute, p<0.01), MCV greater than 95 fL (OR: 2.20, p< 0.01), ever having been advised to cut back on alcohol consumption (OR: 2.28, p<0.01), and not abstaining from alcohol for at least 1 week in the preceding 12 months (OR: 2.32, p=0.01).
CONCLUSION: Specific findings associated with heavy alcohol consumption may help to identify patients at risk for postoperative delirium. These findings are an MCV greater than 95 fL, ever having been advised to cut back on alcohol consumption and not abstaining from alcohol for at least 1 week in the preceding 12 months.

Potential Predictors of Postoperative Delirium after Major Head and Neck Cancer Surgery

POTENTIAL PREDICTOR OF DELIRIUM	ODDS RATIOS (95% CI)	p VALUE
Age (years)	1.03 (1.01–1.05)	<0.01*
Living Alone	1.11 (0.65–1.88)	0.71
Na, K or glucose abnormal	0.97 (0.33–2.80)	0.95
Cognitive Impairment	3.20 (1.54–6.65)	<0.01*
Poor Functional Status	2.23 (1.26–3.96)	<0.01*
ASA Class 3 or higher	1.55 (0.99–2.41)	0.05*
Duration of Surgery (minutes)	1.003 (1.002–1.004)	<0.01*
ALCOHOL RELATED:		
Elevated MCV (>95)	2.71 (1.73–4.27)	<0.01*
Cut Down	1.51 (0.97–2.33)	0.07
Advised by Others	2.64 (1.62–4.28)	<0.01*
Guilty	1.92 (1.11–3.34)	0.02*
Eye Opener	1.52 (0.74–3.10)	0.25
Most Recent (<3 days)	1.95 (1.23–3.11)	<0.01*
Time Without (<7 days)	3.24 (1.88–5.59)	<0.01*
Blackouts	1.97 (0.98–3.95)	0.06
Shakes, DTs, or Seizures	1.37 (0.78–2.42)	0.27

AMBULATORY CARE PROVIDERS' WORK ENVIRONMENT ASSOCIATED WITH POOR QUALITY OF CARE AND PROVIDER BURNOUT. R.K. Gopal[1]; T.E. Yamashita[2]; A.V. Prochazka[1]. [1]Denver VAMC, Denver, CO; [2]University of Colorado Denver School of Medicine, Denver, CO. *(Tracking ID # 205271)*

BACKGROUND: In the last 20 years, much of health care has moved from the inpatient wards to the outpatient clinics. We aim to describe this work environment and its relation to quality of care and burnout in Veterans Affairs (VA) primary care practitioners.
METHODS: We administered a postal survey to all primary care providers in the Eastern Colorado Health Care System (February 2008). The survey contained the Job Content Questionnaire (JCQ) based on Karsek's job strain model. Per the model, professionals with high job demands and low decision latitude are at risk of psychological and physical illness. We also evaluated burnout using the Maslach Burnout Inventory (MBI) defining burnout as having either high emotional exhaustion (EE) or high depersonalization (DP). We assessed situational variables and job fit. The VA sets targets for 18 preventative health and chronic diseases management quality of care measures. We used the electronic record to determine how many targets each provider met. We used Wilcoxon rank sum test to evaluate correlation between dichotomized high vs low JCQ scores and care targets attained and used Pearson correlation to determine relationship between MBI and JCQ scores..
RESULTS: Forty-nine (79%) providers responded to the survey. Of these, 48% were physicians; 67% female; 65% aged between 50 to

64 years; 46% had been with the VA for less than 5 years, and worked on average 46 hours per week. Evaluating burnout, 37% of the providers met criteria for burnout. VA providers had high psychological demands (z score=.73) and just above average decision latitude (z score=.025). Per the JCQ job strain ratio, they were under strain (VA provider ratio=1.045, greater than 1=strain). One-third of providers felt they had enough support staff to provide high quality care, 4% had access to timely consult from specialists, while 69% reported that bad physical conditions often interfered with work. Looking at job fit, 52% felt they could "balance my time at work with leisure time out of work," 52% felt they had a good balance between clinical and administrative work, and 33% felt they had a good balance between clinical and academic work. Looking at satisfaction, 94% "like doing the things I do at work." Providers with high psychological demands met significantly fewer care targets compared to providers under low demands (mean 5.1 vs 7.5, p<.001). There were no quality of care differences by decision latitude or burnout status. There were no significant correlation between MBI scores and psychological demands (EE r=109 p=.074, DP r=-.154 p=.29) however high decision latitude correlates with lower EE scores (r=-.348, p=.014) and trend to lower DP (r=-.254, p=.078).
CONCLUSION: In this representative sample of VA providers, a significant percentage was strained and burned-out. This may in part be due to lack of support, physical condition of their environment, and lack of balance at and outside of work. However, the vast majority of providers enjoy their work. Providers with high demands reached fewer targets of quality of care and providers with less decision latitude reported greater emotional exhaustion. Interventions to improve work environment in particular psychological demands and decision latitude may further improve provider strain and burnout and improve quality of care.

AN ALGORITHM TO IDENTIFY INCIDENT MYOCARDIAL INFARCTION USING MEDICAID DATA N.N. Choma[1]; M.R. Griffin[2]; R.L. Huang[2]; E. Mitchel[2]; L. Kaltenbach[2]; P. Gideon[2]; S.M. Stratton[2]; C.L. Roumie[1]. [1]Veterans Administration, Tennessee Valley Healthcare System, Tennessee Valley Geriatric Research Education Clinical Center (GRECC) and Vanderbilt University Medical Center, Nashville, TN; [2]Vanderbilt University Medical Center, Nashville, TN. *(Tracking ID # 204230)*

BACKGROUND: For studies of non-steroidal anti-inflammatory drug (NSAID) exposures and cardiovascular events using administrative data, it is essential to determine hospitalizations for incident acute myocardial infarctions (AMIs). Since smoking and aspirin exposures are poorly captured by administrative data, it is necessary to determine if these exposures are associated with NSAID use, and thus potential confounders.
METHODS: We identified patients with a first hospitalization for AMI from Tennessee Medicaid (TennCare) files as those with a primary ICD-9 coded discharge diagnosis of 410.0 and length of stay at least three days. Eligible persons were aged 50–84 years between January 1, 1999 and December 31, 2004, had continuous enrollment, were not institutionalized, and had no AMI, stroke, or non-cardiovascular serious medical illness in the year prior to study entry. Of 5524 eligible patients who met the AMI definition, a systematic sample (n=350) of NSAID users and nonusers were selected for chart review. The medical record was the reference standard. Using criteria adapted from randomized trials of cardiovascular disease to define AMI: presence/absence of chest pain, EKG pattern, and cardiac enzyme data, AMI was categorized as definite, probable, or none. We calculated the positive predictive value (PPV) of our definition for verified definite and probable AMI events.
RESULTS: Of 350 patients selected, 337 (96.3%) charts were abstracted and 307 (91%), 6 (1.8%), and 24 (7.1%) patients were categorized as definite, probable, and no AMI, respectively. The PPV for any definite or probable AMI was 92.8% (95% CI 79.7–97.3); for first reported AMI hospitalization in the past 365 days was 91.7% (95% CI 88.3–94.2), and for first ever reported AMI was 72.7% (95% CI 67.7–77.2). The age-adjusted prevalence of current smoking was higher in NSAID users than nonusers but was not statistically significant (46.4% vs. 39.1%, p=0.35). The age adjusted prevalence of aspirin use was similar between both groups but not statistically significant (36.9% vs. 35.9%, p=0.90).
CONCLUSION: The use of ICD-9 code 410.0 had high predictive value for identifying AMI. Among those with AMI, there was no statistically significant difference of smoking or aspirin use between NSAID users and nonusers, suggesting that these factors will not confound the relationship between NSAID use and cardiovascular outcomes when nonusers are the reference.

AN ANALYSIS OF TWO RANDOMIZED, DOUBLE-BLIND, PLACEBO-CONTROLLED TRIALS ASSESSING THE EFFECT OF MILNACIPRAN FOR FIBROMYALGIA M.E. Geisser[1]; R.H. Palmer[2]; Y. Wang[2]; R.M. Gendreau[3]; M. Trifilo[2]. [1]University of Michigan, Ann Arbor, MI; [2]Forest Research Institute, Jersey City, NJ; [3]Cypress Bioscience, Inc., San Diego, CA. *(Tracking ID # 205559)*

BACKGROUND: Fibromyalgia (FM) is a chronic disorder affecting 2%-4% of the population in the United States and is much more common in women than in men. In addition to suffering from widespread musculoskeletal pain, patients often complain of fatigue, morning stiffness, sleep disturbance, and cognitive impairment. Therefore, medications that improve FM pain and the multiple associated symptoms are important in treating this chronic disorder. Recent clinical trials have shown that milnacipran, a dual reuptake inhibitor of norepinephrine and serotonin—two neurotransmitters involved in mediating descending pain pathways—is effective in treating pain as well as other symptoms associated with FM. The goal of the current analysis was to further validate these findings by pooling data from 2 FM clinical trials.
METHODS: Pooled data from 2 double-blind, placebo-controlled trials with similar patient selection, study design, and efficacy assessments were analyzed. Patients received placebo (n=624), milnacipran 100 mg/day (n=623), or milnacipran 200 mg/day (n=837). Two composite responder definitions were used to classify each patient's individual response to therapy. FM responders (overall responders) concurrently satisfied response criteria for clinically meaningful improvements of pain (≥30% improvement from baseline in VAS 24-hour recall pain scores), Patient Global Impression of Change (PGIC) (rating of "very much improved" or "much improved"), and physical functioning (≥6-point improvement from baseline in SF-36 Physical Component Score [PCS]). FM pain composite responders concurrently satisfied response criteria for clinically meaningful improvements in pain and PGIC. Secondary outcomes assessed each component individually. Other outcomes investigated fatigue (Multidimensional Fatigue Inventory) and cognition (Multiple Ability Self-report Questionnaire). Pooled results at 15 weeks were analyzed by linear mixed-effect models.
RESULTS: The percentage of patients who were overall FM responders was significantly greater in each milnacipran treatment group (200 mg/day, 23.6%; 100 mg/day, 21.1%) compared to placebo (9.6%; each dose vs placebo, $P<.001$). Likewise, a significantly greater proportion of milnacipran-treated patients were considered FM pain composite responders (200 mg/day, 42.8%; 100 mg/day, 36.8%) compared to placebo (20.6%; each dose vs placebo, $P<.001$). Analysis of individual outcomes indicated significant improvements from baseline with each milnacipran dose compared to placebo in pain ($P<.05$), global status ($P<.001$), physical functioning ($P<.01$), and fatigue ($P<.05$) at 15 weeks; cognition significantly improved with milnacipran 200 mg/day ($P<.01$).
CONCLUSION: These results further support the conclusion that milnacipran is effective for the treatment of FM and its associated symptoms.

AN AUTOMATED MODEL THAT PREDICTS RISK OF READMISSION FOR HEART FAILURE: IMPORTANCE OF SOCIAL FACTORS AND IMPLICATIONS FOR PAY-FOR-PERFORMANCE R. Amarasingham[1]; Y.P. Tabak[2]; T. Swanson[3]; C. Clark[3]; L. Calvillo-King[1]; G. Reed[1]; M. Drazner[1]; B.J. Moore[3]. [1]University of Texas Southwestern Medical Center at Dallas, Dallas, TX; [2]Cardinal Health, Marlborough, MA; [3]Parkland Health & Hospital System, Dallas, TX. *(Tracking ID # 204928)*

BACKGROUND: Readmission to the hospital within 30 days of an admission for heart failure (HF) has gained widespread attention as a potential pay-for-performance measure. However, existing models that could be used to risk adjust for HF readmission, including a proposed government model, demonstrate poor to moderate predictive capability (area under receiver operating characteristic curves [AUC] do not exceed 0.6) and are not designed to identify high risk patients in real-time. Though social and environmental factors may be associated with higher readmission risk, few models comprehensively incorporate these variables. We sought to improve on previous HF models using automated clinical and social data available early in a hospital admission.

METHODS: A model for 30 day readmission was derived from 1,425 HF admissions to an urban safety net hospital in 2007–2008 using data available electronically within 24 hours of admission. We assessed severity of illness using a modified version of the Tabak mortality score for HF, a validated model that uses age, laboratory and vital sign data to assign clinical risk. Race, sex, payer, no.of emergency contacts, history of positive urine cocaine, history of mental illness, patient's census tract of origin, medication refill adherence rate, no. of home address changes, no. of emergency department (ED) visits, and no. of hospital admissions in the prior year were also assessed through multivariable logistic regression. We internally validated model coefficients by applying bootstrap sampling to candidate variables; variable selection was performed using step-wise regression and the Bayes Information Criterion. We assessed model fit through calibration, discrimination, and re-classification and assessed overall model improvement using the AUC, the Hosmer-Lemeshow test, and the integrated discrimination improvement index. The final model was externally validated using 495 separate HF admissions from the same period; the derivation and validation datasets did not contain data from any of the same patients.
RESULTS: Crude readmission rate was 19%. Significant predictors ($p<.05$) after multi-variable adjustment included clinical score (OR 1.45), Medicare status (1.74), emergency contacts >2 (1.33), prior positive urine cocaine (1.19), history of mental illness (1.17), low vs. high risk census tract (0.71), refill adherence rate >10% (0.43), >2 prior ED visits (1.41) or >4 hospitalizations (5.35). The AUC for the clinical model was .61 (95% CI: 0.57, 0.65). The AUC improved to 0.76 (95% CI: 0.72, 0.80) when social factors were included, and remained high in the validation model (OR 0.79; 95% CI: 0.73, 0.84).
CONCLUSION: At a large safety net hospital, an electronic model can predict risk for HF readmission using clinical and social data obtained within 24 hours of admission. Incorporating social and environmental data greatly increases the model's accuracy, suggesting that these factors be considered in the design of a federal pay-for-performance program comparing hospital readmission rates. Electronically derived risk scores may enable finely targeted interventions to reduce readmission for HF.

AN ELECTRONIC REFERRAL SYSTEM IN A SAFETY-NET SPECIALTY CARE SETTING IMPROVES THE EFFICIENCY OF SPECIALTY CARE VISITS J.E. Kim[1]; H.F. Yee[1]; A.H. Chen[1]; D. Guzman[1]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205416)*

BACKGROUND: Medically underserved patients have limited access to specialty care due to limited availability of specialists. In 2005, San Francisco General Hospital (SFGH) implemented a new electronic referral system (eReferral) to improve its referral process and triage requests for specialty appointments. In order to maximize the utility of specialty visits, designated specialty reviewers in each specialty clinic evaluated referrals generated by eReferral; they either assigned appointments based on the level of urgency or communicated with the referring provider for further clarification or work-up.We conducted a survey of specialist seeing newly referred patients prior to and after the implementation of eReferral to assess eReferral's impact on the referral process.
METHODS: At randomly selected specialist clinic sessions, we appended a questionnaire to each new patient chart to be completed by the first specialty clinician seeing the patient. We collected questionnaires from 6 medical and 2 surgical specialty clinics in 2007 and 2008. Providers identified their level of training, whether or not eReferral was used to refer the patient, the degree of difficulty in identifying the clinical question, appropriateness of the referral, and the need for follow-up visit. Where a follow-up visit was needed, we asked whether the follow-up could have been avoided with more complete work-up prior to the visit.
RESULTS: We collected 618 questionnaires (413 from medical and 205 from surgical subspecialty clinics). In two-thirds (65%) (medicine clinics) and half (49%) (surgery clinics) of studied visits, specialists reported that the patient had been referred by eReferral. Fellows completed 45% of the questionnaires in medical clinics and residents completed 57% in surgical clinics. The reason for referral was difficult to identify in 19% and 38% in medical and surgical clinics prior to eReferral and in 10% of both clinics after eReferral (p-value for the pre-post comparison 0.003 and <0.001). One-quarter (27%) and 32% of medical and surgical referrals prior to eReferral and 20% and 14% of medical and surgical referrals after eReferral were considered to be not completely appropriate (p-value for the pre-post comparison 0.1 and $p< 0.01$). Follow-up was requested from 85% and 76% of medical and surgical referrals prior to eReferral and 87% and 59% of referrals made to these clinics after eReferral (p-value for pre-post comparison 0.5 and 0.01). Follow-up could have been avoided in 31% and 43% of medical and surgical referrals prior to eReferral and 22% and 14% of referrals to these clinics after eReferral (p-value for pre-post comparison 0.9 and <0.001).
CONCLUSION: The use of an electronic referral system improved quality of care and facilitated access to specialty care in a safety-net setting by improving the ability of the specialist clinicians to identify the clinical question and by improving the appropriateness and adequacy of work up prior to the appointment. In surgical specialties, eReferral allowed specialists to avoid scheduling an unnecessary follow-up appointment. Improvements in care were more pronounced in surgical versus medical specialty clinics. Electronic referrals have the potential to improve the quality of and access to specialty care in safety-net settings.

AN EVALUATION OF THE RELATIONSHIP BETWEEN THE IMPLEMENTATION OF A NEWLY DESIGNED PRESCRIPTION DRUG LABEL AT TARGET PHARMACIES AND HEALTH OUTCOMES W. Shrank[1]; A. Patrick[1]; P. Gleason[2]; C. Walters[2]; C. Canning[1]; A. Heaton[3]; S. Jan[4]; M.A. Brookhart[1]; S. Schneeweiss[5]; D. Solomon[5]; M.S. Wolf[6]; J. Avorn[7]; N.K. Choudhry[7]. [1]Brigham and Women's Hospital, Boston, MA; [2]Prime Therapeutics, Minneapolis, MN; [3]Blue Cross Blue Shield of Minnesota, Minneapolis, MN; [4]Horizon Blue Cross Blue Shield of New Jersey, newark, NJ; [5]Harvard University, Boston, MA; [6]Northwestern University, Chicago, IL; [7]Harvard Medical School, Boston, MA. *(Tracking ID # 205337)*

BACKGROUND: Medication errors represent a major public health concern, and poor prescription drug labels have been identified as a root cause of errors. A new prescription medication labeling system was implemented by Target pharmacies in May, 2005, and aimed to improve medication safety. We evaluated whether the new Target label influenced patient health outcomes.
METHODS: Using claims from two large health plans, we identified patients with one of 9 chronic diseases who filled prescriptions at Target pharmacies and a matched sample who filled prescriptions at other community pharmacies. We stratified our cohort into new and prevalent medication users and evaluated the impact of the Target label on outpatient, emergency room and inpatient health services use. We used linear regression and segmented linear regression to evaluate the new-user and prevalent-user analyses, respectively.
RESULTS: Our sample included 23,745 Target pharmacy users and 162,369 matched non-Target pharmacy users. In the new-user analysis, we found no significant change in rates of both outpatient (Event Rate Ratio [ERR] 0.53; 95% C.I. 0.15 – 1.86) and inpatient and emergency (ERR 0.88; 95% C.I. 0.62–1.24) health services utilization in Target users after implementation when compared with non-Target users. Similarly, in the prevalent user analysis, we found no change in the level or slope of outpatient or emergency/inpatient services in Target users after implementation of the new label when compared to non-Target users.
CONCLUSION: We found no statistically significant change in health services use attributable to the implementation of the new prescription drug label at Target pharmacies. These findings highlight the challenge of influencing health outcomes with interventions to improve health literacy.

AN INTERVENTION TO IMPROVE DECISION-MAKING AND ADHERENCE TO CORONARY HEART DISEASE PREVENTION S.L. Sheridan[1]; M. Pignone[1]; T.C. Keyserling[1]; B. Rimer[1]; L. Behrend[1]; R.J. Simpson[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205550)*

BACKGROUND: Coronary heart disease (CHD) is the leading cause of death in the United States. Yet, fewer than 50% of patients are using effective primary prevention strategies for each major CHD risk factor (e.g. hypertension, abnormal lipids, smoking).
METHODS: We developed a CHD prevention intervention (including a web-based decision aid and coaching tool and 3 mailed tailored

adherence messages for patients, and a 1-hour education session for providers) to involve patients in CHD decision making and support their adherence to effective prevention strategies. We then conducted a pilot randomized trial at one university-based internal medicine clinic to test the intervention's effectiveness against usual care in increasing immediate intentions to start therapy, and increasing adherence and reducing CHD risk at 3-month follow-up, among adults at moderate to high risk of CHD. We adjusted all analyses for the random effects of clustering by physician, and the CHD risk analysis for baseline CHD risk calculated by a Framingham equation.

RESULTS: We enrolled a consecutive sample of 77 participants in our study. Mean age was 64. 25% were female. 9% were African-American, 86% white. 90% had at least some college education. Mean 10-year CHD risk was 12.2%. 96% reported self-efficacy to lower at least one CHD risk factor. 38 were randomized to the intervention group, 39 to the control group. Immediately following administration, our intervention increased patients' intent to start the most effective CHD risk reduction strategies (e.g. blood pressure medications, cholesterol medications, smoking cessation medications, aspirin) from 56% to 76% (adjusted absolute difference 20%, 95% CI -4% to 44%). At 3-month follow-up, it also increased patients' self-reported adherence to the most effective risk reducing strategies from 61% to 83% (adjusted absolute difference 22%, 95% CI 0% to 44%) and reduced overall 10-year CHD risk from 10.7% to 9.4% (adjusted absolute difference -1.3%; 95% CI -2.6% to -0.01%). The effects on CHD risk were larger in a pre-specified high risk subgroup (n= 45; mean absolute difference -2.3%; 95% CI -4.3% to -0.19%).

CONCLUSION: A patient-focused intervention that involves patients in CHD decision making and supports adherence to effective prevention strategies can improve adherence and reduce CHD risk. More work is needed to determine whether these results translate across diverse settings and populations and whether they can be sustained over longer periods of time.

AN INTERVENTION TO IMPROVE END OF LIFE PLANNING AMONG HOMELESS PERSONS J.Y. Song[1]; E. Ratner[1]; D.M. Bartels[1]; M. Wall[1]; G. Lillian[2]. [1]University of Minnesota, Minneapolis, MN; [2]UCLA, Los Angeles, CA. *(Tracking ID # 204786)*

BACKGROUND: An important recommendation of the NIH State of the Science conference on end of life (EOL) care was that future research should be "attentive to the recruitment of underrepresented populations," as most EOL research has been performed on narrowly defined groups. One such underrepresented group is underserved or indigent individuals. A search found no prospective trials directed towards improving EOL care in poor or underserved populations. Homeless persons are among our most impoverished citizens. They suffer from greater medical morbidity, and die up to 10 times the rate of domiciled populations. One normative theme emerging from recent descriptive research is the prescription for making EOL wishes known, particularly through written means, such as advance directives (AD). We describe an interventional trial addressing EOL advance care planning among homeless persons. This study is unique in that it represents the first prospective interventional trial to improve EOL care in an impoverished population.

METHODS: The SELPH (Study of End of Life Preferences among Homeless persons) study was a prospective, unblinded, randomized study of advance care planning for homeless persons. Participants were recruited from a variety of programs that serve homeless persons, from emergency shelters to drop-in centers. Participant were randomized into either a minimal self-guided intervention (SG) and a more intensive, counselor-guided intervention (CG). Participants in both groups received the same educational materials about ADs and advance care planning, and an advance care planning document, designated SELPH, specifically designed for marginalized populations. Participants randomized to the CG group were given the opportunity to meet with a trained hospice social worker to facilitate advance care planning and AD completion. Completion of the SELPH AD was the primary outcome of interest.

RESULTS: Of the 313 persons enrolled, seventy-four, or 23.6%, completed an AD, with 13.8% of the SG group completing the SELPH form compared to 29.4% of the CG group (p=.0016). African Americans were less likely to complete an AD and also less likely to respond to counseling. There was also a consistent trend of increasing AD completion with increasing age in both the SG and CG groups. Finally, those in the CG arm were more likely to complete an AD regardless of type of service site.

CONCLUSION: Advance directives (ADs) have encountered much criticism recently. However, previous studies have demonstrated that ADs may serve different purposes for homeless persons and appear to be highly desired in this population. This study demonstrates that homeless individuals will document their EOL preferences and engage in an advance care planning process if given the opportunity. The rates of completion of an AD, even in the self-guided group, were equal to or higher than rates described in the general population. This study also demonstrates that a simple, reproducible counseling intervention can have profound effects on the completion of AD's in this population, doubling the rate of completion. Despite limitations to this study, it demonstrated that people with economic and social disadvantages are extremely interested in and worried about EOL care, and can be engaged to complete advance planning with a simple intervention

ANALYSIS OF 583 DIAGNOSIS ERRORS: FINDINGS FROM THE DIAGNOSIS ERROR EVALUATION AND RESEARCH PROJECT (DEER) CLINICIAN SURVEY G.D. Schiff[1]; O. Hasan[1]; S. Kim[2]; R. Abrams[3]; K. Cosby[4]; B.L. Lambert[2]; A.S. Elstein[2]; S.G. Hasler[3]; M.L. Kabongo[5]; N. Krosnjar[4]; R. Odwazny[3]; M. Wisniewski[4]; R. Mcnutt[3]. [1]Brigham and Women's Hospital, Boston, MA; [2]University of Illinois at Chicago, Chicago, IL; [3]Rush University Medical Center, Chicago, IL; [4]Cook County Hospital, Chicago, IL; [5]University of California, San Diego, San Diego, CA. *(Tracking ID # 205718)*

BACKGROUND: Missed or delayed diagnoses are common but understudied in patient safety research. To better understand the types, causes, and prevention of such errors we surveyed clinicians to solicit their experiences with cases of missed and delayed diagnoses. We developed and applied a conceptual model and resulting taxonomy for classifying where (in the diagnostic process) and why the errors occurred.

METHODS: A six item written survey was administered at 20 grand rounds presentations across the U.S. and by mail at two collaborating institutions. Respondents were asked to report three cases of diagnosis error they had personally committed or witnessed and describe their likely causes, seriousness, and frequency. Responses were analyzed to classify diagnoses missed, contributing factors, and frequency and seriousness of the error. The DEER taxonomy was developed, piloted, tested for inter-rater reliability and applied to the error case reports.

RESULTS: 669 diagnosis errors cases were returned by 283 clinicians from 22 institutions. After excluding cases without diagnosis errors (e.g., medication errors) or lacking sufficient details, 583 cases remained. Of these, 175 (30%) involved errors committed by the reporting physician, 394 (68%) were cases reported as witnessed being made by others. The most common missed or delayed diagnoses were: pulmonary embolism (26 cases, 4.5% of total), drug reactions, overdose, or other poisoning (26, 4.6%), lung cancer (23, 3.9%), colorectal cancer (19, 3.3%), acute coronary ischemia (18, 3.1%), breast cancer (18, 3.1%), and stroke (15, 2.6%), mirroring malpractice claims distributions. Aggregating and analyzing cases and their causes by diagnosis was useful for identifying patterns of contributing factors; each diagnosis had its own distinctive signature patterns. Inter-rater reliability for the DEER taxonomy was 0.52. Using it to classify the errors found the testing phase (ordering, performance, and clinician processing) to account for the largest proportion (44%), followed by clinician assessment (32%; hypothesis generation, weighing/prioritizing, and recognizing urgency/complications), errors in history (10%), physical exam (10%) and referral stages (3%) of diagnostic process, with considerable overlaps. Many errors were multi-factorial. Errors rated as more serious were perceived to be less common (70% of serious errors rated as rare or infrequent vs. 24% for minor errors, $p<0.01$). Specialists tended to report cases in their specialty areas—both a bias and opportunity to enrich such reporting with referred cases whose diagnosis may have been previously missed or delayed.

CONCLUSION: This convenience sample, representing the largest reported case series of diagnosis errors, demonstrates that physicians can readily recall and share cases of diagnosis error suggesting such errors are not unusual and could be more systematically solicited and evaluated for learning and prevention. A diagnosis error classification tool was found to be clinically intuitive, relatively easy to use, and have moderate inter-rater agreement. Detailed examination of cases aggregated by diagnosis was useful for suggesting recurring patterns across institutions. A number of interacting clusters of combinations of failed steps in the diagnostic process were identified (e.g., failure to consider a

diagnosis and failure to order a needed diagnostic test) offering insights into potential prevention and mitigation strategies.

ANALYSIS OF DEPRESSION TREATMENT RESPONSE AFTER A STEPPED-CARE INTERVENTION FOR PRIMARY CARE PATIENTS WITH COMORBID DEPRESSION AND PAIN A.K. Brunelle[1]; M.J. Bair[2]; E.E. Krebs[2]; T.M. Damush[2]; W. Tu[1]; J. Wu[1]; K. Kroenke[3]. [1]Indiana University School of Medicine, Indianapolis, IN; [2]Roudebush VA Center of Excellence on Implementing Evidence Based Practice, Indianapolis, IN; [3]Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 205417)*

BACKGROUND: Depression management in patients with comorbid pain is challenging. Understanding which patients may benefit and the expected magnitude of improvement from a specific treatment option would be valuable to primary care providers. The Stepped Care for Affective Disorders and Pain (SCAMP) trial found that antidepressant optimization combined with pain self-management education was effective in reducing symptoms of depression and chronic musculoskeletal pain. Our study objective was to identify differences in psychosocial and pain variables according to patients' response to the SCAMP intervention.
METHODS: We analyzed prospective data from the SCAMP trial; a randomized controlled trial designed to test the effectiveness of a stepped care intervention for primary care patients with depression and comorbid musculoskeletal pain of the low back, hip, or knee. This study sample included the 123 patients randomized to the intervention group. Using the Hopkins Symptom Check List (HSCL-20) to assess depression symptom severity, patients were classified as treatment responders (50% reduction in HSCL-20 score), partial responders (10%-49% reduction), or non-responders (<10% reduction or increase in symptoms) based on the change from baseline to 12 month follow-up. We defined a HSCL-20 score 0.5 as depression remission. The three responder groups were compared by psychosocial, and pain variables. We used analysis of variance (ANOVA) models to assess the relationship between patient characteristics and depression treatment response.
RESULTS: The analytic sample included 57.4% female, 33.7% African-American, 39.6% married, 26.7% employed, and a mean age of 55.2 years. Of the 101 intervention patients available for analysis, 40.6% were considered depression treatment responders (n=41), 39.6% partial responders (n=40), and 19.8% non-responders (n=20). The mean reduction in HSCL-20 score, from baseline to 12-month follow-up, was 0.72 (±0.78) for the intervention arm. However, within the responder group, patients demonstrated a marked improvement in depression symptoms with a mean reduction of 1.42 (±0.57). At 12-months, the responder group's mean HSCL-20 score was 0.54 (±0.36); approximating complete remission. Intervention patients also showed improved anxiety symptoms at 12 months [GAD-7 anxiety scale=-3.22 (±4.47)], which was more pronounced within the responder group [GAD-7=-5.59 (±3.40)] equating to minimal residual anxiety symptoms [3.2 (±3.2)]. Pain-related disability days in the past 3-months decreased by 4.1 days in the intervention group, but decreased by 19 days within the responder group. We observed similar improvements across other psychosocial variables (life stress, pain-related fear, social function, vitality, and general health perception) in intervention patients, that was more striking within the responder group.
CONCLUSION: Antidepressant optimization combined with pain self-management education was effective in reducing symptoms of depression and chronic musculoskeletal pain in primary care. However, analyzing the intervention further demonstrated a far more impressive response to the intervention in over 40% of patients in psychosocial, pain, and health-related quality of life outcomes. Further study is needed to predict which patients are more likely to have a marked response to depression and pain treatments.

APPLYING BAYES' THEOREM TO THE PHYSICAL EXAMINATION: ASSESSMENT OF DISEASE PROBABILITY S.R. Herrle[1]; E.C. Corbett[2]; M.J. Fagan[3]; C. Moore[1]; D.M. Elnicki[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Virginia, Charlottesville, VA; [3]Brown University, Providence, RI. *(Tracking ID # 205744)*

BACKGROUND: Despite the central role that the physical examination (PE) occupies in our medical school curricula, the decline in skills is well documented. Educators have voiced concern that the PE is becoming a lost art, leading to clinicians who are increasingly dependent on expensive technology. We sought to examine the impact that PE findings have on the assessment of disease probability by both physicians and trainees.
METHODS: Third- and fourth-year medical students, internal medicine residents, and general internal medicine faculty members at 3 U.S. medical schools were invited to complete a web-based survey that included 4 cases (ascites, heart failure, streptococcal pharyngitis, and anterior cruciate ligament tear). Each case had a similar structure: a brief history, a provided pretest probability of disease based solely upon the information contained within the history, and two different PE scenarios each containing a series of PE findings. For each PE scenario, respondents were asked to assign a percentage representing the likelihood of disease based upon the constellation of PE findings. Mean assigned posttest probabilities were calculated for the 8 PE scenarios and were compared to corresponding probabilities derived from the published literature using a one-sample two-sided t test to assess their degree of concordance.
RESULTS: A total of 684 out of 906 invited participants (75.5%) completed the survey. Respondents included 255 students, 264 residents, and 165 faculty members. The respondents' mean posttest probability (95% CI) differed from that obtained from the literature for each of the 8 PE scenarios ($p<0.0001$ for each): 85.9% (85.0, 86.8) vs. 98.1%; 27.3% (26.0, 28.6) vs. 0.3%; 16.3% (15.4, 17.2) vs. 3.7%; 82.7% (81.7, 83.7) vs. 98.7; 75.8 (74.8, 76.9) vs. 69.4%; 20.3% (19.3, 21.3) vs. 14.9%; 86.0 (85.1, 86.8) vs. 99.4%;and 54.0% (52.4, 55.5) vs. 2.9%. In the 4 scenarios in which the posttest probability derived from the literature was greater than the provided pretest probability, the respondents' posttest probability was lower (i.e., closer to the pretest probability) than that derived from the literature in 3 scenarios (mean difference, 13.9%). In the 4 scenarios in which the posttest probability derived from the literature was less than the provided pretest probability, the respondents' posttest probability was higher (i.e., closer to the pretest probability) than that derived from the literature in 4 scenarios (mean difference, 24.0%). Findings were consistent across students, residents, and faculty with only small differences seen amongst the groups (mean absolute difference between groups, 2.6%).
CONCLUSION: Physicians and trainees undervalue positive and, to a greater degree, negative examination findings in their assessment of disease probability. Possible explanations include a lack of knowledge regarding the value of PE findings and a lack of confidence in eliciting PE findings. A better understanding of how physicians apply PE findings in the assessment of disease probability may help to provide the foundation for revising the way physicians are taught to use PE findings.

APPROPRIATENESS OF COLLABORATIONS BETWEEN INDUSTRY AND THE MEDICAL PROFESSION: PHYSICIANS' PERCEPTIONS J.S. Ross[1]; S. Keyhani[1]; D.R. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205124)*

BACKGROUND: The public is well served by collaborations between industry and the medical profession, although many may perceive conflicts of interest within these partnerships. Physicians' perceptions of the appropriateness of industry collaborations and of receiving payment for collaboration may differ. Our objective was to describe physicians' perceptions, overall and across specialties, of the appropriateness of various collaborations with the pharmaceutical and medical device industries and of receiving payment for collaboration.
METHODS: We administered an anonymous, cross-sectional survey to a convenience sample of faculty and post-graduate physicians from all departments within the 13-hospitals affiliated with the Mount Sinai School of Medicine in New York City and New Jersey examining collaborations with the pharmaceutical and medical device industries. We surveyed the appropriateness of 12 distinct collaborations related to product development, product testing (including clinical trials), dissemination of findings (including manuscripts and educational lectures), and advisory board participation. Questions used 4-point Likert scales, ranging from very appropriate to very inappropriate. Physicians were categorized by specialty: internal/general/family medicine, internal medicine subspecialty, pediatrics, psychiatry, general surgery/surgical subspecialty/OB/GYN, or other. Data were analyzed using descriptive statistics and Chi-squared tests for association, accounting for multiple comparisons.

RESULTS: Surveys were distributed to physicians within 61 departments at 13 hospitals; 590 surveys were completed by physicians from 35 departments at 9 hospitals, yielding a 67% response rate. Overall, 59% of physicians were male, 54% self-identified as white, 25% had worked collaboratively with industry in the past, 24% were generalists, and 24% surgeons. Physicians assessment of appropriateness varied among the different collaborations, ranging from nearly all rating developing a drug or device (92%) and designing a drug/device trial (91%) as appropriate to fewer rating preparing a manuscript of a drug/device trial (60%) and recruiting patients for a drug/device trial (65%) as appropriate for physicians not involved in trial design. Receiving payment for collaboration was consistently rated appropriate less often. For example, 81% rated receiving payment to develop a drug or device as appropriate, whereas 38% rated receiving payment to recruit patients for a drug/device trial when the physician was not involved in trial design as appropriate. We found minor differences across specialties as to whether collaborations were considered appropriate, as surgeons were more likely to rate 4 of 12 collaborations surveyed as appropriate, but found no consistent differences across specialties regarding the appropriateness of payment for collaborations.
CONCLUSION: Physicians' perceptions of the appropriateness of various collaborations with the pharmaceutical and medical device industries and of receiving payment for collaboration varied. The medical profession should offer guidance on the appropriateness of different scientific and editorial collaborations to ensure that public confidence in the medical profession in not further eroded by perceived conflicts of interest.

ARE HOSPITAL-ACQUIRED CATHETER-ASSOCIATED URINARY TRACT INFECTIONS CODED ACCURATELY? J.A. Meddings[1]; S.K. Saint[2]; L.F. Mcmahon[1]. [1]University of Michigan Medical Center, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI. *(Tracking ID # 204080)*

BACKGROUND: Effective 1 October 2008, the Centers for Medicare and Medicaid Services (CMS) will no longer pay hospitals more to treat specific "reasonably preventable" hospital-acquired complications. The goals are simple: improve patient safety by motivating hospitals to pursue strategies to prevent complications, and save healthcare dollars by not paying for preventable complications. Yet, the policy's rules are complex to detect and then deny payment for complications. Importantly, if hospitals do not assign accurate diagnosis codes to describe hospital-acquired complications, hospitals will receive payment for the diagnoses by default. Our objective was to evaluate whether hospital-acquired catheter-associated urinary tract infections (CAUTIs) were being accurately identified by hospital-coder assigned diagnosis codes to trigger non-payment for the complication per CMS policy.
METHODS: We conducted a retrospective medical record review of a random sample of 80 hospitalized adults discharged between May 2006 and September 2007 from an academic medical center with a secondary diagnosis of urinary tract infection (UTI). One physician abstractor trained in UTI and CAUTI clinical criteria reviewed each record to determine if UTIs were catheter-associated and/or hospital-acquired. Physician abstractor categorization of UTIs as catheter-associated and/or hospital-acquired (considered the 'gold standard') was compared with diagnosis codes assigned by hospital coders.
RESULTS: The 80 patients in our sample had the following characteristics: 56 (70%) were women; mean age was 57.8 years; median length-of-stay was 6 days; and 50 (62%) had a urinary catheter during the hospitalization. Of the 80 patients for which hospital coders had assigned a UTI code, physician abstraction confirmed that 77 records were consistent with a clinical diagnosis of UTI. Of the 80 UTI cases identified by hospital coders, 21 (26%) were coded as present-on-admission in error since physician abstraction revealed the UTIs to be hospital-acquired. While hospital coders did not identify any CAUTI cases in the 80 records (as catheter-association code 996.64 was not used), physician abstraction identified 36 CAUTI cases (45%), of which 28 were hospital-acquired and 8 were present-on-admission. Urinary catheter use was often evident only from nursing notes which – unlike physician notes – are not routinely reviewed by hospital coders.
CONCLUSION: Our single site study found that hospital coders frequently did not include the catheter-specific code 996.64 to correctly identify CAUTI for patients discharged with a secondary diagnosis of UTI. Also, hospital coders often coded UTIs as present-on-admission when the medical record indicated the UTIs were hospital-acquired. Since accurate coding of hospital-acquired CAUTI is complicated and fraught with error, non-payment per CMS policy for this complication may not reliably occur.

ARE METHADONE DOSE AND "TAKE HOME" STATUS ASSOCIATED WITH HOSPITAL ADMISSION? A.Y. Walley[1]; D. Cheng[2]; G. Johnson[1]; T. Filippell[1]; C. Chen[2]; C. Pierce[1]; D. Alford[1]; J.H. Samet[1]. [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA. *(Tracking ID # 205508)*

BACKGROUND: Engaging in addiction treatment in general is associated with decreased acute care hospitalization. Among patients receiving methadone for opioid dependence, receipt of take homes and higher doses are associated with improved methadone treatment program (MTP) outcomes, but the impact of these factors on acute care hospitalization is not known. We studied whether take-home dosing and high doses (i.e.≥80 mg) were associated with decreased acute care hospital admission among patients in a MTP.
METHODS: Among patients enrolled in one MTP from February 2006 through March 2008, we reviewed daily electronic medical records to determine receipt of take home doses and dose ≥80 mg (the two primary independent variables) and whether the subject was admitted to the hospital on the following day (the study outcome). Days hospitalized following hospital admission, days pregnant, days incarcerated, and 90 days following program admission were excluded. We used mixed effects logistic regression models to evaluate whether receipt of take homes and high doses of methadone as time-dependent variables were associated with a hospital admission on the following day. Covariates in adjusted models included age, gender, race/ethnicity, HIV status, medical illness (e.g. diabetes), mental illness (e.g. depression), and polysubstance use (e.g., cocaine use) at program admission.
RESULTS: Subjects (n=138) had the following characteristics: mean age 43 years; 52% female; 17% HIV-infected; 32% medical illness; 40% mental illness; and 52% polysubstance use. During follow-up, 42 patients (30%) accounted for 80 hospitalizations. The mean duration of follow-up was 20 months. In adjusted models, receipt of take homes was associated with significantly lower odds of a hospital admission (OR 0.23; 95%CI: 0.04–0.42), whereas dose ≥80 mg was not (OR 0.93; 95% CI: 0.34–1.52).
CONCLUSION: Among MTP patients, receipt of take homes, but not dose of methadone, was associated with decreased hospital admission. Take-home status may not only reflect patient success via improved addiction outcomes, but reduced healthcare utilization.

ARE MINDFULNESS AND EMPATHY AMONG HEALTHCARE PROVIDERS ASSOCIATED WITH MORE POSITIVE PATIENT OUTCOMES? M.C. Beach[1]; S. Saha[2]; T. Korthuis[2]; V. Sharp[3]; J. Cohn[4]; R. Epstein[5]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Oregon Health Science University, Portland, OR; [3]Saint Lukes Roosevelt, New York, NY; [4]Wayne State University, Detroit, MI; [5]University of Rochester, Rochester, NY. *(Tracking ID # 205707)*

BACKGROUND: It is recommended that healthcare providers be both mindful (i.e. purposefully and non-judgmentally attentive to their own experience, thoughts and feelings) and empathic when interacting with patients, but it is unknown how these capacities relate to patient outcomes. The purpose of our study was to assess the associations of HIV providers' mindfulness and empathy with outcomes for HIV-infected patients.
METHODS: We enrolled 45 HIV providers and 437 HIV-infected patients in the Enhancing Communication and HIV Outcomes (ECHO) Study at 4 sites across the United States. The purpose of the ECHO study was to assess possible racial/ethnic disparities in HIV patient-provider communication. At baseline, providers completed previously-validated scales assessing mindfulness (14 items; Cronbach's alpha 0.90) and empathic tendency (14 items; Cronbach's alpha 0.82). Following patient-provider encounters, patients rated their provider's communication style, overall satisfaction and their own medication self-efficacy. We used logistic regression to assess associations of provider mindfulness and empathy, both stratified in tertiles, with patient outcomes adjusting for site, patient and provider race and sex, and clustering on provider using generalized estimating equations.
RESULTS: Providers were mostly white (69%) and Asian (24%); 57% were women. Patients were mostly African American (58%) and white

(25%); 34% were women. The table below shows adjusted associations between provider mindfulness and empathy with patient outcomes.
CONCLUSION: Mindfulness and empathic tendency are independently associated with different patient outcomes, suggesting that both are important for separate reasons. Patients of providers who are more empathic have higher medication self-efficacy, whereas patients of providers who are more mindful are more satisfied and rate their providers' communication style more highly. Practicing physicians should consider the benefits of enhancing their own capacities of mindfulness and empathy, and further research should explore the effectiveness of interventions designed to enhance provider mindfulness and empathy.

Odds Ratios (95% Confidence Intervals) of Patient Outcomes based on Providers' Mindfulness and Empathy

	Mindfulness Tertile^		Empathy Tertile^	
	Middle	High	Middle	High
High Rating of Provider Communication	1.58* (1.00–2.50)	2.24* (1.29–3.89)	1.21 (0.73–2.00)	1.01 (0.63–1.63)
Highest Satisfaction	1.94* (1.15–3.26)	2.67* (1.40–5.09)	1.94* (1.09–3.43)	1.27 (0.75–2.17)
Highest Medication Self-Efficacy	0.94 (0.60–1.49)	0.83 (0.48–1.44)	2.23* (1.32–3.76)	2.41 (1.48–3.91)

^ Low is reference category; *p<0.50

ARE PHYSICIANS' RECOMMENDATION TO LIMIT LIFE SUPPORT BENEFICIAL OR BURDENSOME? BRINGING EMPIRICAL DATA TO THE DEBATE C.A. Bautista[1]; L.R. Evans[2]; J.M. Luce[3]; B. Lo[4]; D.B. White[4]. [1]University of California, San Francisco School of Medicine, San Francisco, CA; [2]Division of Pulmonary and Critical Care Medicine, University of California, San Francisco, School of Medicine, San Francisco, CA; [3]University of California, San Francisco, San Francisco, CA; [4]Division of Pulmonary and Critical Care Medicine, Program in Medical Ethics, Department of Medicine, University of California, San Francisco School of Medicine, San Francisco, CA. *(Tracking ID # 205324)*

BACKGROUND: Multiple pulmonary and critical care professional societies recently recommended that physicians routinely provide recommendations to surrogates during deliberations about limiting life support for critically-ill patients. However, there is a paucity of empirical data on surrogates' perspectives on this topic. In this study, we aim to understand the attitudes of surrogate decision-makers towards receiving a physician's recommendation to limit life support during the end-of-life decision-making process for critically-ill, incapacitated patients.
METHODS: We conducted a prospective, mixed methods study among 171 surrogate decision-makers for critically-ill, incapacitated patients in the ICU. To elicit surrogate perspectives, our study used 2 video recordings of a simulated ICU family conference, which differed only by whether the physician provided a recommendation to limit life support. Surrogates viewed these videos sequentially and in random order. The main quantitative outcome was the proportion of surrogates who preferred to receive a physician's recommendation to limit life support. Surrogates participated in an in-depth, semi-structured interview to explore the reasons for their preference. Transcripts from these interviews were analyzed using codes that were developed from constant comparative methods. The main qualitative outcomes were the themes which explained surrogate preferences.
RESULTS: 56% (95/169) of surrogates preferred to receive a recommendation, 42% (70/169) preferred not to receive a recommendation, and 2% (4/169) felt both approaches were equally acceptable. We identified four main themes that explained surrogates' preferences. These themes were 1) surrogates' perceptions of the appropriate roles of the physician and surrogate in end-of-life decision-making; 2) surrogates' beliefs about the consequences a recommendation might make on the decision-making process; 3) the consequences a recommendation might make on the emotional experience of the family; and 4) the consequences recommendation might make on the long-term well-being of the family.
CONCLUSION: We found substantial variability among surrogates about their preference for whether physicians should provide recommendations to limit life support. This variability is explained by differing interpretations of the appropriate roles of physician and surrogate, and beliefs about a recommendation's potential negative or positive consequences. These empirical findings suggest that recent professional society guidelines advocating as preferable a single model of decision-making in the ICU may not be in line with the diverse perspectives of surrogates. We propose that physicians should be skilled in multiple approaches to decision-making and should adopt an attitude of flexibility when facilitating end-of-life surrogate decision-making.

ARE RESIDENT PHYSICIANS' COUNSELING PRACTICES AND PERSONAL AND PROFESSIONAL CHARACTERISTICS ASSOCIATED WITH PATIENT ACTIVATION TO LOSE WEIGHT? S. Schlair[1]; M. Jay[1]; C. Gillespie[1]; T.K. Ark[1]; S. Zabar[1]; A. Axtmayer[1]; J. Santana[1]; A.L. Kalet[1]. [1]New York University, New York, NY. *(Tracking ID # 204832)*

BACKGROUND: Obesity counseling performance has been positively linked to physicians' professional traits and personal health. The goals of this study were to examine if (1) residents' use of the 5A's counseling strategies (assess, assist, advise, agree and arrange) was associated with obese patients' activation and (2) after controlling for counseling, if residents' professional (attitudes, counseling self-efficacy) and personal (healthy eating self-efficacy, weight management stage of change) characteristics explain obese patients' activation to follow and maintain dietary and exercise recommendations.
METHODS: Thirteen internal medicine residents were surveyed to evaluate attitudes (bias, negative outcome expectancies, and belief that obesity is caused by maladaptive behavior), counseling self-efficacy, healthy eating self-efficacy and weight management stage of change. Structured immediate post-appointment interviews were conducted 1–8 months later with English and Spanish-speaking obese patients (BMI 30) seen by these residents. Two items from the Patient Activation Measure directly relevant to weight management were used. Counseling scores for each of the 5A's were calculated as the mean percentage of items performed. Hierarchical regression was used to examine associations between physician counseling practices, characteristics and patient activation. Counseling score was entered first followed by professional characteristics and personal characteristics for two outcomes: Patient activation to follow (model 1) and maintain (model 2) diet and exercise recommendations, even during times of stress.
RESULTS: Data on both survey and patient exit-interviews were collected for thirteen residents (n=13/23, 56% response rate, average 3 patients/resident). Residents performed 34% of all possible 5A's counseling practices (SD=0.09). In model 1, counseling score accounted for 23% of the variance in patients' confidence to follow recommendations (B=1.93, P=0.01). Attitudes (bias and belief that obesity is caused by maladaptive behavior) and counseling self-efficacy tended (p<0.10) to be negatively associated with patient activation after controlling for counseling score. In model 2, counseling score accounted for 21% of the variance in patients' confidence in being able to maintain recommendations (B=0.51, P=0.01). The belief that obesity is caused by maladaptive behaviors (B=0.59, P=0.01), negative outcome expectancies (B=-0.84, P=0.05) and obesity counseling self-efficacy (B=-1.03, P=0.01) all contributed less but significantly to the variance in maintaining recommendations. Negative outcome expectancies and obesity counseling self-efficacy were negatively associated with patient activation in model 2.
CONCLUSION: Although this is a small sample with multiple variables, these models suggest that use of the 5A's counseling technique is associated with greater patient activation in following and maintaining dietary and exercise recommendations. Residents' own weight management stage of change and healthy eating self-efficacy may also be important factors in promoting patients' confidence but were not found to contribute significantly in this small sample. These findings imply that obesity counseling training programs should not only address acquisition of the 5A's skills but would be strengthened by targeting trainees' attitudes and self-perceptions.

ARE WE LAGGING BEHIND IN SCREENING FOR A DEADLY DISEASE? P. Cheriyath[1]; V.K. Nookala[1]; J. Barrantes[1]; D. Fischman[1]. [1]Pinnacle Health System, Harrisburg, PA. *(Tracking ID # 206064)*

BACKGROUND: Abdominal aortic aneurysm (AAA) is a typically asymptomatic condition which may have dire consequences. Current estimates suggest that 1.5 to 2 million Americans may have this condition, most being unaware of the potential threat to their lives. Based on available evidence and cost-effectiveness data, current guidelines recommend one-time screening of men aged 65 to 75 years who have ever smoked.
METHODS: We performed a retrospective chart review of randomly selected male patients, seen at an urban community health clinic, over the age of 65 years with a history of tobacco use. Demographic information including age, race, insurance status, family history of coronary artery disease, and cocaine abuse was collected. Comparison data were collected regarding the patients compliance with other age and gender appropriate screening recommendations. Statistical analysis was performed using Minitab version 15.1.1.0. For the purpose of this analysis, a P value of less than .05 was considered statistically significant.
RESULTS: Data was collected from the clinic records of 43 male patients who met our inclusion criteria. Median age was 67 with a range of 65 to 81 years old. Median income was $26,464. In our sample, 28%(12 of 43) were Caucasian, 47%(20 of 43) were African American, 14%(6 of 43) were Hispanic, and 12%(5 of 43) reported their race as "other." Only 4.6%(2 of 43) of our sample of eligible patients had already received the recommended AAA screening with an ultrasound. This compares with 51.6%(22 of 43) of the sample who had undergone colonoscopy for colon cancer screening (p value=<.01) and 65%(28 of 43) who received pneumococcal immunization (p value=<.01), as examples of other preventive health screening services.
CONCLUSION: Our analysis clearly shows that, despite current United States Preventive Services Task Force recommendations, at-risk patients are not receiving appropriate screening for abdominal aortic aneurysms. The reasons for this lack of preventive screening remain unclear. Postulated etiologies include the lack of provider awareness regarding the benefits of AAA screening, difficulty in ordering screening ultrasound, or a lack of patient follow-through with provider requests for this screening test.

ASK, UNDERSTAND, REMEMBER: A BRIEF MEASURE OF PATIENT COMMUNICATION SELF-EFFICACY WITHIN THE CLINICAL ENCOUNTER M. Clayman[1]; A.R. Bergeron[1]; K.A. Cameron[1]; E. Ross[1]; M.S. Wolf[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205915)*

BACKGROUND: While several self-efficacy scales have been developed, currently there is not a tool that also assesses patients' ability to retain information as a result of perceived self- efficacy. Our objective was to develop and validate a reliable, brief measure of patients' self-reported ability and confidence to obtain, understand, and recall information from their physicians.
METHODS: Consecutive patients (n=330) with diagnosed hypertension and scheduled appointments were recruited from primary care clinics in Grand Rapids, Michigan, Chicago, Illinois, and Shreveport, Louisiana. Clinics in Grand Rapids and Chicago were affiliated with federally qualified health centers. Structured interviews were conducted with consenting participants. Patients completed items modified from a previously validated communication and attitudinal self efficacy scale. Twelve items were candidates for the Ask, Understand, Remember Assessment (AURA); six were identified by the research team as most appropriate to include in the questionnaire given the narrow context to be addressed. Principal components analysis was used to assess the construct validity, while Cronbach's alpha was used to examine reliability (internal consistency) of the scale. These two methods of analyses reduced the scale to four key items that loaded strongly to one single factor, further demonstrating strong internal consistency. The total score of the final measure, ranging from 4 to 16, was then correlated with the total score from an existing chronic disease management self-efficacy scale previously developed and validated by Lorig and colleagues. To examine the predictive validity of the tool, it was postulated that higher scores would correspond with greater disease and treatment knowledge.
RESULTS: Using principal components analysis with varimax rotation, the four items strongly loaded onto one factor (Eigenvalue=2.39; proportion of variance explained=59%) with a Cronbach's coefficient of 0.81. The AURA score was strongly correlated with the total score from an existing chronic disease management self-efficacy scale (r=0.53) and disease knowledge (beta coefficient=0.2, 95% Confidence Interval 0.04 - 0.3, p=0.03).
CONCLUSION: The Ask, Understand, Remember Assessment (AURA) had high internal consistency and was moderately correlated with both hypertension knowledge and a previously validated chronic disease self-efficacy scale. However, the AURA is brief and appropriate for patients with and without chronic illness. The AURA may be useful for testing the effect of interventions designed to improve patient participation and enhance the patient-provider relationship. As patients with low self-efficacy may not articulate their lack of understanding or ask questions, the AURA may also be useful in identifying and assisting patients who are at risk for errors or non-compliance with self-care behaviors.

ASPIRIN FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE IN AFRICAN AMERICANS M.G. Whitbeck[1]; J. Weinberger[2]; F. Peacock[2]; N. Thati[2]. [1]wayne state university, Farmington Hills, MI; [2]wayne state university, Detroit, MI. *(Tracking ID # 203778)*

BACKGROUND: Background: Cardiovascular disease(CVD) is the leading cause of death in the United States. Most events occur in older people and those with recognized risk factors for CVD, including high cholesterol, hypertension(HTN), diabetes(DM), or a history of smoking. Individual CVD risk can be assessed using these risk factors in the Framingham Coronary Vascular Disease risk equation(FCVDE). Meta-analysis has shown that primary prevention aspirin(ASA) therapy can reduce the 10 year CVD risk by 28%. This is why the United States Preventive Services Task Force(USPSTF) recommends those patients without known heart disease and a 10 year risk of CVD >6% by the Framingham risk score(FRS) take low dose ASA for primary prevention. The goal of our study is to bring awareness and see how effective our primary care medical clinic was in identifying those patients with an increase CVD risk and prescribing ASA as primary prevention.
METHODS: Methods: A retrospective chart review of 130 patients between ages 30–74, seen in our general medicine clinic from 2006 to 2008 was conducted. Baseline characteristics, medical history, lipid profiles, medication lists were reviewed. Based on the FCVDE, patients were assigned a 10 year risk of CVD. If their risk was found to be greater than 6% they were assigned a group based on whether they were prescribed ASA or not, Group A, those taking ASA and Group B, those not taking ASA. We focused on those factors in the groups that lead to the prescription or nonprescription of ASA.
RESULTS: Results: Out of 130 patients the mean age was 50.4y. African Americans made up 97.6% of the patients. When the groups were subdivided by FRS and ASA use we found the mean age(Group A 52.8 vs. Group B 52.1), and number of males(Group A 68.7 vs. Group B 69.8) were similar. Group A had considerable more patients with HTN (Group A 100% vs. Group B 60.3%) and DM(Group A 43.7% vs. Group B 3.7%). Mean systolic BP was 140 in Group A compared to 134 in Group B. The average FRS was greater in group A(23.4) compared to group B(15.0), while tobacco use(Group A 58.3 vs. 66 Group B), total cholesterol(Group A 176.8 vs. Group B186.9) and HDL(Group A 45.8 vs. Group B 52.7) levels were higher in group B. None of the patients in Group B had documented allergy to ASA or GI bleed, however 10 had documentation of noncompliance in there medical record, including the only 2 diabetics in the group. Failure to recognize significant risk factors, by the physician, was the leading cause of patients in Group B not being prescribed ASA.
CONCLUSION: Conclusion: Aspirin remains one of the most proven medications for primary prevention. The patients in group B appeared to be healthier. That generalization leaded to the lack of risk stratification and aspirin prescription. Awareness that patients older than 55 who have one additional risk factor of smoking, HTN or low HDL qualify for therapy would have increased aspirin use by 37.7%. It is possible and our recommendation that every patient would benefit from CVD risk assessment yearly.

ASSESSING MEXICAN WOMEN'S KNOWLEDGE OF CERVICAL CANCER AND ACCEPTANCE OF HUMAN PAPILLOMAVIRUS VACCINATION FOR PREADOLESCENT GIRLS S. Narayana[1]; M.S. Goel[2]; E.M. DiAz[3]. [1]Feinberg School of Medicine, Chicago, IL; [2]Northwestern University, Chicago, IL; [3]Instituto Nacional de Salud Pública, Cuernavaca, Cuernavaca. *(Tracking ID # 205974)*

BACKGROUND: Cervical cancer is the most common malignancy affecting Mexican women. The Centers for Disease Control recommends vaccinating preadolescent girls against Human Papillomavirus (HPV), but it is unclear

whether Mexican women are knowledgeable about cervical cancer and HPV. Furthermore, it is unclear whether they would be willing to vaccinate against a virus that is sexually transmitted. Thus, our objective was to assess Mexican women's knowledge of cervical cancer and their attitudes towards the HPV vaccine for their 8–12 year old daughters.

METHODS: We conducted in-person interviews of women aged 18 to 70 presenting to three Mexico City hospitals for non-gynecologic care (n= 118). In addition to gathering demographic data, we administered a 43-item survey with questions from domains such as cervical cancer knowledge, Pap smear knowledge, and knowledge of HPV and HPV vaccination. Furthermore, we asked women with daughters (n=83) about their perceptions of their daughters' risk for developing cervical cancer. After reading them a passage about HPV and the HPV vaccine, we assessed their willingness to vaccinate their preadolescent daughters. In addition to calculating descriptive statistics for demographics and knowledge, we compared willingness to vaccinate by women's age, educational level, HPV knowledge, and perceived filial risk of developing cervical cancer using chi-squared statistics.

RESULTS: The mean age of respondents was 41 years; 54% had completed high school equivalent education, 38% had low income (<3000 pesos/month), and 85% were Catholic. Overall knowledge of cervical cancer and Pap testing was high: 98% had heard of cervical cancer and 93% correctly reported that Pap smears can detect precancerous cervical changes. Similarly, knowledge of HPV was high; 88% had heard of HPV. Of the women who had heard of HPV, 89% knew HPV is sexually transmitted, 78% identified it as the cause of cervical cancer, and 53% were aware of an HPV vaccine. In analyses limited to women with daughters (n=83), 94% of women were willing to vaccinate their preadolescent daughters after being read a passage about HPV and vaccination. There were no differences in willingness to vaccinate by respondent's age [<41 years vs. >=41 years (97% and 93%, respectively)], schooling [=< high school vs. > high school (96% and 92%, respectively)], baseline knowledge of HPV [no knowledge of HPV vs. knowledge of HPV as infectious and as the cause of cervical cancer (100% vs. 94%, respectively)], or perceived filial risk of developing cervical cancer [not at risk vs. average/high risk (97% vs. 93%). p>0.05 for all comparisons.

CONCLUSION: Mexican women overall had high levels of knowledge about cervical cancer, Pap testing, and HPV. Women with daughters had high levels of willingness to vaccinate their daughters regardless of their own age, education level, HPV knowledge, and perception of their daughter's cervical cancer risk. Aggressive vaccination campaigns may thus be successful in this high risk population. Whether similar strategies would be effective in a Mexican American population requires further study.

ASSESSING QUALITY OF A HOSPITAL-WIDE INPATIENT GLUCOSE MANAGEMENT PROGRAM USING GLUCOMETRICS S. Golden[1]; J. Finkelstein[1]; J. Dintzis[1]; E. Cha[1]. [1]Johns Hopkins Medical Institutions, Baltimore, MD. *(Tracking ID # 205520)*

BACKGROUND: Hyperglycemia is associated with adverse clinical outcomes in the inpatient setting. We introduced a hospital-wide inpatient glucose management program at our institution in January 2006 to facilitate uniform glucose management policies and staff education based on current clinical practice guidelines. During that time, a spectrum of initiatives were implemented to improve hospital-wide glycemic control, including a Hypoglycemia Policy (7/06), a diabetes nursing superuser program (1/07), and a Hyperglycemia Policy and uniform subcutaneous insulin orderset (11/07). The goal of this project was to evaluate the impact of these initiatives on hospital-wide hypoglycemia, as an inpatient glucose management quality of care measure, using glucometrics.

METHODS: We conducted a retrospective analysis of fingerstick glucose measures from January 1, 2007 to October 31, 2008. The frequency of two levels of hypoglycemia (glucose <70 mg/dL and <40 mg/dL) were calculated in the population for each month using two models. In the population model, the demominator was the total of all glucose measurements. In the patient-day model, hypoglycemia frequency was calculated as at least one incident among each unique patient record for each calendar day. Linear regression was applied to analyze the trend of hypoglycemia over the year 2007 and 2008.

RESULTS: The total number of fingerstick records in 2007 and 2008 were 460,696 and 382,673 respectively. The total numbers of unique patient-days were 191,904 in 2007 and 139,660 in 2008. In the population model, from January 1 to December 31, 2007, there was a significant decrease in the percentage of glucometer readings <70 (from 6.13% to 3.16%; p<0.001) and <40 (from 0.58% to 0.26%; p<0.001). In the patient-day model, from January 2007 to October 2008, the percentage of patients with glucose levels <70 mg/dL decreased from 9.00% to 5.88% (p=0.004) and the percentage of patients with glucose levels <40 mg/dL decreased from 0.95% to 0.50% (p=0.005).

CONCLUSION: Introduction of a hospital-wide glucose management program resulted in significant improvements in the frequency of hypoglycemia at our institution.

ASSESSMENT OF MEDICAL STUDENTS: CAN ONE QUESTION TELL ALL? E.D. Brownfield[1]; S. Santen[2]. [1]Emory University, Atlanta, GA; [2]Emory University School of Medicine, Atlanta, GA. *(Tracking ID # 203725)*

BACKGROUND: There are multiple methods used to assess students; however many are time-consuming and unreliable for capturing true student performance. Many evaluators inflate ratings and avoid any documentation of less than average performance, even though honest evaluation is critical to student growth and curriculum change. The objective of this study was to determine if the addition of a global question, "Would you want this student participating in the care of a loved one?" would improve assessment of student performance.

METHODS: One question, "Would you want this student participating in the care of a loved one?" was added to the traditional assessment of students on the Internal Medicine Clerkship. Faculty and residents working with students answered this question, along with the traditional questions related to medical knowledge, clinical skills, and professionalism. Responses to this one question were grouped as "yes", "no" "n/a" or no response. Assessments from evaluators with minimal contact of students were excluded. These subgroups were then compared by looking for a difference in ratings (on a Likert scale from 1–5 with 1 being poor and 5 excellent) of knowledge, skills, and professionalism on the traditional evaluation. Specifically, the "no" group and the "no answer" group were compared to the "yes" group using Wilcoxon rank-sum test.

RESULTS: 1435 evaluations of xx students by faculty and residents were analyzed over two years. Evaluators were rarely willing to take a stand and answer that they would not want a student to care for their family (9 evaluations). When evaluators did respond "no" to the question "Would you want this student participating in the care of a loved one?," the knowledge, skills, professionalism and overall score were significantly lower than those students from whom evaluators responded "yes" (Table). In addition, a number of evaluators did not answer the question by not completing it or responding "n/a" (46 evaluations). For this group, as well, the scores given by the evaluators on all measure were significantly lower than the "yes" group (Table). Therefore, the performance in all dimensions was lower for students for whom evaluators either did not want the student taking care of their loved or did not answer the question. (In Table, *P<0.05 comparison with the reference group of "yes")

CONCLUSION: "Yes"-only responses to the question "Would you want this student participating in the care of a loved one?" suggested higher scores in medical knowledge, clinical skills, and professionalism compared to "No" or other responses. Evaluators who do not respond to the question, may actually be indicating that they have concern about the abilities of the students and should be seriously considered. This question has been added to the evaluation forms of all clinical clerkships. With more data, we will try to see if this question can potentially be used as an adjunct to traditional evaluations and see if the same results occur across clerkships. If so, perhaps the one question global assessment can serve as a red flag of weaker student performance.

Table

Subgroup	All yes	No	No answer
# Evaluations	1380	9	46
Average of all categories (mean)	4.5	3.2*	3.8*
Knowledge (mean)	4.1	2.7*	3.6*
Skills (mean)	4.5	3.2*	3.8*
Professionalism (mean)	4.7	4.0*	4.2*

ASSOCIATION BETWEEN FREQUENTLY PRESCRIBED MEDICATIONS AND BONE DENSITY IN A VA POPULATION M.G. Hematillake[1]; S. Mcfarland[1]; A. Ikonian[1]; J. Evans[1]; R. Mallios[2]; J. Huang[1]. [1]VA Central California Health Care System, Fresno, CA; [2]University of California, San Francisco, Fresno, CA. *(Tracking ID # 204705)*

BACKGROUND: Chronic use of certain medications is adversely associated with bone health. Because of gender differences in susceptibility to bone loss, current preventive and therapeutic strategies against osteoporosis are mainly focused on female population. We sought to determine the association between chronic use of several frequently prescribed medications and measured bone density t-scores in a predominantly male veteran population.
METHODS: We conducted a retrospective chart review on 460 outpatients who had bone mineral density (BMD) measurement between 2003 and 2008. Demographic data included age, sex, body mass index (BMI), tobacco use, and current significant alcohol consumption. The femoral BMD t-scores from the initial DEXA were used. Medication profiles were collected of the frequently prescribed classes including PPI, SSRI/SNRI, opioids, coumadin, nasal or inhaled steroids, thiazide or loop diuretics, TZD, statins, oral steroids, antiepileptic drugs used for more than 12 months during a 5-year period prior to BMD measurement. Comparisons were made with non users for each medication class as controls for T test analysis followed by multivariate regression model analysis for all measured predictors.
RESULTS: Seventy-seven percent of the study subjects were male. The mean age was 70.8 years and the mean BMI was 28. Male patients were significantly older (P<0.0001) and had significantly lower BMD scores (<0.0001) than female patients. Older age was an independent predictor for lower BMD scores (P=0.01). History of current or past tobacco use was very high (66%) and had significant association with lower BMD scores (P=0.004). There was a significant inverse association between BMI and BMD scores (P=0.01). Significantly lower bone density scores were also associated with chronic use of nasal or inhaled steroids (N= 72, P=0.006), opioids (N=110, P=0.007), loop diuretics (N=62, P= 0.023), or SSRI/SNRI (N=80, P=0.036). After adjusting for multiple confounding factors, the association between BMD scores and age, sex, BMI, use of tobacco, SSRI/SNRI, or nasal or inhaled steroids remained statistically significant.
CONCLUSION: Our study showed an overall low BMD scores among largely male elderly VA patients who underwent bone scan. Our results also demonstrated that long term use of nasal or inhaled steroids, and SSRI/SNRI antidepressants may be associated with significant bone loss in this population. Potential negative bone effects of some frequently used medications deserve particular attention. Increasing prevalence of geriatric fractures from bone loss as a result of long term use of certain medications without justifications or necessary preventative measures could contribute to severe patient suffering and enormous societal financial burden. Our findings suggest the need for large population studies to evaluate potential long term bone effects of widely prescribed medications and indications to initiate bone density screening among susceptible female as well as male patients for early detection and intervention.

ASSOCIATION BETWEEN PRIMARY CARE PHYSICIANS' EVIDENCE BASED MEDICINE KNOWLEDGE AND QUALITY OF CARE K. Shuval[1]; S. Linn[1]; M. Brezis[2]; E. Shadmi[1]; M.L. Green[3]; S. Reis[4]. [1]Haifa University, Haifa, ; [2]Hebrew University- Hadassah, Jerusalem, ; [3]Yale University, Waterbury, CT; [4]Technion, Technion City, Haifa. *(Tracking ID # 203689)*

BACKGROUND: While evidence-based medicine (EBM) training has been widely promoted, there is little evidence that it improves practice performance or patient outcomes. The aim of this study was to examine the association between primary care physicians' (PCP) EBM knowledge and quality of care performance.
METHODS: We performed a cross-sectional analysis of the baseline data from a controlled trial of an EBM educational intervention conducted in 2004. Subjects were internists, family and general practitioners from a Health Maintenance Organization (HMO) in Israel. The independent variable was the subjects' score (0–100%) on a validated EBM knowledge questionnaire. Quality measures were extracted from the HMO's electronic medical record. The outcome measures were defined as the percentage of (1) diabetic patients who received LDL tests, microalbumin tests, HbA1C tests at least once in the past 6 months and who were referred to ophthalmologists at least once a year; (2) statin prescriptions for coronary heart disease patients (CHD) patients and (3) thiazide prescriptions for hypertensive patients. Bivariate analysis (ANOVA and Pearson correlation) and multivariable linear regression (backward stepwise procedure) were performed to determine the association between EBM knowledge score and quality measures and to adjust possible confounding variables, including age, gender; specialty, academic affiliation, years in practice, prior participation EBM training, medical information seeking behaviour.
RESULTS: The 74 physicians in the study had a mean age of 49.9 (SD= 6.8), averaged 24.0 years of clinical experience (SD=6.8), were 53% female. They cared for a total of 8,334 diabetic patients, 7,092 CHD patients, and 17,132 hypertensive patients. In multivariate analyses, EBM knowledge was independently associated with microalbumin testing (b=0.33; p<0.01) eye exam (b=0.16, p=0.021), HbA1C testing (b=0.17; p=0.03), and LDL testing (b=0.13; p=0.03) in diabetes patients and statin prescriptions (b=0.18; p=0.02) in CHD patients. However, physicians' thiazide prescribing in patients with hypertension was not significantly associated with EBM knowledge. Additionally, physicians' clinical experience was inversely and significantly associated with HbA1C testing (b=-0.50; p=0.01).
CONCLUSION: We found an independent association between physicians' EBM knowledge and their quality of care performance as measured by 5 out of 6 indicators. Given the low correlation coefficients, our findings suggest that educational interventions resulting in very large increases in EBM knowledge would be necessary to affect clinical performance. A causal relationship between physicians' EBM knowledge and their quality of care performance can only confirmed by a prospectively study.

ASSOCIATION BETWEEN SURGEON VOLUME AND REOPERATION RATES FOLLOWING LUMBAR DECOMPRESSION OPERATION FOR HERNIATED DISC. B. Martin[1]; R.A. Deyo[2]; T.M. Wickizer[1]; D.R. Flum[1]; S.K. Mirza[3]; P.J. Heagerty[1]. [1]University of Washington, Seattle, WA; [2]Oregon Health & Science University, Portland, OR; [3]Dartmouth Hitchcock Medical Center, Hanover, NH. *(Tracking ID # 205297)*

BACKGROUND: For many common surgical procedures, high-volume surgeons have lower rates of reoperation; however, this relationship has not been examined in lumbar spine decompression surgery for herniated discs. Repeat operations generally imply persistent symptoms, progression of disease, or treatment complications. Understanding any association between surgical volume and reoperations may help to improve surgical safety, inform patients about the risks of surgery, and be used with pay-for-performance, regionalization and quality improvement programs. We examined whether surgeon procedure volume was associated with 4-year, 1-year and 30-day reoperation rates following lumbar decompression surgery for a herniated disc.
METHODS: We calculated the cumulative incidence of second lumbar spine operations in a retrospective cohort from an inpatient discharge registry that included all non-federal acute-care hospitals in Washington State. Lumbar spine surgeries were identified using a validated algorithm based on the International Classification of Disease, Version 9, Clinical Modification (ICD-9-CM). We categorized surgeons into three equal numbered groups, based on the volume of lumbar surgery they performed from 2000–2002. We then examined the association between surgeon volume and reoperation rate using a multilevel mixed-effects logistic regression model, clustering for patients within surgeons, and adjusting for age, sex, co-morbidity and insurance. To provide meaningful provider level information, we excluded surgeon who performed fewer than 5 lumbar spine procedures per year.
RESULTS: We included adults who underwent an initial inpatient lumbar decompression operation for a herniated disc from 2000 through 2002. We excluded those with previous spine surgery, cancer, spinal deformity, arthritis or pregnancy. From 2000–2002, a total of 8,090 patients received lumbar decompression for herniated discs; operations were performed by 153 surgeons. The mean number of patients per surgeon in the high-volume group was 303, compared to 111 and 35 in the middle and low-volume groups, respectively. The high-volume surgeon group had a lower proportion of patients on workers' compensation and public insurance compared to other groups, but were similar with regard to age, sex, and comorbidity. The adjusted multilevel mixed-effects logistic regression found that relative to low-volume surgeons, high-volume surgeons had a significantly higher odds of reoperation at 4-years (OR 1.42 95% CI 1.08 – 1.86), and non-significantly higher odds at 1-year (OR 1.19 95% CI 0.84 – 1.70) and 30-days (OR 2.82 95% CI 0.68 – 11.83).
CONCLUSION: The likelihood of reoperation following a lumbar decompression for herniated disc is substantial, and high-volume surgeons had the highest rate of reoperation, even after adjusting for patient characteristics. We cannot exclude the possibility that differences in

unmeasured characteristics account for some of the association we observed. However, these counterintuitive results are contrary to other studies of surgical volume-outcome relationships. They may indicate that high-volume surgeons have a lower threshold for performing both initial and subsequent operations, or have greater use of techniques associated with higher complication rates. These findings suggest a need to improve indications for initial and repeat disc surgery; to involve patients in informed decision-making; and to determine the safest and most effective surgical techniques.

ASSOCIATION OF ALCOHOL CONSUMPTION WITH CARDIOVASCULAR AND CEREBROVASCULAR DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS P.E. Ronksley[1]; S.E. Brien[1]; B.J. Turner[2]; K.J. Mukamal[3]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Pennsylvania School of Medicine, Philadelphia, PA; [3]Harvard University, Brookline, MA. *(Tracking ID # 204969)*

BACKGROUND: Observational studies have suggested an association between moderate alcohol consumption and reduced cardiovascular risk. Prior systematic reviews are outdated and limited to only a subset of relevant cardiovascular outcomes. We conducted a comprehensive systematic review and meta-analysis of studies assessing the effect of alcohol consumption on various cardiovascular outcomes.
METHODS: MEDLINE (1950 through October 2008) and EMBASE (1980 through October 2008) databases were searched using terms encompassing three comprehensive search themes: exposure of interest (alcohol consumption), measures of interest (coronary heart disease (CHD) incidence and mortality, cardiovascular disease (CVD) mortality, stroke incidence and mortality), and study design (prospective cohort). Two authors independently reviewed all identified abstracts for eligibility (Kappa=0.86; 95% confidence interval (CI), 0.80, 0.91). Articles were included if they reported on an adult population without pre-existing cardiovascular disease and compared the risk of each outcome in relation to non-drinkers. Relative risks (RRs) were pooled using random-effects models. A stratified analysis was also performed to assess associations in subgroups representing different patient characteristics and study quality criteria.
RESULTS: 3837 articles were identified; 3755 articles were excluded, leaving 82 articles for inclusion in the review and meta-analysis. The pooled adjusted RRs for our 5 major outcomes of interest were 0.72 (95% CI: 0.67, 0.78) for incident CHD (28 studies), 0.71 (95% CI: 0.65, 0.77) for CHD mortality (30 studies), 0.72 (95% CI: 0.68, 0.77) for CVD mortality (19 studies), 0.92 (95% CI: 0.83, 1.00) for incident stroke (16 studies), and 0.99 (95% CI: 0.83, 1.14) for stroke mortality (9 studies). Results were consistent and statistically significant in all subgroups for all CHD and CVD outcomes. Upon stratification, the risk reduction for incident stroke was limited to ischemic strokes (RR: 0.83 (95% CI: 0.71, 0.96)). Further stratified analyses found similar risk reduction in females (incident CHD RR: 0.69 (95% CI: 0.65, 0.74) and males (RR 0.72 (95% CI: 0.65, 0.78)). When stratified by average quantity consumed, consumption of 2.5–14.9 grams/day was associated with lower risk of all outcomes. Consumption of 15–29.9 grams/day was also associated with lower risk (CHD mortality RR: 0.77 (95% CI: 0.73, 0.81)). Consumption of >60 grams/day was associated with lower risk of CHD mortality (RR: 0.74 (95% CI: 0.54, 0.93)) but higher risk of incident stroke (RR: 1.56 (95% CI: 1.01, 2.11)). Studies of poorer quality tended to yield less conservative estimates of risk reduction (i.e., lower relative risks) for all outcomes.
CONCLUSION: Alcohol consumption is associated with a reduced risk of various cardiovascular outcomes. Future research should now focus on clarifying the pathophysiologic mechanisms that underlie these findings.

ASSOCIATIONS BETWEEN NON-RESTORATIVE SLEEP, INSOMNIA AND DEPRESSION IN A HEALTH PLAN SAMPLE K. Sarsour[1]; D. Van Brunt[2]; J.A. Johnston[2]; K. Foley[3]; C.M. Morin[4]; J.K. Walsh[5]. [1]Center for Epidemiology and Health Services Research, Eli Lilly and Company, Indianapolis, IN; [2]Eli Lilly and Company, Indianapolis, IN; [3]Thomson Reuters, Ann Arbor, MI; [4]University Laval, Ste-Foy, Quebec; [5]Sleep Research Center, Chesterfield, MO. *(Tracking ID # 203960)*

BACKGROUND: Non-restorative sleep (NRS) complaints are common but associations with insomnia or depressive symptoms are not well-established. This analysis examines relationships between NRS, insomnia symptoms and severity, and between NRS and depressive symptoms.
METHODS: Administrative health claims were used to identify potential study participants. NRS was predefined, based on the literature, as three or more episodes per week for the last four weeks of awaking unrefreshed or not rested despite having a full night's sleep. Respondents were surveyed about the presence and frequency of NRS complaints, depression, insomnia and the use of sleep-promoting medications (SPM; both prescription and over-the-counter). The analysis sample consisted of: 642 subjects with NRS and 829 who reported never waking-up feeling un-refreshed or not-rested in the past four weeks. Depression was ascertained using the Whooley two-question case finding tool. Insomnia was ascertained using the Insomnia Severity Index (ISI) and questions about specific insomnia symptoms. Multivariate logistic regression was used to examine the association between self-reported depression and NRS while controlling for insomnia severity and use of SPM.
RESULTS: The mean [SD] number of hours of sleep reported by those with NRS 3–4 times/week and those with no NRS was not significantly different (6.7 [2.0] vs. 6.6 [1.8], P=0.43). NRS group had significantly lower self-rated sleep quality (5.0 [2.0] vs. 6.6 [2.5], P<0.0001) and a greater percentage reporting three nights or more per week with difficulty maintaining sleep (69% vs. 46.1%, P<0.0001), difficulty initiating sleep (51.9% vs. 28.5%, P<0.0001), and early morning awakening (50.0% vs. 29.5%, P<0.0001). More of the NRS group reported using SPM (35.7% vs. 25.6%, P<0.0001), but use of SPM was not independently associated with NRS (OR [95%CI]=0.88 [0.67–1.2]). Greater percentage of the NRS group had self-reported depression (50.4% vs. 26.5%, P<0.0001). In univariate analysis, NRS was associated with self-reported depression (OR [95%CI]=2.8 [2.3–3.5]. In multivariate analysis, controlling for insomnia severity, use of SPM, and gender, depression remained significantly associated with NRS (OR [95%CI]=1.9 [1.5–2.5]). Subthreshold (n=408), moderate (n=291) and severe (n=61) insomnia were associated with NRS (OR [95%CI]=(4.9 [3.6–6.6]), (6.5 [4.6 – 9.3]) and (3.2 [1.8–5.7]) respectively).
CONCLUSION: NRS complaints are associated with insomnia severity and symptoms. Independent of insomnia severity, NRS complaints may be a marker for depression. Patients who present with NRS complaints should be evaluated further for both insomnia and depression. Further research is required to understand the longitudinal interplay between depression, insomnia and NRS complaints.

ATTITUDES TOWARDS BODY WEIGHT, WEIGHT LOSS, AND PHYSICIAN-LED OBESITY COUNSELING IN URBAN LATINO PRIMARY CARE PATIENTS M. Mcmacken[1]; M. Freeman[1]; I. Lobach[1]; C. Torgersen[1]; N.R. Shah[1]. [1]NYU School of Medicine, New York, NY. *(Tracking ID # 205896)*

BACKGROUND: Latinos are disproportionately affected by the obesity epidemic in the United States, yet limited information is available to guide health care providers in developing culturally appropriate weight loss strategies for adults in this population. Our goal was to examine attitudes towards body weight, weight loss, and physician-led obesity counseling among Latino and non-Latino patients in an urban primary care setting.
METHODS: In August 2008, we distributed an anonymous, 38-item written survey to a convenience sample of English- or Spanish-speaking patients in the primary care clinic of an urban safety-net hospital. Survey questions were designed to assess perceptions about weight, interest in weight loss, prior attempts at weight loss, weight loss barriers, and obesity treatment preferences. The survey instrument also included questions on self-reported ethnicity, years living in the U. S., primary language, and education level. Height and weight were objectively measured for body mass index (BMI) calculation.
RESULTS: Of the 115 participants who completed the survey, 66 (57%) identified themselves as Latino, and 49 (43%) identified themselves as non-Latino (22 African Americans, 11 Caucasians, 4 Asians, 4 Indians, 8 other). The mean BMI was 30.6 and 30.1 for Latino and non-Latino participants, respectively; 40% of Latinos were overweight (BMI 25–29.9) and 41.5% were obese (BMI≥30). Latinos vs Non-Latinos. Among obese Latinos, 92% considered themselves overweight and expressed interest in losing weight, and 89% agreed that their weight affects their health. In the obese category, there were no significant differences between Latinos and non-Latinos or between men and women. However, in the overweight category, Latinos were less interested in weight loss (57 vs 78%), less likely to feel that their weight affected their health (65 vs 85%), and more likely to believe that weight loss would make them seem unhealthy (28 vs

12%) compared with non-Latinos. Obese Latinos were more likely to report wanting weight loss advice from their doctor compared with obese non-Latinos (78 vs 60%); nonetheless, 68% of all obese patients reported that they had received weight loss advice from their doctor, with no significant differences by ethnicity. Across all BMI categories, Latino patients were less likely than non-Latinos to report that their doctor was familiar with their food preferences (14 vs 25%). Variation among Latinos. Among overweight and obese Latinos, responses to "my weight affects my health," "I am overweight," and "if I lose weight I will seem unhealthy" did not vary significantly by gender, primary language, education level, or years in the U.S. However, prior weight loss attempts were more common among women than men (42 vs 22%), English speakers vs Spanish speakers (50 vs 20%), and those living in the U.S.>5 years vs <5 years (60% vs 10%).
CONCLUSION: Nearly all obese Latinos accurately identified themselves as overweight and expressed interest in losing weight, similar to obese non-Latinos. Latinos who were overweight but not obese appeared less concerned about their weight than non-Latinos. Gender, language, education, and years in U.S. did not affect perspectives about body weight but did seem to influence prior weight loss attempts. Obese Latino patients have a strong desire for weight loss advice from their doctors; more research is needed in delivering culturally appropriate dietary and weight loss counseling.

AUDIT AND FEEDBACK CAN REDUCE URINARY CATHETER DURATION IN POSTOPERATIVE PATIENTS H.L. Wald[1]; D. Sandy[1]; A.M. Kramer[1]. [1]University of Colorado Denver, Aurora, CO. *(Tracking ID # 204748)*

BACKGROUND: Indwelling urinary catheter duration is the most important modifiable risk factor for catheter-associated urinary tract infections (CAUTIs). These infections comprise 80% of all nosocomial UTIs. We postulated that the audit and feedback of catheter duration to nursing staff would be an effective strategy to reduce catheter duration and CAUTI's. The goals of this project were to determine the feasibility of auditing patient-level urinary catheter duration, and to test the impact of catheter duration feedback to nursing staff on catheter duration and CAUTI rates.
METHODS: Pre-post study of postoperative patients admitted to two surgical units at University of Colorado Hospital with perioperative indwelling urinary catheters. Patients with chronic indwelling catheters, or urologic or gynecologic procedures were excluded. Postoperative urinary catheter duration was obtained daily from an inpatient clinical documentation system for two four-month periods pre- and post-intervention. The intervention consisted of feedback to each nursing unit on its mean catheter duration as part of an educational session. The goal catheter duration was removal before post-operative day three. CAUTIs were determined by manually comparing microbiology reports from the study units of interest with patient-level urinary catheter data. The primary outcomes were mean catheter duration and the proportion of patients with catheter duration less than 3 days on each unit. Pre and post-intervention measures were compared using appropriate statistical tests.
RESULTS: We collected data from 846 surgical patients admitted to the orthopedic and general surgery units during the pre or post-intervention periods. Orthopedic surgery patients were 58 years old, 46% male, and had mean LOS of 3.8 days. General surgery patients were 53 years old, 46% male, and had mean LOS of 7.6 days. On each unit the surgical populations were comparable during the pre and post-intervention periods with the exception that the mean length of stay of eligible general surgery patients was significantly shorter in the pre than the post-intervention period (6.6 vs. 8.5 days, p=0.02). The feedback intervention was received by two-thirds of registered nurses on each unit and was rated highly by participants. For the orthopedic unit, mean postoperative catheter duration was reduced from 1.70 to 1.44 days (p=0.01) and the proportion of patients with catheter removal before day 3 was increased from 86% to 92% (p=0.04). For the general surgery unit, mean postoperative catheter duration was reduced from 2.6 to 2.2 days (p= 0.01) and the proportion of patients with catheter removal before day 3 was increased from 56% to 63% (p=0.14). The CAUTI rate on the orthopedic surgery unit dropped from 8.9 infections per 1000 device days to 0, and on the general surgery unit the rate was constant at 7 infections per 1000 device days.
CONCLUSION: Catheter duration audit and feedback to nursing units reduced postoperative catheter duration and has the potential to reduce CAUTIs. The collection of patient-level catheter data was feasible and facilitated through the use of electronic documentation. Audit and feedback of a catheter-duration may prove to be an effective strategy to improve urinary catheter management for surgical patients.

AWARENESS, PERCEPTION, AND KNOWLEDGE OF HEART DISEASE RISK AND PREVENTION AMONG SOUTH ASIAN IMMIGRANTS N. Kandula[1]; M. Tirodkar[2]; D.S. Lauderdale[3]; G. Makoul[4]; M.W. Paracha[5]; D. Baker[1]. [1]Northwestern University, Chicago, IL; [2]National Committee for Quality Assurance, Washington, DC; [3]University of Chicago, Chicago, IL; [4]Saint Francis Hospital and Medical Center, Hartford, CT; [5]Asian Human Services Family Health Center, Chicago, IL. *(Tracking ID # 205164)*

BACKGROUND: South Asians in the United States (U.S.) have a higher risk of developing coronary heart disease (CHD) compared to other racial/ethnic groups. Little is known about this community's knowledge and attitudes about CHD risk and prevention. We studied South Asian immigrants' knowledge and attitudes about CHD as part of an effort to design culturally-targeted CHD prevention messages.
METHODS: We conducted a survey of 270 South Asians recruited from a federally qualified health center and community centers in Chicago, Illinois and surrounding suburbs. A standardized questionnaire was verbally administered in Hindi, Urdu, and English. We examined associations between age, sex, education, acculturation (low, medium, and high), and CHD knowledge and attitudes.
RESULTS: Respondents ranged from 20–75 years (mean, 49 years), and 57% were women. While education levels were high (53% were college graduates or more), 53% were uninsured. Two-thirds of the interviews were in Hindi or Urdu. Participants had lived in the US on average 13 years. When asked about the leading cause of death among South Asians in the U.S., 47% correctly identified CHD, followed by cancer (17%), did not know (13%), and diabetes (9%). When asked to describe in their own words, what is a heart attack, 35% of respondents used terms such as "blockage in blood flow to heart," "coronary artery disease," "clot in arteries." 16% used more generic terms such as "damage to heart," "heart does not pump," "weak heart" or "heart stops", another 12% said "pain in the heart." Fifty-three percent of participants thought that most heart attacks cannot be prevented. The most frequently mentioned risk factors for heart attack were stress (56%), poor diet (35%), and high fat diet (29%); the mean number of risk factors cited was 2.8 (SD=1.4). When asked what things are important for preventing heart attacks, respondents most frequently cited exercise (53%), eat a better diet (49%), reduce stress (43%), and eat a low fat diet (39%). Very few said control of cholesterol (11%), blood pressure (12%), and diabetes (5%). In multivariate regression models adjusted for age, education, and gender, individuals with low acculturation, compared to those with high acculturation, were significantly less likely to know that CHD was the leading cause of death among South Asians in the U.S. (OR=0.41, 95% CI=0.20, 0.82) and were also less likely to think that heart attacks can be prevented (OR=0.28, 95% CI=0.12, 0.68). Women were also less likely than men to think that heart attacks can be prevented (OR=0.49, 95% CI=0.28, 0.86). Those with low education levels, independent of age, gender, and acculturation were significantly less likely to list high cholesterol, high blood pressure, and diabetes as risk factors for CHD, compared to those with higher education.
CONCLUSION: While South Asian immigrants are aware that CHD is the leading cause of death in their community, specific knowledge gaps and misconceptions remain. Despite high average education levels, there is low awareness about the connection between cholesterol, blood pressure, diabetes and CHD. CHD education programs targeted to South Asian immigrants need to change knowledge and attitudes about the preventability of CHD and the importance of controlling cholesterol, blood pressure, and diabetes to achieve this. CHD prevention messages may need to be somewhat different for population subgroups (e.g., by gender and acculturation) to be maximally effective.

BARRIERS TO CARE FOR CAMBODIAN PATIENTS WITH DIABETES: RESULTS FROM A QUALITATIVE STUDY M.R. Renfrew[1]; M.J. Cohen[2]; P. Roger[3]; J.R. Betancourt[1]; S. Liang[4]; A. Tan-Mcgrory[1]; A.R. Green[1]. [1]Massachusetts General Hospital, Boston, MA; [2]Massachusetts General Hospital, Chelsea HealthCare Center, Chelsea, MA; [3]Massachusetts General Hospital, Revere, MA; [4]Lowell Community Health Center, Lowell, MA. *(Tracking ID # 205899)*

BACKGROUND: Racial and ethnic disparities in diabetes care and treatment have been widely documented, particularly in African-American and Latino populations. However, less is known about barriers to diabetes care and self-management among Asian communities, particularly Southeast Asians and Cambodians. A preliminary assessment of adult diabetes care for Cambodians at the Massachusetts General Hospital (MGH) Revere HealthCare Center revealed that approximately 50% were in less than ideal control (HbA1c >7). To better understand the specific barriers to treatment and self-care for Cambodian patients with poorly controlled diabetes, we conducted a qualitative study as part of a larger quality improvement initiative.
METHODS: Focus groups were conducted with Cambodian patients with diabetes at MGH Revere (n=16), clinicians including physicians, nurses and dieticians (n=27), and Cambodian interpreters and hospital staff (n=5). A bilingual Khmer-speaking moderator was used for focus groups with Cambodian patients and Cambodian hospital staff. All focus groups were audio-recorded and transcribed verbatim, and translated from Khmer to English when necessary. A grounded theory approach was used to code and analyze the data, including double-coding to address issues of reliability and validity in the analytic process. Atlas.ti was used for data analysis.
RESULTS: Five primary themes emerged relating to patients' potential barriers to diabetes control: (1) limited understanding of the causes of poor diabetes control and the relation between diet and blood sugar; (2) beliefs and perspectives about medication use and the use of traditional Cambodian remedies; (3) fears about blood tests, using insulin, needles, and surgery; (4) impact of language barriers and time restrictions on the provision of care; and (5) patients' deferent style of communication. As an example of one of these themes, patients' beliefs about medication and use of medication varied; some preferred traditional Cambodian remedies, while others used western medicine (or both). However, patients who reported taking western diabetes medications (e.g. insulin) did not always take it as prescribed nor did they inform their doctors of use of cultural remedies (e.g. herbs and alcohol soaked fruit). Patients also reported that they stopped taking medication once symptoms improved.
CONCLUSION: Cambodian patients with diabetes have cultural beliefs, values, and traditions that greatly impact diabetes care and self-management. Findings suggest that a patient-centered and culturally competent approach to providing care to Cambodian patients with diabetes is necessary to reduce disparities, improve treatment, and increase patients' ability to care for their diabetes. Culturally tailored diabetes education, offered as group education sessions and/or individual coaching by a Khmer-speaking community health worker, may benefit Cambodian patients with diabetes. Training and education for providers on culturally competent approaches to patient care may also help build patient trust thereby allowing for more sharing of cultural beliefs and traditions during primary care visits.

BARRIERS TO FOLLOW-UP OF AN ABNORMAL PAP SMEAR IN LATINA WOMEN REFERRED FOR COLPOSCOPY S. Percac-Lima[1]; L.S. Aldrich[2]; G.B. Gamba[1]; A.M. Bearse[2]; S.J. Atlas[2]. [1]Massachusetts General Hospital, Chelsea, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205701)*

BACKGROUND: Although reductions in cervical cancer morbidity and mortality can be achieved through early detection and treatment, Pap smear rates and follow-up of abnormal results remain low in racial and ethnic minorities and low income patients. The objective of this study was to identify patient perceived barriers to follow-up after an abnormal Pap smear in Latina women referred for colposcopy.
METHODS: Eligible participants were Latinas who had an abnormal pap smear and received their primary care at an academic hospital-affiliated urban community health center serving predominately minority and low-income patients. Qualitative, semi-structured, one-on-one interviews were conducted at a colposcopy clinic by a trained bilingual research assistant with Latina women who were identified using the clinic's patient scheduling system. Three groups of women were interviewed: new colposcopy clinic patients; patients having previously undergone a colposcopy; and patients referred by the health center's patient navigator program because of missed colposcopy appointments or identified as at-risk. Open-ended questions were used to explore their knowledge of, beliefs about and experiences with colposcopy, as well as reasons for having missed appointments. Interviews were tape-recorded, transcribed and translated. Content analysis of the transcripts was performed using established qualitative techniques.
RESULTS: A total of 40 Latina women were studied: 77% spoke only Spanish, 22% were born in the United States, 12 were new colposcopy clinic patients, 15 previously had a colposcopy, and 13 were referred to the navigator program. The average age of women was 31 (range 18–54). A range of barriers was identified and categorized into five major themes: (1) Anxiety, women reporting "worry/concern/nervousness"; (2) Fear of procedures, miscarriage and most commonly of a cancer or HPV infection diagnosis (3) Inadequate communication, including inconsistent notification about colposcopy appointments; lack of explanation/knowledge about the diagnosis, procedure, and results; or insufficient materials in Spanish; (4) Scheduling and lack of availability of appointments interfering with work and/or child care; and (5) Pain associated with the procedure. New patients most commonly reported problems with scheduling and inadequate communication regarding the procedure and its importance. Follow-up patients expressed concern about pain during the procedure, and women who were referred to a navigator most often reported fear of results, but less concerns about inadequate communication.
CONCLUSION: A thorough understanding of barriers to colposcopy among racial and ethnic minorities and low-income patients is required to develop interventions that increase adherence to recommended follow-up of abnormal Pap smears, such as patient navigator programs. Inadequate communication and difficulty scheduling appointments were the major system barriers identified in these, low income, Latina women. Anxiety, fear and concerns about pain were the most commonly expressed personal barriers. These results suggest interventions to lower barriers to colposcopy could include improving scheduling and notification about colposcopy appointments, education focusing on the need for the procedure, and emotional support for the patient.

BARRIERS TO HIV SCREENING: DO THEY PREVENT THE ADOPTION OF CDC GUIDELINES? S. Holliday[1]; N. Lavine[2]; J. Morris[3]; N. Lerfald[4]; M.D. Landry[5]. [1]Ohio State University, Columbus, OH; [2]St. Vincent Hospital, New York, NY; [3]University of Alabama at Birmingham, Birmingham, AL; [4]West Virginia University, Morgantown, WV; [5]Tulane University, New Orleans, LA. *(Tracking ID # 204622)*

BACKGROUND: In the US, there is an estimated 1.1 million patients with HIV – with about 25% being undiagnosed. To improve early HIV detection/survival and decrease transmission rates, the CDC released new guidelines in September 2006 for one-time HIV screening of all adults, regardless of risk factors. The guideline also advocated abolishing specific consent forms and mandatory counseling to help reduce barriers to testing.
METHODS: A random sample of physicians at 9 academic medical center residency clinics was surveyed about HIV screening practices and attitudes. The questionnaire included demographics, knowledge of CDC guidelines, perceived barriers to HIV testing and post-guideline screening habits. A "Practice Score" was created for each respondent based on self-reported screening discussions with patients meeting the CDC testing parameters (practice score &alpha=0.92). Bivariate analysis was performed to determine factors affecting the physicians' screening practice habits. A tabulation of reported barriers was also created for each respondent, generating a "barrier score" (&alpha=0.79) for the number of barriers the physician felt inhibited screening efforts – including time constraints, not knowing patient risks, burdensome processes, and discomfort issues.
RESULTS: 277 physicians responded (84% response rate). Only 1.1% of physicians reported discussing screening with patients as outlined in the CDC guidelines. Regression analysis of barrier score and practice score showed that there was a significant association between the perception of barriers to screening and the omission of HIV screening discussions with patients ($p<0.001$). This association was not affected by PGY level, physician marital status, or geographic prevalence of HIV. Physicians also reported an average of 8.1 barriers that interfere with the practice of routine HIV screening in their patients. The barriers most frequently reported involved systems based barriers (such as time constraints, consent and counseling requirements), knowledge barriers (such as not knowing the patient's sexual orientation and believing one's patients are "low risk") and practice based barriers (such as competing co-morbid conditions making screening less likely).
CONCLUSION: Despite CDC recommendations to screen all patients 18 to 64, physicians still report many barriers. The data suggest physician knowledge of the guidelines remains an issue two years after their release. These results suggest that legislative, public policy, and clinic

specific efforts should be designed to reduce the systems-based barriers to screening. More physician education and strategies that relax legislative barriers to screening will be necessary before the CDC guidelines are widely adopted in practice.

BARRIERS TO INCORPORATING SUBSTANCE ABUSE EDUCATION INTO GENERALIST RESIDENCY TRAINING D.P. Alford[1]; C. Bridden[2]; R. Saitz[1]; A.H. Jackson[1]; J.H. Samet[1]. [1]Boston University School of Medicine/Boston Medical Center, Boston, MA; [2]Boston Medical Center, Boston, MA. *(Tracking ID # 205249)*

BACKGROUND: Physician education about substance abuse remains inadequate. This deficiency persists despite the high prevalence of substance abuse medical co-morbidities, premature death, and societal costs. Chief residents (CRs) can have substantial influence on the content of resident teaching. We assessed the barriers perceived by CRs' to incorporating substance abuse education into residency training.
METHODS: As part of two annual (2007 and 2008) Chief Resident Immersion Training (CRIT) programs in Addiction Medicine for generalist (internal, family & emergency medicine) physicians (a 4-day course prior to chief residency), we conducted a survey of the participating CRs about barriers to incorporating substance abuse education into residency program curricula. The survey, conducted at baseline (prior to CR year) and at 6-month follow-up (halfway through CR year), presented a list of 6 potential barriers. Based on changes from baseline to follow up responses, we categorized barriers as ***surmountable*** (present at baseline but not at follow-up), ***insurmountable*** (present at baseline and follow-up), and ***unforeseen*** (absent at baseline and present at follow-up).
RESULTS: At baseline, 42 CRs from 34 residency programs in 19 states identified the following barriers to incorporating substance abuse into residency program curricula: "substance abuse stigma and/or preconceptions" (36%; 15/42); "lack of faculty expertise" (36%; 15/42); "lack of interest by residents" (31%; 13/42) "no space in the current curriculum" (29%; 12/42); "lack of institutional support" (12%; 5/42) and "residency program resistance to change" (5%; 2/42). At follow-up, the barriers were categorized as ***surmountable*** in the following proportions: "substance abuse stigma and/or preconceptions" (60%; 9/15); "lack of faculty expertise" (47%; 7/15); "lack of interest by residents" (46%; 6/13); "no space in the current curriculum" (42%; 5/12); "lack of institutional support" (60%; 3/5) and "residency program resistance to change" (100%; 2/2). Lack of faculty expertise was both the most common ***insurmountable*** and ***unforeseen*** barrier with 38% (16/42) of CRs reporting it at follow-up.
CONCLUSION: We found that perceived barriers to the inclusion of substance abuse (SA) education into residency curricula can be overcome to some degree; however, many barriers persisted at follow-up. Providing CRs with specific skills to teach residents about SA will require emphasis on overcoming barriers to the inclusion of SA education into residency program curricula. These data suggest the challenge of having trained faculty to help CRs incorporate SA education into residency curricula.

BARRIERS TO INSULIN INITIATION AMONG PATIENTS WITH UNCONTROLLED DIABETES U. Subramanian[1]; A.J. Karter[2]; C. Saha[3]; D.G. Marrero[1]. [1]Diabetes Translation Research Center; Indiana University School of Medicine, Indianapolis, IN; [2]Kaiser Permanente of Northern California, Oakland, CA; [3]Division of Biostatistics, Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 204780)*

BACKGROUND: A significant percentage of patients are in poor glycemic control in spite of being at maximal dose oral hyperglycemic (OHA) therapy. Treatment with insulin is safe and effective, but traditionally considered the last resort by patients and some providers. Better understanding of patient and provider perspectives regarding insulin as both initial and second line therapy is needed. Objectives: Compare and contrast patient attitudes, behaviors and experience among poorly controlled patients (2 consecutive A1c's ≥8%; or last value ≥9%) treated with ≥2 OHAs at maximal dose for following three groups: a) No therapy intensification b) Intensified with a third (or fourth) OHA c) Intensified with insulin
METHODS: Cross-sectional survey (written and computer assisted telephone interviews) of 415 patients with diabetes receiving care at one site in Northern California and one in the Mid-West. Eligibility criteria included all of the following: a) ICD codes for diabetes diagnoses at 2 outpatient visits or 1 inpatient visit; b) 2 consecutive A1c ≥8% [3 months apart] or last A1c ≥9%; c) 2 OHAs at maximal dose or 1 OHA at maximal and second at sub-maximal dose; d) not treated with insulin at baseline; and e) ≥2 clinic visits during observation year. Patients aged >85 yrs, with limited life expectancy, significant cognitive or psychiatric illness were excluded. Survey queried attitudes regarding insulin, knowledge, self-efficacy, self-monitoring, medication related side effects and communication with provider regarding treatment intensification and, for those on insulin, attitudes and experience with insulin and training with self-titration. We compared responses from the 3 groups using Fisher's exact test controlling for patient age, race, gender, income and education.
RESULTS: 274 patients (88 in each group) responded to the survey (66% response rate). Only 36% of patients not currently on insulin with uncontrolled diabetes on 2 oral agents at maximal dose were ever recommended insulin by their provider. There were no differences among the 3 groups for patients' knowledge of glycemic targets, reported difficulty with glycemic control or the self management training (p>0.05). Patients who were intensified with insulin reported lower treatment-related side effects than those intensified with an additional OHA (p=0.038). Patients started on insulin were no more likely to report that their provider explained the risks and benefits of their new choice for intensification than patients intensified with a 3rd or 4th OHA (p=0.09). For patients intensified with insulin, 92% reported receiving adequate training to self-manage. Most reported no or little concern about their ability to make home-adjustments (87%), pain associated with injections (85%), negative impact on their social life (83%), or fear of side effects from insulin (89%). Approximately 25% started on insulin were concerned about costs of insulin and additional burden from home monitoring.
CONCLUSION: This evidence suggests that providers are reluctant to recommend insulin therapy even for patients with poorly controlled diabetes on 2 oral agents at maximal dose. Patients experience with insulin, however, suggests that this therapy is more positive than commonly believed and may be improved by more careful discussion and education by providers.

BARRIERS TO PAIN MANAGEMENT FOR PATIENTS WITH SUBSTANCE USE DISORDERS – WHAT DOES THE PATIENT THINK? L. Zallman[1]; S.L. Schwartz[1]; R. Saitz[1]; J.H. Samet[1]; J.M. Liebschutz[1]. [1]Boston University, Boston, MA. *(Tracking ID # 205476)*

BACKGROUND: Prior studies suggest that patients with substance use disorders (SUDs) have difficulty communicating with physicians about pain and have concern about effects of pain medications. We examined patient-related barriers to pain management identified by primary care patients with chronic pain in two domains: fear of the medication (i.e. side effects and addiction) and patient-physician communication regarding pain. We compared responses from patients with and without SUDs.
METHODS: We interviewed English speaking patients, 18 to 60 years old, presenting for primary care at an urban academic safety-net medical center who reported pain for 3 months and had taken analgesics in the past month. The main outcome was the mean overall score on a modified version of the validated Barriers Questionnaire II (BQII). Three subscales with responses from 0 (no barrier) to 5 (highest barrier) were used: concern about medication side effects; medication addiction potential; and physician-patient communication on pain. We compared subscale scores of those with and without lifetime SUDs as determined by the Composite International Diagnostic Interview, and tested the associations in multivariable models adjusting for age, gender, race, employment, education, pain severity, disability, symptom severity, depression and PTSD.
RESULTS: Participants (n=597) had a mean age of 46 years; they were 59% female and 61% African American. Those with SUDs (n=256) had significantly higher mean concern about side effects (3.17 vs 2.78, p= 0.004) and medication addiction potential scores (3.17 vs. 2.78, p= 0.004) than those without SUDs (n=341). However, they endorsed fewer concerns about communicating pain concerns with physicians (1.65 vs. 1.95, p=0.009). The associations for side effects and addiction potential persisted in adjusted analyses: mean scores among patients with vs. without SUDs were, respectively, 3.37 vs. 2.91 (p<0.001) for side effects and 4.16 vs. 3.74 (p=0.009) for addiction potential. Communicating pain concerns remained lower, but statistical significance was borderline (1.80 vs. 2.01, p=0.059).

CONCLUSION: Primary care patients with chronic pain expressed fears about addiction potential and side effects of pain medications. Those with SUDs reported significantly higher levels of concern. Of note, patients with SUDs did not report greater barriers to discussing pain concerns with their physicians. Physicians should anticipate patient concerns regarding discussions of pain management, including medication side effects and addiction potential, particularly among those with current or past substance use disorders.

BETTER QUALITY OF CARE MEASURED WITH A PRACTICAL SET OF CLAIMS-BASED MEASURES IS LINKED TO BETTER OUTCOMES IN COMMUNITY DWELLING VULNERABLE ELDERS D. Zingmond[1]; K. Wilber[2]; S. Ettner[3]; N.S. Wenger[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of Southern California, Los Angeles, CA; [3]University of California, Los Angeles, LA, CA. *(Tracking ID # 205607)*

BACKGROUND: Although assessment of quality of care is increasingly common, few studies seek to link measured process of care with patients' outcomes. Understanding the relationship between measured quality and patient outcomes can enhance the importance of quality measurement for patients and providers and drive care improvement. We evaluated the relationship of claims-based quality assessment with functional and mortality outcomes among community dwelling elders.
METHODS: We studied all persons 75+ years old enrolled in both Medicare (MCR) and Medicaid (MCD) who received In Home Supportive Services (IHSS) in 19 counties in California and were alive throughout 1999 and had follow-up in 2000. Using MCR and MCD claims from 1999, we assessed performance on 42 quality indicators (QIs) in 14 conditions (continuity, dementia, depression, diabetes, heart failure, hospital care, hypertension, ischemic heart disease, malnutrition, medication use, osteoarthritis, osteoporosis, stroke, and vision impairment) from the Assessing Care of Vulnerable Elders (ACOVE) measurement set. We computed an overall summary index of quality of care from 1999 (percentage of triggered quality indicators that were passed) that was compared to functional decline (composite measure of death or any loss of function across the 11 item IHSS functional assessment index) or death in 2000. In the function model, patients who died were assigned the worst function at follow-up. Using multivariate linear and logistic regression analyses, we estimated the impact of quality on follow-up function and mortality after accounting for number of QIs triggered, baseline function, age, race, gender, comorbidity (Charlson Index), per capita income (U.S. Census), and rural residence (U.S. Census).
RESULTS: The 21,289 dually enrolled elders received IHSS in the 19 county sample triggered a mean of 10.3 QIs per person. Patients received recommended care for 58.7% of the triggered QIs. Mean functional deficit index increased from 2.75 at baseline to 3.11 at follow-up, and 15.2% of the cohort died in 2000. In regression models, better quality predicted better function at follow-up (Beta=-0.28, 95% Confidence Interval: -0.35 to -0.22) and lower odds of death (0.43, 95% CI: 0.32 to 0.57). More triggered QIs, greater age, male gender, and greater comorbid illness, were all significant predictors of worse function or greater odds of death at follow-up.
CONCLUSION: Routinely collected data implementing ACOVE quality measures for community vulnerable older patients generates quality of care scores that are directly related to patient functional outcomes. These findings suggest that population-based assessments of care are both feasible and valid for large groups of at-risk seniors and that quality improvement driven by these measures will enhance outcomes important to these patients.

BOARDS AND GOVERNANCE IN U.S. HOSPITALS AND THE RELATIONSHIP TO QUALITY OF CARE A.K. Jha[1]; A.M. Epstein[2]. [1]Harvard University, Boston, MA; [2]Harvard University School of Public Health, Boston, MA. *(Tracking ID # 205161)*

BACKGROUND: Hospital boards may play a role in the quality of care delivered but whether and how they are engaged in these issues is largely unknown. We conducted a national survey of board chairpersons to determine boards' engagement and activities in quality. In addition to creating a national portrait, we sought to determine whether boards of high-performing hospitals differed in their priorities, expertise and function from boards of hospitals that perform poorly on quality metrics.
METHODS: We used Hospital Quality Alliance data to calculate an overall quality score for all non-profit U.S. hospitals and randomly chose 1000 hospitals, over-sampling those ranked in the top or bottom decile of HQA performance. We sent a survey to the chairperson of the board of directors of each hospital. We examined respondents' views regarding their expertise in quality, priorities for oversight, self-perceived performance, and programmatic activities pertaining to quality. We weighted all responses to account for our sampling scheme to create national averages.
RESULTS: We received responses from 78.3% of board chairpersons surveyed. Overall, board chairs from 32% of hospitals reported that their board received any formal training that covered clinical quality. Respondents from 52% of hospitals identified quality as a top priority for board oversight and 43% identified quality as one of the top two factors in evaluating their CEO's performance. Quality was consistently on the board's agenda in 63% of hospitals and 72% of hospital boards examine a quality dashboard. Finally, just 1% of board chairs reported that quality was better than in the typical hospital. Compared to boards from low-performing hospitals, those from high-performing institutions more often underwent training in quality (47% versus 21%, $p<0.001$), identified quality as a top priority for oversight (69% versus 42%, $p<0.001$) and CEO evaluation (59% versus 31%, $p<0.001$), and regularly included quality on the board's agenda (74% versus 57%, $p=0.003$). Among board chairs of poor-performing hospitals (those in the bottom decile), none reported that the care in their hospital was worse than in the typical hospital, while 58% said it was better than in the typical U.S. hospital.
CONCLUSION: Quality is often not a high priority among hospital boards and only a minority of boards receives training in quality. A large proportion of board chairs are not aware of their own hospital's quality performance. There were large differences between high- and low-performing hospitals in each of the areas of the board's activities and priorities. Given the critical need to find levers to improve quality, our findings of a nationally-representative sample of board chairs suggest that the board may play an important role. Whether changing the board's priorities and practices translates into better care for patients is not clear, but given the large differences in governance between the best and worst hospitals, this represents a tempting target for intervention.

BREAKING BAD NEWS: HOW DO MEDICAL STUDENTS DEAL WITH UNCERTAINTY SURROUNDING A PATIENT'S DEATH? K.S. Deep[1]; A. Kizzee[1]; R.L. Conigliaro[1]; C.A. Feddock[1]. [1]University of Kentucky, Lexington, KY. *(Tracking ID # 205741)*

BACKGROUND: Informing family members following a patient's death is difficult especially when circumstances are not clear. Physicians are taught to look for a diagnosis or cause for every disease process they encounter. In cases of diagnostic uncertainty, do medical students convey accurate information?
METHODS: An end-of-year clinical performance exam is required for third year medical students at our institution. In one station, the student was asked to assess a simulated patient (Advanced Human Simulator) after he was found unresponsive at a nursing home. The simulated patient was a 74 year old man with a history of coronary artery disease and a prior stroke recently treated for a urinary tract infection. Nursing home records including a do-not-resuscitate order were provided. Physical exam findings included a systolic murmur, bibasilar crackles, absent bowel sounds, hypotension, tachycardia, and tachypnea. During the encounter, the simulated patient became hypoxemic and died. The history and physical exam findings were intentionally vague to generate diagnostic uncertainty. In a written exercise, students were asked to formulate a differential diagnosis. At the next station the student was to inform the patient's daughter about his condition. This encounter featured the same standardized actress for all students and was videotaped. Following disclosure of the simulated patient's death, she asked the student "What happened?". The videotapes were transcribed and analyzed by three independent raters using the constant comparative method. A coding scheme was developed to evaluate how the student disclosed the patient's death and the explanation provided for the cause of death. The certainty with which the student discussed the cause of death was ranked on a scale of 1 (most certain) to 3 (uncertain). Discrepancies between raters were resolved by consensus.

RESULTS: Ninety-four students (62% male) participated in the exam. Three were not recorded and two encounters were excluded due to script deviation leaving 89 encounters for analysis. The majority of students stated that the patient "passed away" (73%). Others stated that "he didn't make it" (12%) or "died/is dead" (9%). In discussion with the standardized daughter, 27 students (30%) stated with a high degree of certainty (level 1) that the patient died from a specific cause—the majority invoking a myocardial infarction (MI) or other nonspecific cardiac condition (17/27). Thirty-six students (40%) discussed one or more possible causes of death but acknowledged the diagnostic uncertainty. Twenty six students (29%) provided no clear cause of death. Overall, the most common causes of death discussed with the daughter were infectious (31%), myocardial infarction (28%) and stroke (21%). On the written exercise, MI was the most commonly identified cause. A significant number of students listed pulmonary embolism (33%) but none discussed this with the daughter. Medication reactions were also more commonly identified on the written exercise than the video transcripts.
CONCLUSION: When faced with diagnostic uncertainty surrounding a patient's death, a significant proportion of students provide a definite cause despite clinical ambiguity. Students are more likely to attribute death to familiar diagnoses such as cardiac conditions and infections which could lead to inaccurate perceptions among family members. Students may need additional training recognizing and dealing with clinical uncertainty.

BREAST CANCER AMONG THE OLDEST-OLD: IS LESS AGGRESSIVE TREATMENT RELATED TO INCREASED RISK OF DEATH FROM EARLY STAGE BREAST CANCER? M.A. Schonberg[1]; E.R. Marcantonio[1]; L.H. Ngo[1]; R.A. Silliman[2]; E.P. Mccarthy[1]. [1]Beth Israel Deaconess Medical Center, Brookline, MA; [2]Boston University, Boston, MA. *(Tracking ID # 205217)*

BACKGROUND: Women aged 80 and older are the fastest growing segment of the US population and breast cancer is common among these women, yet few data are available on tumor characteristics, treatment choices, and survival for these women. Previous studies systematically excluded women who were unstaged many of whom were aged 80+.
METHODS: We used the linked Surveillance Epidemiology and End Results-Medicare claims dataset from 1992–2002 to examine characteristics at diagnosis and outcomes of early stage (I/II) breast cancer among oldest-old women (80–84, 85–89, and 90+) compared to younger women (66–69,70–74, 75–79). We examined tumor characteristics (e.g., tumor size/positive nodes), receipt of treatment (mastectomy; breast conserving surgery [BCS] with radiation [XRT]; BCS alone; or no surgical treatment), and death due to breast cancer by age at diagnosis. Since 32% of women aged 80+ [49% of women 90+] and 17% of women 66–79 were missing data on stage (AJCC 3rd edition) at diagnosis, we used information on tumor size/extent and lymph node invasion/positivity to impute stage (resulting in missing stage for only 5% of 80+ and 1% of 66–79). For those with known AJCC stage, we compared imputed stage with AJCC stage and obtained a two-sided kappa of 0.9997. Using Multinomial logistic regression, we examined the effect of age on receipt of treatments for early stage disease adjusted for tumor characteristics, comorbidity, year of diagnosis, and sociodemographics. We used Cox proportional hazard models to examine the impact of age on breast cancer death adjusted for these factors and treatments received.
RESULTS: 48,475 women age 66+ with imputed or known stage I/II breast cancer were included; 88% were non-Hispanic white. The table below demonstrates differences in tumor characteristics and treatments received by age. Women aged 80+ were more likely to receive mastectomy (aOR 1.7 95% CI [1.6–1.8]), BCS alone (7.1 [6.6–7.7]), or no surgery (6.9 [5.4–8.8]) compared to BCS+XRT than women aged 66–79. The risk of dying from breast cancer increased for women aged 80+ compared to those aged 66–79 (aHR 1.7 [1.6–1.8]); however, the risk of dying of from other causes was even higher at advanced ages than the risk of dying from breast cancer (aHR 2.6 [2.5–2.7]). Those who received less aggressive treatment (BCS alone/no surgery) were more likely to die of breast cancer (aHR 1.4 [1.3–1.6]).
CONCLUSION: Women aged 80 and older appear to receive less aggressive treatment and suffer worse outcomes from early stage breast cancer than younger women. There is a high amount of missing data among the oldest-old although our analyses attempted to address this issue. The risk of dying from other causes increases even more greatly with age than the risk of dying from early stage breast cancer.

	66–69	70–74	75–79	80–84	85–89	90+
Stage I (%)	65	66	65	63	58	47
Axillary node dissection (%)	89	84	78	65	48	28
Positive nodes (%, if tested)	22	22	22	24	26	39
Tumor size </=1 cm (%)	36	36	33	29	22	13
Tumor size >1-</=2 cm (%)	40	41	41	41	40	37
Initial Treatment						
Mastectomy (%)	47	48	49	50	47	40
BCS+XRT (%)	49	47	41	30	16	6
BCS alone (%)	4	5	9	18	33	46
No surgery (%)	0	0	1	2	4	8

BREAST CANCER PATIENT KNOWLEDGE: CAN PATIENT ASSISTANCE PROGRAMS HELP? A. Mendelson[1] K. Fei[1]; R. Franco[1]; D. Williams[2]; N.A. Bickell[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, NY, NY. *(Tracking ID # 204364)*

BACKGROUND: As the medical profession increasingly emphasizes patient autonomy in decision making, particularly in the realm of breast cancer treatment, it is important to ensure that patients possess adequate knowledge on which to base treatment decisions. Since nearly half of the U.S. population has trouble understanding health information, the purpose of this study was to determine the relationship between patient knowledge of breast cancer treatment efficacy, health literacy, and the potential role of patient assistance programs.
METHODS: We surveyed 210 NYC women surgically treated for a new early-stage breast cancer who should receive adjuvant treatment as per national guidelines. To measure knowledge of adjuvant treatment efficacy, we asked if radiation therapy can reduce the chance of recurrence and if chemotherapy and hormonal therapy can increase survival; we categorized knowledge as knowing at least two correct responses. To measure health literacy skills, we asked previously validated questions of women's ability to understand written medical information, fill out medical forms, and read hospital material; the scale was scored to 100 points (Cronbach's alpha=0.67) and dichotomized at the median, 85. We asked women if they contacted a patient assistance program and about their physician's communication of treatment, specifically if their doctor asked for their input, gave the information needed to make a treatment decision, discussed the various treatments, the pros and cons of each choice, and what to expect during the treatment process (Cronbach's alpha=0.83). We performed bivariate and logistic regression assessing patient knowledge of treatment efficacy. Odds ratios were converted to adjusted relative risks.
RESULTS: Overall, 60% of women did not know that adjuvant treatments can reduce recurrence and increase survival. Women with less knowledge were older (59yrs vs. 53yrs; p=.0002), less educated (13yrs vs. 15yrs; p=.0019), and had lower health literacy skills (72 vs. 86 on a 100 pt scale; p<.0001). Treatment knowledge was greater among women who contacted a patient assistance program, regardless of their level of health literacy (p<.01). Of the 55 (26%) women who contacted a program, 38% of women with lower and 69% with higher health literacy had treatment knowledge (p=.02). Among women who did not contact a program, only 20% of women with lower and 49% with higher health literacy had treatment knowledge (p=.0002). Physician communication of treatment was not associated with greater patient knowledge of treatment efficacy, regardless of their health literacy level. Multivariate models, adjusting for race, language, education, and physician discussion of adjuvant treatments, found treatment knowledge was greater among women who were younger (aRR=.54; 95% CI: 0.33–0.82), had better health literacy skills (aRR=1.5; 95% CI: 1.27–1.72), and who contacted a patient assistance program (aRR=1.38; 95% CI: 1.04–1.63) (model c=.73; p=<.0001).
CONCLUSION: Women with a new breast cancer lack adequate knowledge of adjuvant treatment efficacy. Knowledge is especially poor among women with lower health literacy skills. Patient assistance programs may be able to provide women with information they need to enable truly informed decision making.

BREAST CANCER PATIENTS' PERCEIVED QUALITY OF CARE: THE IMPORTANCE OF TRUST AND COMMUNICATION N.A. Bickell[1]; R. Franco[1]; K. Fei[1]; K.P. Joseph[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]Columbia University College of Physicians and Surgeons, New York, NY. *(Tracking ID # 203907)*

BACKGROUND: As insurers consider paying for performance and quality measures grow in importance, factors that affect patients' perceived quality of cancer care matter. We undertook this study to assess key predictors of women's ratings of the quality of their breast cancer care.
METHODS: 210 of 300 eligible women with a new primary stage I or II breast cancer undergoing surgical treatment at 1 of 8 participating NYC hospitals were enrolled in a RCT of Patient Assistance to Reduce Disparities in Care and responded to our survey (70% response rate): 43 (20%) were African-American, 85 (40%) were white, and 63 (30%) were Hispanic and 19 (9%) were other races. All patients were telephone-surveyed to assess care experiences, knowledge, attitudes and beliefs about breast cancer and its treatment. Trust is based on a validated instrument and calibrated to a 100 point scale (Cronbach=.73). A scale of 5 items assessing physician communication was created and calibrated to100 points (Cronbach=.83). This scale includes items asking about their physician's discussions about treatment, its pros and cons, what to expect and patient treatment preferences. Race is self-reported. We used bivariate analyses and logistic models to identify factors associated with patient ratings of excellent quality of care. Trust and physician communication scales were dichotomized at the median when entered in the logistic models. Interaction terms were not significant and dropped out of the final model.
RESULTS: Overall, only 55% of women rated their quality of cancer care as excellent. Compared to women who did not rate their care as excellent, those who did had greater trust in their physician (97 vs 91 on 100 point scale; p<0.0001), better communication with their physician (89 vs 78; p<0.0001), indicated that were treated very well by their physicians' office staff (59% vs 41%; p=0.01), and knew which physician to ask when they had questions about their breast cancer (87% vs 64%; p=0.0001) ; age, education and income were not significantly related to patient report of excellent cancer care. Of all ethnic groups, African-American women were less likely to rate their care as excellent (35% vs white 62% vs Hispanic 65%; p=0.004). African American women also had lower levels of trust in their physician (AA= 92; W=95, H=96; p=0.02); there were no racial differences in physician communication. Patients reporting greater levels of physician communication also had greater trust (r=0.38; p<0.0001). Multivariate models evaluating the role of patient race, education, income, knowing which physician to talk to and how well the staff treated the patient found that being African American (aRR=0.47; 95%CI: 0.21–0.88), having greater trust in physician (aRR=1.72; 95%CI:1.49–1.85) and better physician communication (aRR=1.38; 95%CI: 1.03–1.65) were significantly associated with patient perception of excellent quality care (model c=.80; p<0.0001).
CONCLUSION: Greater levels of physician communication about treatment and patient trust of their physician affect women's ratings of excellent cancer care quality. Efforts should be made to improve physician communication about treatment, particularly among African American women, to improve levels of trust and ratings of cancer care quality.

BREAST CANCER RISK PERCEPTION: NEED FOR CLARITY IN RISK COMMUNICATION K. Ghosh[1]; S. Cha[1]; A.K. Ghosh[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205568)*

BACKGROUND: Breast cancer risk education is a vital component of informed decision-making and an integral component is a woman's own perception of her risk. The aim of this study was to assess women's perception of breast cancer risk, and the correlation between numerical and categorical risk estimates, and its influence on the choice of risk reduction strategies.
METHODS: Women at increased risk of breast cancer (Gail probability >1.66, first degree relative with breast cancer; 2 or more second-degree relatives with breast and/or ovarian cancer, prior atypical hyperplasia) were included in the study. Women with prior breast cancer, prophylactic mastectomy, or on chemoprevention were excluded from participation. Baseline risk perception information was obtained from all participants in a pre-clinical visit questionnaire that also collected information on Gail model risk factors and education status. Statistical analyses involved frequencies and percents for categorical variables, means and standard deviations for continuous variables, and Pearson's chi-square test.
RESULTS: Of the 150 study participants, forty-seven percent were between 40–59 years of age, and 53% were 60 or older; 97% had at least high school education. The mean 5-year Gail model risk estimate for the study population was 3.4% (SD1.9). Seventy-one percent of the cohort overestimated risk. There was no significant difference between women who underestimated, accurately estimated, or overestimated risk based on age (10%, 14%, 76% respectively for women aged 40–59 years compared to 16%, 18%, and 66% respectively for those 60 or older; p= 0.40), or educational status (20%, 20% and 60% respectively for women with high school or elementary education compared to 10%, 14% and 74% respectively, for women with at least some college education; p= 0.15). Risk was overestimated for women with family history of breast cancer but there was no significant difference from women without family history (risk was overestimated by 74% of women with family history compared to 59% of women without family history of breast cancer; p=0.11). There was significant difference between numerical estimate of risk when correlated with categorical risk estimates (p< 0.001). Among women indicating "low risk" status, 30% indicated risk of <2%, whereas 69% estimated risk between 2–49%. On the other hand, among women indicating "high risk" status, 10% stated numeric risk as 10–49%, 52% indicated 50–74% and 38% indicated risk of 75% or more. Among women overestimating risk, majority 68% preferred routine measures such as regular follow-up and lifestyle measures, while 7% preferred chemoprevention and 4% preferred surgical measures along with routine follow up.
CONCLUSION: A woman's breast cancer risk perception can potentially influence her decision regarding choice of risk-reduction strategies. This study population of women with at least high school education overestimated their breast cancer risk, irrespective of age and educational status. The discordance between categorical and numerical risk estimates, as well as the influence of overestimation of risk on a woman's approach to reducing her risk emphasizes the need for clarity in risk communication and continued research on means to improve breast cancer risk communication.

BREATHING EASY: A SIMPLE ALGORITHM FOR SPIROMETRY INTERPRETATION BY OFFICE-BASED PRIMARY CARE PROVIDERS S.B. Glick[1]; E. Naureckas[1]; M. Eder[2]; B. Yawn[3]; J.A. Krishnan[1]. [1]University of Chicago, Chicago, IL; [2]Access Community Health Network, Chicago, IL; [3]University of Minnesota, Rochester, MN. *(Tracking ID # 204631)*

BACKGROUND: Though national guidelines require spirometry for the diagnosis and management of asthma, spirometry is not readily available in the primary care setting due principally to lack of personnel trained to administer and interpret it. While many algorithms for spirometry interpretation are available, to our knowledge, their performance characteristics have not been evaluated. We sought to develop and evaluate the performance of an algorithm to enable primary care providers to rapidly interpret office spirometry.
METHODS: We developed a simple algorithm to allow primary care providers to interpret office spirometry. The algorithm utilizes only the FEV1, FVC and FEV1/FVC ratio. It categorizes patients into those with normal lung function (FEV1 80% predicted and FVC 80% predicted and FEV1/FVC >0.7), restrictive lung disease (FVC<80% predicted and FEV1/FVC 0.7), and obstructive lung disease (FEV1/FVC<0.7). Patients with obstructive lung disease are then further stratified by disease severity (mild, FEV1 80%; moderate FEV1 50% and <80%; and severe, FEV1<50%). We evaluated the performance characteristics of this algorithm on a convenience sample of 114 patients who had completed at least one full pulmonary function test (PFT) including body plethysmography at a single university hospital. PFTs were interpreted by board-certified pulmonologists using all available PFT data including lung volumes, DLCO and the flow-volume loop. The algorithm-based interpretation of the PFT was compared to the formal PFT reading to calculate sensitivity and specificity, as well as positive and negative predictive values.

RESULTS: Of the 114 PFTs evaluated, 6 were excluded from the analysis. One of these studies was non-diagnostic, three were not interpreted, and two had no interpretation available for review. Of the 108 PFTs remaining, 36 were formally interpreted as normal, 37 as obstructive lung disease, 30 as restrictive lung disease and 5 as mixed obstructive and restrictive lung disease. The sensitivity of the algorithm for the diagnosis of normal lung function was 83%, specificity 85%. Positive predictive value (PPV) for an algorithm-based reading of normal lung function was 0.73, negative predictive value (NPV) .91. For the diagnosis of obstructive lung disease, the sensitivity of the algorithm was 45%, specificity 98%, PPV 0.95, NPV .74. For the diagnosis of restrictive lung disease, the sensitivity of the algorithm was 83%, specificity 77%, PPV .63, NPV .90.
CONCLUSION: Ninety-one percent of patients with an algorithm-based reading of abnormal lung function had a formal PFT reading of abnormal lung function. Ninety-five percent of patients with an algorithm-based reading of obstructive lung disease had a formal PFT reading of obstructive lung disease. Ninety percent of patients with an algorithm-based reading of absence of restrictive lung disease had no restrictive lung disease by formal PFT reading. This simple algorithm designed for interpretation of office spirometry, performs well when compared to pulmonologist interpretation of full PFTs. The algorithm may improve primary care clinicians' ability to provide asthma care consistent with evidence-based clinical practice guidelines.

BRIEF CURRICULUM MODESTLY IMPROVES INTERNAL MEDICINE RESIDENT PERFORMANCE OF SEXUAL HISTORY TAKING D.F. Loeb[1]; S.R. Cali[1]; E.M. Aagaard[1]; R.S. Lee[1]. [1]University of Colorado Denver, Aurora, CO. *(Tracking ID # 203749)*

BACKGROUND: Providers need an accurate sexual history to appropriately screen their patients for STDs and counsel them on safer sex, family planning, and sexual dysfunction. However, providers have highly variable rates of sexual history-taking. While curricula on sexual history taking have been described, the impact of such interventions on physician performance of the sexual history remains unknown. In this study we determined the baseline rate of sexual history-taking by Internal Medicine residents at annual exam and establish care visits. We also evaluated the impact of a brief case-based didactic curriculum on resident documentation of the sexual history and its components through a comparison of pre- and post-intervention chart review.
METHODS: PGY-2 and PGY-3 Internal Medicine Residents at two university-based outpatient continuity clinics received an educational intervention consisting of three 30-minute, case-based sessions over 3 weeks in fall 2007. Annual exam and establish care visit charts of 25 residents (629 charts) were reviewed pre- and post-intervention. Patient demographics, performance of a genito-urinary exam, and number of sexual history components were recorded using a chart extraction tool derived from the Sexual History and HIV Counseling with Subscale Designation Checklist based on Center for Disease Control recommendations. To evaluate the intervention effect, within resident pre-/post-rates of sexual history taking and the number of components documented were analyzed by paired t-tests.
RESULTS: In total, 369 (58.7%) pre-intervention and 260 (41.3%) post-intervention charts were reviewed. The mean number of pre-intervention charts for each resident was 14.8 (range 8- 29) and post-intervention was 10.4 (range 3–25). The mean documentation rate for one or more components of sexual history across all residents for pre-intervention and post-intervention charts were 22.5%, SD=18.1% and 31.7%, SD=20.4% respectively for an increase of 9.3%, SD= 14.9%, $p<0.01$. Mean number of components increased minimally by 0.3, SD=0.5 components, $p=0.01$ following the intervention. Specific components of the history that improved include: Use of barrier protection (4.3% vs. 8.1%, $p=0.05$), issues with sexual function (2.4% vs. 6.5%, $p=0.01$) and gender of current partner (4.9% vs. 8.5%, $p=0.07$).
CONCLUSION: Our chart review revealed extremely low rates of documentation of sexual histories by Internal Medicine residents. An educational intervention improved their rate of sexual history documentation, but only to a modest degree. Future studies need to examine factors that influence sexual history-taking and documentation and to investigate the impact of systems-based approaches to facilitate this history-taking and its documentation.

BRIEF QUESTIONS TO IDENTIFY INADEQUATE HEALTH LITERACY IN A SPANISH-SPEAKING POPULATION C. Garcia[1]; J.F. Hanley[1]; G. Souffrant[1]. [1]University of Texas Health Science Center-San Antonio, Regional Academic Health Center, Harlingen, TX. (Tracking ID # 204353)

BACKGROUND: Prior studies indicate that poor health literacy leads to increased costs and poor outcomes. There is no quick screening tool to identify inadequate health literacy in Spanish. In 2004, Chew, et al validated three screening questions that were effective in identifying inadequate health literacy in an English-speaking population. Our purpose is to validate a three-question survey in Spanish which could quickly identify patients with inadequate health literacy, and to determine the health literacy of Spanish-speaking patients at a clinic in the Rio Grande Valley.
METHODS: Demographic information was collected from participants recruited from a waiting room of an outpatient clinic. Patients were orally administered three questions in Spanish. These questions in English have been shown by Chew, et al. to correlate with health literacy results from a much longer test, the S-TOFHLA. The questions are: "How confident are you filling out medical forms?", "How often do you have someone help you read hospital materials?", and "How often do you have problems learning about your medical condition?" Patients responded using a five-point scale ranging from "always" to "never" or "extremely" to "not at all." Patients were administered a seven-minute reading comprehension test (S-TOFHLA) in Spanish.
RESULTS: Demographic results from 116 participants revealed that our population had a high percentage of low incomes (95% earned <$ 20,000 per year). The majority (95%) did not complete a high school education; 38% completed the 4th -7th grade, and 31% completed <3rd grade. Overall, S-TOFHLA results showed a high prevalence of inadequate health literacy (45%). Using Excel, the AUROC was calculated to be 0.7939 for the "Help reading " question, 0.73 for the question "How confident", and 0.6618 for the "Problems learning" question.
CONCLUSION: We found the screening questions to be equally as effective in a Spanish-speaking population compared with S-TOFHLA. This information can help physicians use their resources effectively, involving case managers when necessary and following patients closely to prevent frequent hospitalizations.

BUPRENORPHINE AND METHADONE OPIOID AGONIST THERAPY: DIFFERENCES IN PATIENT ENROLLMENT CHARACTERISTICS WITHIN A VA MEDICAL CENTER S. Paidisetty[1]; L.M. Broyles[2]; S.D. Forman[3]; A.J. Gordon[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA; [3]VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204532)*

BACKGROUND: The introduction of opioid agonist therapy (OAT) using buprenorphine (B-OAT) in office-based settings has the potential to increase access to treatment. This is particularly true for patients who have little access to OAT using methadone (M-OAT), a treatment that must be delivered within a formal methadone program. Patients may also not seek M-OAT due to programmatic requirements. In the Veterans Health Administration (VHA), M-OAT is provided in only 40 OAT programs and B-OAT utilization is increasing. Because of the availability of B-OAT, patient characteristics may differ among those who seek and obtain M-OAT or B-OAT. We sought to describe and compare patient characteristics at initiation of OAT in one VHA facility where M-OAT and B-OAT are available.
METHODS: We conducted a retrospective chart review of all patients receiving OAT within the VA Pittsburgh Healthcare System from January 2003 through 2006. We included in the analyses only patients receiving maintenance OAT, defined as prescription of either medication for >14 continuous days. Patient social and medical demographics, drug use characteristics, provider type, and supportive treatment were abstracted from the electronic medical record. Descriptive statistics were used to characterize the sample. Bi-variate analyses were used to assess the degree of association between the above variables and the method of OAT maintenance.
RESULTS: A total of 185 veterans received OAT; 74 patients were ineligible for inclusion in the study due to their status as detoxification patients (n=28), transfers (n=16), readmissions (n=3), or enrollees in other B-OAT programs (n=3); receipt of treatment for <14 days or unclear status as detoxification versus maintenance patients (n=16);

lack of stabilization/induction on M-OAT or B-OAT (n=5); or the lack of corresponding clinician notes for the given timeframe (n=3). The final sample (n=111) consisted of 58 patients receiving B-OAT and 53 patients receiving M-OAT. Among B-OAT patients, 43 received treatment from primary care providers and 15 received treatment from psychiatrists, the mean age was 48.2 (σ=10.7), 58.6% were Caucasian and 41.4% were African American and other. Among M-OAT patients, the mean age was 51.6 (σ=6.4), 52.8% were Caucasian and 47.2% were African American and other. Compared to patients receiving M-OAT, those receiving B-OAT were less likely to have more than a high school education (p=.039), to have an infectious disease diagnosis (p=.006) or Hepatitis C diagnosis (p=.003), and to use marijuana (p=.001). B-OAT patients were more likely to have an anxiety diagnosis (p=.022) and be attempting rehabilitation for the first time (p=.002). B-OAT patients tended to not receive structured counseling (p=.059).
CONCLUSION: At a single VHA facility where veteran patients had access to both buprenorphine and methadone OAT, veteran patients who entered B-OAT and M-OAT for opioid dependence differed regarding educational attainment, medical diagnoses, and prior treatment episodes. Future studies should explore patient and provider preferences and outcomes of M-OAT and B-OAT in veterans.

BURDEN OF CHRONIC SLEEP MAINTENANCE INSOMNIA CHARACTERIZED BY NIGHTTIME AWAKENINGS AMONG MENOPAUSAL WOMEN S. Bolge[1]; V.N. Joish[2]; R. Balkrishnan[3]; H. Kanan[4]; C.L. Drake[5]. [1]Consumer Health Sciences, Princeton, NJ; [2]Sanofi Aventis U.S., Bridgewater, NJ; [3]Ohio State University, Columbus, OH; [4]Christiana Care Health System, Princeton, NJ; [5]Wayne State College of Medicine, Detroit, MI. *(Tracking ID # 205465)*

BACKGROUND: Menopausal transition is a period when sleep difficulties have been reported to be widely prevalent. While the burden associated with menopause and insomnia have been widely assessed separately, little research has focused on the effects of insomnia among menopausal women. The purpose of this study was to quantify the burden of chronic sleep maintenance insomnia characterized by nighttime awakenings (CINA) among menopausal women.
METHODS: Database analysis of National Health and Wellness Survey, an annual cross-sectional study of U.S. adults aged 18+. Data were collected through self-administered, Internet-based questionnaires. Analyses were limited to female respondents currently experiencing symptoms of menopause. From this cohort, subjects were categorized as CINA patients if they experienced nighttime awakenings at least twice per week for more than one month, had moderate to severe impact on daily life and did not experience difficulty falling asleep. The control group consisted of patients who did not experience insomnia, sleep difficulties, or any symptoms of insomnia in the past twelve months. Outcomes included resource utilization in the past six months, Work Productivity and Activity Impairment (WPAI) questionnaire, and the summary scores of the SF-8. Linear regression models were developed to assess the independent effects of CINA on outcomes, while adjusting for demographics and physical and psychiatric comorbidity.
RESULTS: Among menopausal women 141 met the criteria for CINA, and 1,305 met the criteria for non-insomnia sufferers. Projecting the sample to the U.S. adult population, there were 0.71 million menopausal women experiencing CINA. Adjusting for demographics and comorbidity, menopausal women experiencing CINA had 0.1 (p=0.041) more emergency room visits than non-insomnia sufferers. The 0.1 additional emergency room visits equated to an increase of $112 per year per sufferer in healthcare expenditures, which projected to an annual cost of $79.5 million in direct costs. Physician visits and days hospitalized were not significantly affected by CINA. Adjusting for demographics and comorbidity, menopausal women with CINA had 20.8% (p<0.001) greater activity impairment and SF-8 physical and mental summary scores that were 4.7 (p<0.001) and 5.4 (p<0.001) points lower than non-insomnia sufferers. Among menopausal women employed full-time, CINA sufferers had greater work productivity impairment due to presenteeism (17.3%, p<0.001) and overall (16.1%, p<0.001) than non-insomnia sufferers. The 16.1% greater work impairment equated to a loss of eight weeks of work productivity per year.
CONCLUSION: Among menopausal women, CINA was associated with a significant negative impact on healthcare utilization and its associated costs, work productivity, and health-related quality of life.

BURDEN OF CHRONIC SLEEP MAINTENANCE INSOMNIA CHARACTERIZED BY NIGHTTIME AWAKENINGS AMONG MIDDLE-AGED AND OLDER ADULTS S. Bolge[1]; B. Seal[2]; R. Balkrishnan[3]; H. Kannan[4]; C.L. Drake[5]. [1]Consumer Health Sciences, Princeton, NJ; [2]sanofi aventis U.S., Bridgewater, NJ; [3]Ohio State University, Columbus, OH; [4]CHS, Princeton, NJ; [5]Wayne State College of Medicine, Detroit, MI. *(Tracking ID # 205484)*

BACKGROUND: Among middle aged and older adults who experience symptoms of insomnia, nighttime awakenings are the most commonly reported complaints. While the burden associated with insomnia has been widely assessed for these age groups, there remains a need to further understand the effects of specific insomnia symptoms. The purpose of this study was to quantify the burden of chronic sleep maintenance insomnia characterized by nighttime awakenings (CINA) among middle aged and older adults.
METHODS: Database analysis of National Health and Wellness Survey, an annual cross-sectional study of U.S. adults aged 18+. Data were collected through self-administered, Internet-based questionnaires. Analyses were limited to respondents who were middle aged (45–64 years) or older (65+ years) adults. Subjects were categorized as CINA patients if they experienced nighttime awakenings at least twice per week for more than one month that had moderate to severe impact on daily life and not experiencing difficulty falling asleep. The control group consisted of subjects who did not experience insomnia, sleep difficulties, or any symptoms of insomnia in the past twelve months. Outcomes included resource utilization in the past six months, Work Productivity and Activity Impairment (WPAI) questionnaire, and the summary scores of the SF-8. Linear regression models were developed to assess the independent effects of CINA on outcomes, while adjusting for demographics and physical and psychiatric comorbidity.
RESULTS: Among middle aged adults, 716 experienced CINA and 7,786 experienced no insomnia. Projecting the sample to the U.S. adult population, there were 2.34 million middle aged adults experiencing CINA. Adjusting for demographics and comorbidity, middle aged adults with CINA had 0.1 more emergency room visits, 2.7 more provider visits, 16.1% greater work impairment (among full-time employed), 22.9% greater activity impairment, and SF-8 physical and mental summary scores that were 6.5 and 6.9 points lower than non-insomnia sufferers (p<0.001 for all). The 0.1 emergency room visits and 2.5 provider visits equated to an increase of $948 per year per sufferer in healthcare expenditures, which projected to an annual cost of $2.22 billion in direct costs. The 16.1% greater work impairment equated to a loss of eight weeks of work productivity per year. Among older adults, 310 experienced CINA and 6,170 experienced no insomnia. Projecting the sample to the U.S. adult population, there were 0.80 million older adults experiencing CINA. Adjusting for demographics and comorbidity, older adults with CINA had 1.8 more provider visits, 19.9% greater activity impairment, and SF-8 physical and mental summary scores that were 6.0 and 6.3 points lower than non-insomnia sufferers (p< 0.001 for all). The 1.8 provider visits equated to an increase of $558 per year per sufferer in healthcare expenditures, which projected to an annual cost of $446 million in direct costs.
CONCLUSION: Among middle aged and older adults, CINA was associated with a significant negative impact on healthcare utilization and its associated costs, activity impairment, and health-related quality of life.

CALIFORNIA REGIONAL RESIDENT AWARD WINNER S. Garten[1]. [1]Society of General Internal Medicine, Washington, District of Columbia. *(Tracking ID # 208621)*

BACKGROUND: tbd
METHODS: tbd
RESULTS: tbd
CONCLUSION: tbd

CAN "SMART FORMS" CHANGE PHYSICIAN HABITS REGARDING CHRONIC DISEASE MANAGEMENT? RESULTS OF A PHYSICIAN SURVEY E.R. Cheston[1]; J.L. Schnipper[2]; J. Linder[3]; K. Mccolgan[4]; R. Tsurikova[1]; B. Middleton[1]. [1]Partners Healthcare, Wellesley, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Partners Healthcare, Boston, MA; [4]Brigham and Women's Hospital, Wellesley, MA. *(Tracking ID # 205677)*

BACKGROUND: The management of Coronary Artery Disease (CAD) and Diabetes Mellitus (DM) is a challenge for both physicians and patients. Clinical decision support systems (CDSS) could assist physicians in managing these chronic diseases by providing patient-tailored recommendations for care and providing educational tools and handouts to help physicians educate patients on necessary behavioral steps to manage their own conditions. As part of a clinical trial, we administered a survey to learn physicians' opinions of the CAD DM Smart Form, including its perceived impact on their clinical behavior.
METHODS: One-hundred and fifty-nine physicians at Partners-affiliated primary care clinics participated in a randomized control trial of the CAD/DM Smart Form (SF). The CAD DM SF is an EHR-based documentation tool that incorporated patient chart review, effective coded data capture, and actionable clinical decision support on one screen to help physicians with CAD and DM disease management and help them educate patients regarding self-management skills. Decision support of the SF included tailored orders for new medications or titration of existing medications, orders for laboratory tests, referrals to specialists, follow-up appointments, and provision of educational handouts for patients. It also generated a "Patient View", a printable summary of how well each patient was meeting each goal of CAD/DM preventative care, with recommendations for improvement. The study took place over 9 months in ten practices between 2007 and 2008. Following the completion of the study, a survey was distributed to participating physicians that measured the perceived usefulness of SF's CDS features, perceived changes in CAD/DM treatment habits, and the usefulness of patient educational materials.
RESULTS: The response rate for the survey was 36% (N=57). Seventy percent of the respondents (N=40) to the survey reported regular use of the SF, and were thus able to provide answers to all questions on the survey. Of the regular users, 82% agreed with the recommendations the SF provided, 64% agreed that SF helped them comply better with CAD/DM guidelines, while 47% believed SF sometimes or often changed what they normally would have done to treat blood pressure and cholesterol. Additionally, as an educational tool, more than half of the respondents found features in the CAD/DM SF that facilitated patient education to be useful. 66% of respondents found the patient instruction handout feature to be helpful and 56% found the "Patient View" feature helpful.
CONCLUSION: Clinical decision support tools aim to assist physicians in managing patients with certain conditions. While the response rate was low, the survey results suggest that physicians perceive the CAD/DM SF as capable of improving their own clinical behavior around CAD/DM risk factor management. They also found it facilitated educating patients on improving self-care management through facilitated printing of educational handouts and generation of a "Patient View" of their current state of preventative care. Such tools may be worth adopting in other CDS systems to help improve the management of patients with chronic diseases.

CAN PHYSICIANS MANAGE ANTICOAGULATION AS EFFECTIVELY AS PHARMACIST MANAGED PROGRAMS? I. Sajjad[1]; K.M. Hla[2]. [1]University of Wisconsin-Madison, Portage, WI; [2]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 204125)*

BACKGROUND: Pharmacist managed anticoagulation clinics (PMAC) are becoming an increasing trend in anticoagulation management. Their advocates favor them because they closely follow standardized normograms for Warfarin dose adjustment and are perceived to be more structured and effective. PMAC are, however, not always available, especially in rural communities where anticoagulation is usually managed by physicians. The purpose of our study was to compare the anticoagulation control, bleeding complications, and thrombo-embolic events in patients followed by PMAC vs physicians.
METHODS: We performed a retrospective review of patients on oral anticoagulation from February 2008 to April 2008. Patients who had been on oral anticoagulation for at least three months and were anticipated to be on long-term anticoagulation (more than six months) were included. Patients who had their warfarin stopped during the study period for any surgical procedure were excluded. Patients in pharmacist and physician managed groups were compared for time in therapeutic range, time in sub- therapeutic range, and time in supra-therapeutic range. Bleeding and thrombo-embolic complications requiring hospitalization were also compared.
RESULTS: During the three month study period, 506 patients had their international normalized ratio (INR) checked at a PMAC and 314 met the inclusion criteria. In the physician managed group, 113 of the 168 patients were found to be eligible. Indications for anticoagulation in the PMAC and physician groups included atrial fibrillation (63.1 vs 62.8%), recurrent deep venous thrombosis or pulmonary embolism (15.4 vs 18.6%), mechanical heart valve (13.7 vs 6.2%), and other (7.9 vs 12.4%), respectively. Mean time in therapeutic range was 62.6% in the PMAC group and 65.8% in the physician group and was not significantly different (p=0.37). Mean times in the sub-therapeutic and supra-therapeutic ranges for the PMAC and the physician group were 21.5% vs 27.5% (p=0.04) and 15.6% vs 6.5% (p=0.002) respectively. The PMAC group had 61.9% of the INRs in therapeutic range while 60.6% of the INRs were in therapeutic range in the physician managed group (p=0.644). One patient in each group required hospitalization for bleeding complications. No thrombo-embolic events were noted in either group.
CONCLUSION: In our study both physician and pharmacist managed anticoagulation services provided similar rates of anticoagulation control and complications. Patients on oral anticoagulation could be managed equally well by either group, depending on the resources available. We conclude that in communities, where PMAC are not available, physician managed anticoagulation is equally safe and effective.

CAN RESIDENCY PROGRAM CURRICULA ENHANCE SELECTION OF PRIMARY CARE CAREERS? FACTORS AFFECTING PRIMARY CARE CAREER CHOICE IN ONE INTERNAL MEDICINE TRAINING PROGRAM. J.F. Dick[1]; J.E. Wipf[2]; A.P. Wilper[3]; C.S. Smith[3]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH; [2]University of Washington/ VA Puget Sound Health Care System, Seattle, WA; [3]University of Washington/ Boise VA Medical Center, Boise, ID. *(Tracking ID # 204866)*

BACKGROUND: Little is known about the factors during residency that influence career choice among internal medicine residents. We sought to determine if early clinic block or clinical experience in rural medicine were associated with primary care career choice.
METHODS: We conducted a retrospective cohort study at a single, large, urban internal medicine residency training program that has separate categorical and primary care tracks. We studied 451 program graduates who completed all three years of training between the years 1996 and 2006. We obtained curricular data from residency program rotation schedules for each resident, and reviewed self-reported career plan at the time of graduation. Independent variables included track (categorical or primary care), gender, year of graduation, timing of clinic block, and having had a rural training experience. We compared these using logistic regression (SAS LOGISTIC procedure 9.0) and calculated odds ratios and 95% confidence limits. The institutional review board and human subjects committee approved this study.
RESULTS: 154 of 451 residents (34%) planned a career in primary care. After controlling for all other covariates, factors associated with an intended primary care career at the time of graduation were: primary care track (OR 4.5, 95% CI 2.4–8.6); a rural training experience (OR 2.1, 95% CI 1.3–3.4); later year of graduation (OR 0.77, 95% CI 0.71–0.84); and male gender (OR 0.62, 95% CI 0.39–0.99). The timing of clinic block (first half versus second half of the year) in either the intern or second postgraduate year was not associated with primary care choice (OR 1.8, 95% CI 0.9–3.4 and OR 0.9, 95% CI 0.5–1.6 respectively). The percentage of residents intending to practice primary care at graduation decreased from 61.5% to 18.2% over the ten years of this study.
CONCLUSION: Participating in a rural training experience was the only curricular variable associated with intent to practice primary care. Participating in a rural rotation doubled the likelihood of choosing primary care regardless of training track, gender, or year of graduation. Women were more likely to select primary care careers. There was a 43.3% absolute reduction in number of graduates choosing primary care careers during the ten years studied. These data suggest that preferential admission of women or increasing the number of primary care trainees and provision of more rural training rotations may be important in addressing primary care shortages in the U.S.

CAN STANDARDIZED PATIENTS TEACH US HOW TO ACTIVATE REAL PATIENTS? C. Gillespie[1]; J. Hyland Bruno[1]; M. Katz[1]; L.R. Tewksbury[1]; S. Zabar[1]; T.K. Ark[1]; A.L. Kalet[1]. [1]New York University, New York, NY. *(Tracking ID # 205233)*

BACKGROUND: Patients' degree of "activation" has been linked with positive health outcomes. Activating patients to manage their health and care should therefore be a core goal of physician practice. How to activate patients, however, is not well understood. Standardized Patients (SPs), because of their unique training and experience, are a promising source of insight on this process. We collected SPs' observations and perceptions concerning the physician's role in promoting and supporting patient activation.
METHODS: Thirty-one SPs (of 69) who participated in an end-of-3rd year comprehensive clinical skills examination (CCSE) over a span of 3 years (2005–2008) were included. Data was collected through combinations of in-depth interviews (n=6), online open-ended surveys (2 surveys, n=26 unique respondents) and one focus group (8 participants) in which SPs were asked to describe the effect of being an SP on their real-life patient experiences and to identify what they looked for in a good physician. All SPs, ages 20–75, were professional actors; 55% were men, most white (67%; 25% African American, 13% Asian) and nearly all in "good" or "excellent" health. One-third had participated in multiple CCSEs. SPs underwent a minimum of 5 hours of training annually in rating students and portraying the case. Each SP 'saw' and evaluated a minimum of 50 students. Responses to the open-ended questions were transcribed and coded for content (using qualitative analysis software) by 3 researchers. Samples of data were cross-coded to ensure agreement. Impact on actual patient experiences was coded based on Hibbard's Patient Activation framework. SPs' reports of what they looked for in a physician were first broadly coded as to type and then coded thematically.
RESULTS: Most SPs reported that being an SP had substantial effects on their conduct and attitudes as actual patients; these reflect 3 categories of activation: 1) Being a consumer (refusing to continue to see a physician that didn't meet standards and/or having high expectations for care); 2) Doing their homework (making sure to ask questions, that they understood everything and/or bringing all relevant information to the encounter); and 3) collaborating with the physician (taking an active, central role and using their understanding of the physician perspective to inform their actions and responses). These "activated" patients, in turn, reported that when looking for a good physician, they first wanted competent, capable, thorough physicians and then they wanted patient-centered care: being respected, treated as a person/an individual (25%); demonstration of concern, an intent to help (23%); active listening, evidence of being heard (22%); and physicians who included them in decision-making, explained things clearly and understandably, and instilled a sense of trust (each 5%).
CONCLUSION: SPs in this study appear to be highly activated 'real' patients and attribute much of that to being an SP. They believe that physicians are effective when they provide patient-centered care but also view the physician-patient interaction as a truly collaborative process. Further studies should explore the unique contribution SPs can make to understanding the central role of collaboration in patient activation.

CARDIAC RISK FACTORS IN IRAQ AND AFGHANISTAN VETERANS USING VA HEALTHCARE: ASSOCIATION WITH MENTAL HEALTH DIAGNOSES B.E. Cohen[1]; L. Ren[1]; D. Bertenthal[1]; K.H. Seal[1]. [1]San Francisco VA Medical Center/University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205181)*

BACKGROUND: Studies of veterans from prior wars have found that those with posttraumatic stress disorder (PTSD) are at significantly increased risk of developing and dying from cardiovascular disease (CVD). Whether this is due to an increase in traditional CVD risk factors or to other pathways is not known. In addition, CVD risk has not been examined in veterans from the current wars.
METHODS: We analyzed data from all Iraq and Afghanistan veterans who were new users of VA healthcare from 10/15/2001 to 9/30/2008, (N=303,526, mean age 31). We used ICD-9 codes to categorize veterans into 3 groups, those with: (1) no mental health diagnoses (MH Dx), (2) MH Dx other than PTSD, and (3) PTSD and co-morbid MH Dx- if any. We used ICD-9 codes from in/outpatient visits to identify CVD risk factors. We used multivariate logistic regression to determine the association between MH Dx and CVD risk factors (Model 1: adjusted for age, sex, race, acitve duty status, rank, branch, multiple deployments; Model 2: additional adjustment for number of primary care and medical subspecialty visits).
RESULTS: Veterans with MH Dx had significantly higher rates of CVD risk factors (Table, all p<.001). Adjustment for demographic and military factors had minimal impact on these associations (Model 1). Further adjustment for healthcare utilization reduced effect sizes, but veterans with MH Dx still had significantly higher rates of all CVD risk factors (Model 2).
CONCLUSION: After adjustment for several potential confounders, Iraq and Afghanistan veterans with MH Dx had significantly greater rates of CVD risk factors than those without MH Dx. Rates in veterans with PTSD were similar to those with other MH Dx. This highlights the need for aggressive prevention and treatment of CVD risk factors in returning veterans, particularly those with mental health conditions.

	No MH Dx N=182,151	MH Dx (not PTSD) N=48,502	PTSD N=72,873
Tobacco Use- %	9.5%	25.1%	29.8%
- Model 1 OR (95% CI)	1.00	3.04 (2.96-3.13)	3.64 (3.55-3.72)
- Model 2 OR (95% CI)	1.00	2.19 (2.10-2.27)	2.48 (2.40-2.57)
Hypertension	7.7%	14.5%	15.7%
	1.00	2.40 (2.32-2.48)	2.86 (2.78-2.95)
	1.00	1.44 (1.38-1.51)	1.43 (1.37-1.49)
Dyslipidemia	10.3%	19.0%	20.2%
	1.00	2.31 (2.24-2.37)	2.68 (2.61-2.75)
	1.00	1.32 (1.27-1.38)	1.30 (1.26-1.35)
Obesity	6.0%	11.9%	12.9%
	1.00	2.12 (2.05-2.20)	2.42 (2.35-2.50)
	1.00	1.42 (1.36-1.49)	1.43 (1.37-1.49)
Diabetes	1.0%	2.2%	2.0%
	1.00	2.54 (2.35-2.75)	2.55 (2.37-2.75)
	1.00	1.31 (1.19-1.43)	1.02 (0.93-1.11)

CAREER FIT AND BURNOUT AMONG INTERNAL MEDICINE DOCTORS L.N. Dyrbye[1]; T. Shanafelt[1]; C.P. West[1]; S. Jeff[2]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Clinic, Rochester, MN. *(Tracking ID # 204533)*

BACKGROUND: An expanding body of literature suggests burnout among physicians is common. Numerous studies have suggested physician burnout contributes to low job satisfaction, job turnover, decreased productivity, and early retirement. Burnout can also have profound impacts on physician's personal health and on the quality of patient care delivered. Given these serious consequences solutions to minimize the risk of burnout among physicians are being actively sought. The objective of the study was to explore if the extent to which physicians are able to focus on the aspects of work they find most meaningful relates to burnout.
METHODS: Faculty physicians (n=556) in the Department of Medicine at a large academic medical center were surveyed in Fall 2007. The survey evaluated demographic variables, work characteristics, and the Maslach Burnout Inventory. Additional questions evaluated which professional activity (e.g., research, education, patient care, administration) was most personally meaningful and the percent of their effort physicians devoted to each activity. The primary analysis involved the use of descriptive summary statistics for estimating the incidence of burnout among DOM faculty. Chi-squared tests were used for assessing differences in proportions between groups. Stepwise logistic regression was utilized to evaluate independent associations between demographic and work characteristics and burnout.
RESULTS: 465 (84% response rate) physicians completed the survey. 130/459 (28.3%) responders practiced general internal medicine (general internal medicine, primary care internal medicine, preventive medicine, or hospital internal medicine) and the remaining 329 (71.7%) practiced in internal medicine sub-specialty fields. Burnout was present in 34% with women (43% vs. 31%; p=0.019), physicians <55 years old (37.3% vs. 19.4%; p=0.0007) and generalists (42.3% vs. 20.7%; p=0.018) having higher rates of burnout. Most (68%) physicians reported patient care was the aspect of work they found most meaningful, with smaller proportions reporting research (19%), education (9%), or administration (3%) as most meaningful. The amount of

time spent working on most meaningful activity was strongly related to risk of burnout. Spending <20% of effort (~1 day/week) on the most meaningful activity was associated with higher rates of burnout (53.8% vs. 29.9%; p=0.0006). The association between time spent in the most meaningful activity and burnout was the largest predictor of burnout on multi-variate analysis controlling for other factors (p=0.0004).
CONCLUSION: The extent to which faculty are able to focus on the aspect of work most meaningful to them appears to relate to their risk of burnout. Spending at least 1 day per week on the activity most meaningful was associated with a reduced risk of burnout by roughly half. Physicians and their employers should work together to optimize career fit as one way to potentially reduce physician burnout and its personal and professional consequences.

CHAGAS DISEASE IN CENTRAL AND SOUTH-AMERICAN ADULT IMMIGRANTS LIVING IN GENEVA, SWITZERLAND: PREVALENCE AND CLINICAL DESCRIPTION OF AN EMERGING DISEASE. Y. Jackson[1]; M. Holst[1]; A. Mauris[1]; L. Getaz[1]; A. Tardin[1]; J. Sztajzel[1]; J. Gaspoz[1]; A. Luquetti[2]; J. Jannin[3]; P. Albajar Vinas[3]; F. Chappuis[1]. [1]Geneva University Hospitals, Geneva, ; [2]University of Goias, Goianas, ; [3]World Health Organisation, Geneva, . *(Tracking ID # 204048)*

BACKGROUND: Chagas disease is endemic in Central and South-America, affecting 8–10 millions persons. Recent immigration to non-endemic countries has changed the epidemiology of this disease. An increasing number of cases are reported in Europe and North America. Congenital and transfusional transmission has been recently documented in non-endemic countries. Recent studies have estimated that 100'000 to 500'000 persons currently living in the US could be affected. We aimed to evaluate the prevalence of Chagas disease in Central and South-American immigrants in Geneva, Switzerland and evaluate the stage of the disease in affected persons.
METHODS: Central and South-American immigrants consulting at the University Hospitals of Geneva were screened and diagnosed with two serological tests (Biokit Chagas™ and Biomérieux ELISA Chagas™). All patients diagnosed with Chagas disease had a complete medical evaluation including screening for heart and digestive tract involvement.
RESULTS: From June to November 2008, 1012 persons have been recruited. The majority (83%) of patients are women with a median age of 36 (range: 18–78) years, living in Switzerland without residence permit (undocumented). Countries of origin are Bolivia (n=485), Brazil (n=249), Colombia (n=61), Peru (n=58) and others (n=159). Chagas disease was diagnosed in 130 patients (12.8%). The prevalence of disease among immigrants from Bolivia was 26.2% (n=127). Out of 115 fully evaluated patients, 11 (9.6%) presented abnormalities on ECG consistent with chronic Chagas disease cardiopathy. Eleven (9.6%) presented significant dysphagia and/or constipation consistent with digestive tract involvement and six (5.2%) presented signs of alteration in both systems.
CONCLUSION: Chagas disease is highly prevalent in South-American undocumented immigrants living in Geneva. The prevalence among Bolivians is strikingly high, but is consistent with recent serosurveys conducted in Bolivia. Around one fourth of the infected persons presented signs and symptoms of cardiac and/or digestive tract involvement. Access of Central and South-American immigrants to reliable diagnosis and treatment for Chagas disease and appropriate information to health care workers should be more widely available in non-endemic countries, where large groups of Central and South-Americans have migrated. Complete medical evaluation including ECG is needed to screen for heart and digestive tract involvement. In addition, the risk of local transmission by congenital route, blood transfusion or organ transplant should be tackled, where no screening procedures are applied.

CHANGES IN HEALTH BEHAVIORS AND CARDIOVASCULAR RISK FACTORS AMONG VIETNAMESE AMERICANS AFTER ARRIVAL IN THE U.S. L.H. Le[1]; H. Nguyen[2]; A. Ozonoff[3]; L. Henault[4]; J. Crosson[4]; E.M. Hylek[4]. [1]Department of Medicine, Hospital Medicine Section, Dartmouth Medical School, Dartmouth Hitchcock Medical Center, Lebanon, NH; [2]Boston University School of Medicine, Boston, MA; [3]Department of Biostatistics, Boston University School of Public Health, Boston, MA; [4]Department of Medicine, Section of General Internal Medicine, Boston University School of Medicine, Boston, MA. *(Tracking ID # 204829)*

BACKGROUND: Vietnamese individuals have a higher prevalence of hypertension and smoking. In addition, resettlement in the U.S. exposes them to the pressures of adopting a "Westernized" lifestyle, presumably more sedentary and less healthy. Their higher baseline risk coupled with Western acculturation may place Vietnamese Americans at unacceptably high risk for cardiovascular (CV) disease. There is a paucity of data on the prevalence of CV risk factors among Vietnamese Americans and their perceived changes in health status and health behaviors since moving to the U.S.
METHODS: Vietnamese patients 35 years or older with a primary care visit between January 1, 2004 through January 1, 2006 were eligible to participate. Consented patients were interviewed by telephone in Vietnamese about their health status, diet, exercise as well as quality of life in the U.S. compared to Vietnam. Calls were placed at varied times of day to maximize participation. Prevalence of CV risk factors (coronary artery disease, hypertension, and diabetes) was determined by chart review of consented patients.
RESULTS: Of 238 patients reachable by phone, 211 (89%) consented to participate. The mean age was 56 years and 62% were female. Twenty-three percent reported living in the U.S. for fewer than 5 years, 33% for 5 to less than 10 years, 25% for 10 to 15 years, and 18% for greater than 15 years. The mean age across subgroups was 49, 52, 58, and 57 years, respectively. The majority of patients had government subsidized insurance (44% Medicaid, 21% Free Care, 8% Medicare). Overall, 35% had been diagnosed with hypertension and 12% had diabetes. The prevalence of HTN and DM significantly increased with length of residence in the U.S. (p<0.05). Overall, 55% of patients think their health is worse now compared to Vietnam: 76% gained weight, 59% are less active, 48% watch more TV, 72% walk less, 50% exercise less, and 52% find living here more stressful. Sources of stress most often cited were high cost of living, jobs, and family issues. Once in the U.S., only 22% eat a Vietnamese diet entirely, 75% eat more Vietnamese food than "American food", and only 3% eat a Westernized diet. Overall, 46% reported eating less in the U.S. Physician encounters in Vietnam were fewer (81% only saw doctors when ill, 12% never saw a doctor) than in the U.S. (95% see a doctor at least once a year). Only 20 (11%) of patients, who reported ever being seen by a doctor in Vietnam, had a diagnosis of HTN and only one individual had been diagnosed with diabetes. The prevalence of HTN and diabetes among our study participants in comparison to white and black adults aged 20 to 74 years living in Boston is shown in the Table (Boston Public Health Commission-2005).
CONCLUSION: Vietnamese Americans report worse health, more stress, less physical activity, and more weight gain in the U.S. compared to Vietnam. Once resettled in the U.S., Vietnamese are at higher risk for developing cardiovascular disease, evident by the higher prevalence of hypertension and diabetes. More importantly, there is a significant increase in cardiovascular risk factors with length of stay. Since the majority of Vietnamese Americans are able to access the health care system, there are substantial opportunities for patient education and intervention targeting this vulnerable population upon their arrival in the U.S.

Comparison of CV Risk Factors Among White, Black, and Vietnamese Americans

CV Risk Factors	White	Black	Vietnamese
HTN	17.3%	29.8%	35%
Diabetes	5.0%	12.7%	14%

CHANGES IN HEALTHCARE DISPARITIES FOLLOWING THE IMPLEMENTATION OF A MULTIFACETED QUALITY IMPROVEMENT INITIATIVE M. Jean-Jacques[1]; S.D. Persell[1]; R. Hasnain-Wynia[1]; J.A. Thompson[2]; D.W. Baker[1]. [1]Northwestern University Feinberg School of Medicine, Chicago, IL; [2]Northwestern University, Chicago, IL. *(Tracking ID # 205841)*

BACKGROUND: Prior research has shown that narrowly-focused quality improvement projects do not necessarily reduce disparities. We compared disparities in quality before and after the implementation of a comprehensive, multifaceted quality improvement (QI) project in a large, ambulatory care practice.
METHODS: This study was conducted in an academic general internal medicine practice with 37 attending physicians serving 43,900 patients.

Since 2006, the practice has used data from its comprehensive electronic health record system (EHRS) to assess quality of care for 18 measures of preventive and chronic disease care. In February 2008, the UPQUAL project initiated a comprehensive QI intervention consisting of: 1) point of care electronic alerts for providers; 2) standardized ways for providers to enter medical and patient reasons into the EHRS for why quality measures were not met; 3) mailing monthly lists of patients not receiving recommended medication to each physician; and 4) focused outreach to patients who refuse or cannot afford preventive services. For each measure, we compared multivariate logistic regression models using data from January 1, 2008 and December 1, 2008 to identify which demographic or SES variables were associated with quality deficiencies before and after the QI initiative. For each model, the dependent variable was the presence of a quality deficit and the independent variables were race/ethnicity, gender, age, insurance, and zip code-level SES. Race/ethnicity, gender, age, and insurance are recorded in the EHRS by registration staff. SES was imputed using U.S. Census data from 2000 on the median household income and proportion of high school graduates in the patient's zip code.

RESULTS: At baseline, we found 31 disparities by at least one demographic or SES variable for 15 of the quality measures. At follow up most disparities were eliminated. For example, women were more likely than men to have a deficiency in prescription of lipid lowering therapy for coronary heart disease at baseline (OR 1.8, 95% CI 1.2–2.8, absolute disparity 7.1%), while there was no disparity at follow up (OR 1.5, 95%CI 0.9–2.4, absolute disparity 2.4%). Eight measures had at least 1 persistent disparity. For example, black patients were more likely than white patients to have a quality deficiency for osteoporosis screening or treatment at baseline (OR 1.8, 95% CI 1.4–2.4, absolute disparity 14.1%), and this persisted at follow up (OR 1.6, 95% CI 1.2–2.2, absolute disparity 10.6%). Importantly, 6 measures had at least 1 new disparity emerge over time. For example, race was not significantly associated with the odds of having a quality deficiency in breast cancer screening at baseline (OR 1.2, 95%CI 0.9–1.5 for black versus white women, absolute disparity 5.1%) but was at follow up (OR 1.5, 95% CI 1.3–1.9, absolute disparity 9.5%).

CONCLUSION: Though intended to achieve high quality care for all patients, generalized QI initiatives are not always sufficient to achieve healthcare equity. Improvement may occur across groups, but baseline disparities between groups may remain. Furthermore, QI initiatives may affect population groups within the same practice differently, and new disparities may emerge as overall quality improves. Thus, in evaluating quality improvement efforts, it is important to continuously monitor for healthcare disparities in order to identify areas where more targeted disparity reduction interventions are needed.

CHANGES IN PERCEPTIONS OF AND PARTICIPATION IN UNPROFESSIONAL BEHAVIORS DURING INTERNSHIP AT 3 CHICAGO-BASED INTERNAL MEDICINE RESIDENCIES V.M. Arora[1]; D. Wayne[2]; A. Didwania[2]; R.C. Anderson[3]; J.M. Farnan[1]; S. Reddy[1]; H.J. Humphrey[1]. [1]University of Chicago, Chicago, IL; [2]Northwestern University, Chicago, IL; [3]NorthShore Hospital, Evanston, IL. *(Tracking ID # 204940)*

BACKGROUND: It is postulated that internship is a stressful time that may promote acceptance of and participation in unprofessional behaviors. However, little data exists regarding attitudes toward and participation in unprofessional behaviors among interns. The aim of this study was to ascertain changes in perceptions of and participation in unprofessional behaviors during internship at three Chicago internal medicine residency programs.

METHODS: Internal medicine interns completed a survey of 28 unprofessional behaviors at the beginning and end of internship. Domains included misrepresentation (introducing a student as doctor), fraud (falsifying medical records), disrespect (making fun of colleagues), shift work mentality/duty hours (signing out work you could have done so you could leave early) and on-call etiquette (celebrating a blocked admission). Behaviors ranged from egregious (making fun of patients) to controversial (attending a drug rep dinner). Participants reported whether or not they had ever participated in a behavior and rated their perception of this behavior as "unprofessional" on a Likert scale ranging from 1 (Unprofessional) to 5 (Professional). Surveys were administered at the beginning of internship between July and September 2007 and after completion of internship between July and September 2008. To facilitate truthful reporting, survey responses were anonymous. Multivariate logistic regression, controlling for site, was used to assess the effect of the internship on attitudes toward and participation in unprofessional behaviors. Statistical significance was defined as $p<0.01$.

RESULTS: Of 116 internal medicine residents, 112 (97%) completed the survey at the beginning of internship and 105 (91%) completed the survey at the end of internship. After controlling for site, there was a statistically significant increase in participation in certain unprofessional behaviors related to on-call etiquette. Specifically, interns were more likely to report blocking an admission (12% pre vs. 41% post, $p<0.001$), disparaging the ER for missing findings later discovered on the floor (27% pre vs. 45% post, $p=0.005$), misrepresenting a test as urgent to expedite care (40% pre vs. 60% post; $p=0.003$), and signing out over the phone (20% vs. 42%, $p<0.001$). Notably, there was no change in the rates of participation in behaviors related to misrepresentation (introducing a student as a doctor, reporting patient information as normal when uncertain of true results) and fraud (falsifying medical records) or disrespect (making fun of patients, making fun of others). In addition, after controlling for site, and participation in the behavior, there was no change in perceived level of appropriateness for any of the unprofessional behaviors.

CONCLUSION: After completing internship, internal medicine interns report increased participation in certain unprofessional behaviors related to on-call etiquette. Contrary to popular belief, perceptions of and rates of participation in unprofessional behaviors related to misrepresentation, fraud, or belittlement did not change. This suggests that interventions to promote professionalism during internship should focus on on-call etiquette. In addition, interventions for the broader learning environment may be needed to address misrepresentation, fraud, and belittlement.

CHANGES OVER TIME IN HOSPITAL PROFITABILITY BY SERVICE LINE K. Volpp[1]; T. Konetzka[2]; J. Zhu[3]; R. Lindrooth[4]. [1]Center for Health Incentives, Leonard Davis Institute of Health Economics, University of Pennsylvania, the Wharton School, and CHERP, Philadelphia Veterans Affairs Medical Center, Philadelphia, PA; [2]University of Chicago, Chicago, IL; [3]University of Pennsylvania, Philadelphia, PA; [4]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 206081)*

BACKGROUND: The rapid growth of specialty hospitals suggests that there are significant differences in profitability across service lines. To the extent these differences exist and hospitals are able to anticipate them, they may drive operational decisions in terms of capacity and investments in quality and patient safety. Little is known about trends in profitability over time and what types of hospitals have benefited from changes in reimbursement-related profitability. The objective of this study is to determine variability in generosity of Medicare payment across hospital service lines and to assess changes in service-line profitability from 1997 to 2005 by type of hospital and market.

METHODS: We used MEDPAR data to obtain information on service charges and Medicare payments and data on 24,935,524 patients from MEDPAR who were US residents aged 65–94 and were discharged from 4,523 short-term general hospitals in 1997, 2001 and 2005 with Medicare as the primary payer. We estimated service costs using Cost-to-Charge Ratios (CCR) calculated from Medicare Cost Reports. CCRs were matched to patient service charges based on an internally validated crosswalk between cost centers (in Cost Reports) and revenue centers (in MEDPAR). Payment generosity or profitability was estimated by regressing Medicare payment received on the estimated cost. The intercept of this regression measures the portion of payment that was prospective and the coefficient on cost represents the portion of the payment that was cost-based. Following McClellan (1997) the index of generosity of payment is the sum of the rescaled intercept and the coefficient. The regressions were stratified by service line to obtain service-line-level profitability. Patient DRGs were grouped into hospital service lines that represent groups of conditions that were plausibly treated within the same unit of a hospital (e.g. neurosurgery, orthopedics, cardiology). Cross-sectional differences and temporal changes in service-line profitability were examined using multivariate regression. We examined how the changing profitability of services affects hospital-level profitability on average and by type of

hospital (for-profit vs not-for-profit, urban vs rural, teaching vs non-teaching and safety-net versus non-safety net hospitals).
RESULTS: Medicare payment generosity has decreased over time on average since 1996, with the largest decline occurring in the latter part of our study period (2001–2005). Preliminary regressions reveal that this decline is consistent across service lines in direction, but we find wide variation in baseline profitability by service line and in the magnitude of the decline over time; thus we see changes in the relative profitability of different services over time.
CONCLUSION: Medicare payment policy implicitly incorporates incentives for volume and quality of hospital services by service line due to varying generosity of payment, and the relative generosity of some service lines has been changing over time. These results have implications for the growth of specialty hospitals, as the degree of relative profitability of different service lines will inform the policy debates on the use of reimbursement to incentivize quality of, and access to, different service lines within hospitals.

CHANGING HOUSESTAFF TEAM STRUCTURE AND WORKLOAD AFFECTS THE QUALITY OF DISCHARGE SUMMARIES M. Coit[1]; M.E. Thorndike[2]; G.T. Mcmahon[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205623)*

BACKGROUND: Multiple studies have found deficiencies in the content of discharge summaries that contribute to poor quality of care, poor follow-up, adverse events and medical error. We hypothesized that a major root cause of deficiencies in discharge summaries is not related to a lack of knowledge of the required components, but rather the structure of the workday, workload, and supervision.
METHODS: We applied a new model of inpatient care to half of the medical service at Faulkner Hospital starting in 2007. Patients were randomly allocated between a control (General Medical Service, GMS) and intervention (Integrated Teaching Unit, ITU) care team. The intervention team cared for a similar number of patiens with more team members (5 vs 3), a reduced call frequency (1-in-6 vs 1-in-4) and greater attending presence (2 vs 1 per team; present all day vs intermittently present). No didactic training on discharge summaries was offered. House officer work hours did not differ between services. Discharge summaries were scored for the presence of elements required by national standards. Reviewers were blind to team assignment.
RESULTS: Discharge summaries representing 10.3% of all discharged patients (n=142) produced by 61 different house officers over 3 months of rotations were evaluated. The evaluation tool used performed well; it yielded consistently high inter-rater reliability with a kappa statistic of 0.618. The GMS house officers discharged an average of 11 patients per week while those on the ITU teams discharged an average of 6 patients per week. Discharge summaries produced by ITU house staff (n=70) had an average score of 74.3% of all possible points, compared with 65.1% for summaries from GMS teams (n=72) ($p<0.0001$). As compared to the GMS group, the fraction of discharge summaries including specific thematic clusters that contained the necessary information was higher for the ITU group, incorporating the patient histories (65.7% vs 36.1%, p=0.0005), discharge planning (20% vs 5.5%, p=0.012), the inpatient narrative (47.1% vs 22.2%), p=0.003), communications (24.3% vs. 6.9%), and medications (25.7% vs 15.2%, p=0.147).
CONCLUSION: Reduced intern workload within the new care model was associated with a significantly higher quality score on the discharge summary evaluation tool. These findings indicate that attention to house officer workoad, supervision and the context of house officers' daily responsibilities may have important implications for overall quality of patient care.

CHARACTERIZATION OF HEALTH LITERACY OF PATIENTS SERVED BY A LARGE PUBLIC COUNTY HEALTH SYSTEM J.T. Gossey[1]; V.N. Pavlik[1]; R.J. Volk[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 205211)*

BACKGROUND: Health literacy is a patient's ability to access and use health related information and to make appropriate decisions based upon those data. Previous studies show that patients with low health literacy often suffer from poorer health outcomes compared to their counter-parts with adequate health literacy. As the demographics of the American population shift the levels of health literacy in the United States are predicted to decrease. Many clinicians remain unaware about the importance of health literacy to patient outcomes or methods to assist these patients. In order to provide our clinicians with information on health literacy of the patients whom they serve, we surveyed 398 English and Spanish patients in a large public county health care system.
METHODS: This cross-sectional study was conducted in 7 primary care in a large, multi-ethnic, urban, public health care system was conducted. A systematic sample of patients greater than of 18 years old, who spoke English or Spanish, and were not functionally blind were approached to participate in the study. The survey contained questions such as age, years of schooling, country of origin, and self-reported health. After the patients completed the survey, the researchers measured their ability to read. For patients who spoke English, the Rapid Estimate of Adult Literacy in Medicine (REALM) was used. For Spanish speakers, a modified version of the Short Assessment of Health Literacy for Spanish-speaking Adults (SAHLSA) was used. If an English speaker could read above the third grade, or if a Spanish speaker could read at all, the researchers administered the Short Test of Functional Health Literacy in Adults (STOFHLA) in the appropriate language. For those patients who could not read sufficiently, they were administratively assigned as having low health literacy. At the end of the interview period, patients were compensated for their time with ten dollars.
RESULTS: We analyzed the English and Spanish results separately. Most English speakers (49% African American, 17% Hispanic, 24% White, 10% other) had 12 years of schooling, 83% read at or above the seventh grade level, and 81.5% had adequate health literacy. For Spanish speakers (100% Hispanic), mean schooling was 7.8 years of school, 95% could read as demonstrated on the modified SAHLSA, and only 53.5% had adequate health literacy. Only 3.5% of the Spanish speakers were born in the U.S., while 86.4% of English speakers were.
CONCLUSION: The data reveal that there are two very distinct patient populations within a single public health care system. Those patients who speak Spanish are much more likely to have inadequate health literacy. This is in spite of the fact nearly all the Spanish speakers could read on basic level. While reading ability may be a good proxy for health literacy in English speakers that is not the case for Spanish speakers. More research is needed to further evaluate the special health literacy needs of Spanish speaking patients.

CIGARETTE SMOKING, ADVICE TO QUIT, AND SMOKING CESSATION IN A NATIONAL SAMPLE OF HOMELESS ADULTS T.P. Baggett[1]; N.A. Rigotti[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205728)*

BACKGROUND: Cigarette smoking is common among homeless persons and contributes to poor health and increased mortality. Whether homeless smokers receive advice to quit from health care providers is unknown, as are the characteristics of homeless smokers who are able to quit. The goal of this study is to identify the prevalence of and factors associated with cigarette smoking, receipt of advice to quit, and smoking cessation in a nationally-representative sample of homeless adults.
METHODS: We analyzed data on 966 adult respondents to the 2003 Health Care for the Homeless User Survey, the first and only nationally-representative study of patients who use clinic sites supported by this large federally-funded program. We assessed the rates of (1) current smoking among all adults, (2) receipt of quit advice among past-year smokers, and (3) lifetime and past-year rates of smoking cessation among ever-smokers (>/=100 cigarettes ever). Multivariable logistic regression models were developed to identify the factors independently associated with these 3 outcomes, adjusting for sociodemographic characteristics, features of homelessness, mental illness, medical comorbidities, and other important confounders.
RESULTS: The prevalence of current smoking was 73%. Ninety-two percent of homeless smokers have a history of any drug use, and 63% have a history of problem alcohol use. Among past-year smokers with at least 1 ambulatory office visit (n=656), 55% reported receiving advice to

quit from a health care provider. The lifetime quit rate among ever-smokers was 9%, and the past-year quit rate was 4%. Using multiple regression, factors independently associated with smoking were older age (45+ years: AOR 6.74 [95% CI: 2.12, 21.43], 30–44 years: AOR 2.59 [1.14, 5.88], compared to 18–29 years), past-year employment (AOR 2.09 [1.04, 4.21]), having been physically or sexually assaulted while homeless (AOR 2.74 [1.29, 5.80]), running away or being forced out of home as a minor (AOR 4.66 [2.18, 9.99]), and a history of illicit drug use (AOR 4.64 [2.02, 10.64]) or problem alcohol use (AOR 6.69 [2.01, 22.27]). Receipt of advice to quit was more common among smokers with any homelessness episode of 30 days or more (1 episode: AOR 3.43 [1.43, 8.24], 2+ episodes: AOR 2.44 [1.15, 5.17]), past-year drug use (AOR 2.17 [1.16, 4.05]), and past-year emergency department use (AOR 1.82 [1.02, 3.25]). Subjects with hypertension had higher odds of quitting (AOR 1.87 [1.26, 2.77]), while those with more episodes of homelessness had lower odds (2+ episodes: AOR 0.50 [0.30, 0.84]).
CONCLUSION: Compared to the overall population, homeless persons are 3 times more likely to smoke and far less likely to quit. To our knowledge, this is the first study to describe the provision of quit advice to homeless smokers; it found that a majority of them received advice to quit from a health care provider in the past year. Smoking was associated with a constellation of past and present vulnerabilities, including higher rates of victimization, childhood housing instability, and drug and alcohol use. Awareness of the distinctive characteristics of homeless smokers could guide the design of effective smoking cessation programs for this vulnerable population.

CLINICAL FACTORS ASSOCIATED WITH RECEIPT OF A PRESCRIPTION FOR A FIBRATE OR NIACIN AMONG DIABETIC VETERANS IN NEW ENGLAND L.C. Siegel[1]; E. Lawler[1]; J. Gaziano[1]. [1]VA Boston Healthcare System, Boston, MA. *(Tracking ID # 205984)*

BACKGROUND: Low HDL, or high-density lipoprotein cholesterol, remains a prevalent and undertreated cardiovascular risk factor in diabetics. Fibrates and niacin show some efficacy for reducing cardiovascular risk in diabetic dyslipidemia, but treatment prevalence is generally low in studies of the general population. Our objective was to analyze clinical factors associated with receipt of prescriptions for HDL-specific cholesterol medications, specifically fibrates or niacin, among diabetic veterans in New England.
METHODS: This was a retrospective cohort study within the Veterans Integrated Service Network 1 (VISN-1). The time period of analysis was September 30, 1997 through June 18, 2008, beginning with date of diabetes diagnosis. We restricted our cohort to those who have been prescribed statin therapy in order to capture a population engaged in care with attention to lipid management. We first analyzed univariate predictors that might be associated with prescription of niacin or a fibrate (gemfibrozil or fenofibrate). The two medication classes were analyzed independently. Univariate predictors were age, body mass index, systolic blood pressure; comorbidities, including cardiovascular disease and chronic kidney disease; laboratory parameters including total cholesterol, LDL, HDL, triglycerides, initial hemoglobin A1C and creatinine; and medications. Multivariable modeling was done after entering significant covariates into a single model and removing predictors that became non-significant. Two final models were created, for fibrates and niacin, respectively.
RESULTS: There were 35,678 veterans in the cohort after exclusions for lack of a statin prescription, active cancer treatment, or HIV. The mean age (SD) of the population was 65.6 (10.5) years. The mean body mass index (SD) was 31.8 (6.5) kg/m2, and the mean systolic blood pressure (SD) was 141.1 (19.3) mmHg. Only 5,126 (14.4%) were treated with a fibrate and even fewer 341 (0.96%) were prescribed niacin during the study period. In both models, younger age was associated with a decreased likelihood of receipt of a fibrate (2%) or niacin (3%) prescription; lower HDL was also associated with a decrease of 4% and 3%, respectively, while triglycerides showed a minimally positive association in each model. Lower hemoglobin A1C was associated with significant decreases in each model, 0.91 (95% CI: 0.89, 0.93) for fibrates and 0.70 (95% CI: 0.62, 0.78) for niacin. Prescriptions for four different medications were all positively associated with receipt of a fibrate prescription: ACE-inhibitors, 1.47 (95% CI: 1.27, 1.71); angiotensin-receptor blockers, 1.28 (95% CI: 1.13, 1.45); beta-blockers, 1.36 (95% CI: 1.21, 1.53); and insulin, 1.56 (95% CI: 1.39, 1.74).
CONCLUSION: The clinical factors associated with receipt of at least one prescription for a fibrate or niacin appear to overlap, including HDL, although power was limited in the niacin model. While in an unexpected direction, the association is weak, suggesting that factors independent of HDL may be more of an impetus to clinicians. In the fibrate model, baseline hemoglobin A1C shows a stronger association than cholesterol parameters, suggesting that diabetes itself may be implicated; notably, cardiovascular disease history was not significant. Future analyses will consider additional patient factors, sites of care, and provider types.

CLINICAL OUTCOMES AFTER BARIATRIC SURGERY IN A U.S. INSURED COHORT S. Bolen[1]; A.D. Shore[2]; T.H. Magnuson[2]; S. Goodwin[2]; H. Chang[2]; T. Richards[2]; J.P. Weiner[2]; J.M. Clark[2]. [1]MetroHealth/Case Western Reserve University, Cleveland, OH; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205905)*

BACKGROUND: Obesity continues to rise, contributing to excess morbidity and mortality. Bariatric surgery leads to substantial weight loss, yet less is known regarding the full range of surgical outcomes nationally.
METHODS: From among approximately 18.4 million persons enrolled in 7 Blue Cross Blue Shield plans, we obtained all medical and pharmacy claims for 6,464 persons who underwent bariatric surgery in 2003 or 2004 and were enrolled for one year pre and two years post surgery and for 6,445 persons randomly selected as a 1:1 matched comparison group. The comparison group was matched on age, sex, plan site, propensity score, and assigned a matching index date of bariatric surgery for time comparisons. We categorized clinical outcomes into serious complications (i.e. abscess/peritonitis, hemorrhagic complications, marginal ulcers, and lysis of adhesions), less serious complications (i.e. wound infection, ileus, ventral hernia without complications), and obesity-related comorbidity diagnoses (including diabetes, hypertension, hyperlipidemia, metabolic syndrome, chronic obstructive pulmonary disease, and sleep apnea). These categories were created based upon prior literature and expanded using physician consensus. We measured the proportion of plan members with clinical outcomes by time period and group assignment.
RESULTS: We found a very low cumulative inpatient mortality rate of 0.02% at two years post surgery. Overall, serious and less serious complications occurred with low to moderate frequency in the bariatric surgery group(absolute difference of 4% and 18% respectively comparing the post to pre surgery year), and then began to decline. The comparison group rate stayed the same during the same time interval (absolute difference post to pre surgery year of -0.2% and 1% for serious and less serious complications respectively). Several post-op complications continued to occur even two years post surgery. For instance, abscess/peritonitis, hemorrhagic complications, marginal ulcers, and lysis of adhesions all continued to occur in 1% to 3% of patients even two years after bariatric surgery (compared with a rate of 0.05% to 0.4% in the year pre-surgery). Gastrointestinal obstruction/ileus and wound infections while highest immediately following surgery still occurred in 2.5% and 3.3% respectively in the second year post surgery (compared with 0.4% to 1% in the year before surgery). Ventral hernias and repairs continued to increase in the second year post surgery (12%), compared with the first year post surgery (7%) and the year prior to surgery (1.4%). Obesity-related comorbidity diagnoses decreased significantly from 75% pre surgery to 62% and 46% one and two years post surgery. This contrasted with rates in the comparison group which maintained a relatively stable proportion of obesity-related disease diagnoses during the same time periods.
CONCLUSION: The marked improvement in obesity related conditions seen post-operatively was much larger than the low rate of serious post-operative complications. However, reducing the immediate and delayed complications will be an important way to continue to improve the benefit to risk ratio of bariatric surgery.

CLINICAL UTILITY OF GENETIC TESTING FOR FACTOR V LEIDEN AND PROTHROMBIN G20210A MUTATIONS IN PATIENTS WHO HAVE HAD A VENOUS THROMBOEMBOLISM L. Samal[1]; A. Necochea[1]; M.T. Crim[1]; A. Emadi[1]; D.J. Brotman[2]; L. Wilson[1]; E.B. Bass[1]; J.B. Segal[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Johns Hopkins Hospital, Baltimore, MD. *(Tracking ID # 204542)*

BACKGROUND: The Factor V Leiden (FV Leiden) and Prothrombin G20210A (PT G20210A) mutations are genetic polymorphisms associated with venous thromboembolism (VTE). As part of a broader review on behalf of the Agency for Healthcare Research and Quality, we sought to synthesize the published literature about the clinical utility of testing patients who have had a VTE for these mutations.
METHODS: We reviewed 7382 titles identified in MEDLINE, EMBASE, the Cochrane Library, and CINAHL through December 2008. Paired reviewers sequentially reviewed each title, abstract, and article. We abstracted data sequentially, graded the quality and applicability of each article, and the strength of the evidence.
RESULTS: We identified 9 studies providing indirect evidence about harms and benefits of testing. No study directly addressed how clinicians change their management based on test results. However, in one study, Canadian practitioners responded by survey to several clinical scenarios describing pregnant women's test results. Responses suggested that clinicians might manage patients differently based on the results of FV Leiden testing. Four studies addressed how treatment affects VTE recurrence rates among individuals with and without mutations. Extension of anticoagulation beyond the customary 3–6 months decreases the rate of VTE recurrence; however, the risk reduction is similar regardless of whether the individual does or does not have a FV Leiden or PT G20210A mutation. Thus, there is moderate (indirect) evidence of a lack of benefit of testing to guide anticoagulation treatment decisions in people who have had a VTE. Four studies addressed the effect of testing on knowledge, attitudes and behaviors, yielding the following observations: 1) Individuals' understanding of the risk factors for VTE and the significance of the test results were not improved after testing, unless structured counseling and information was provided before and after testing; 2) Daily life changes were uncommon, although some patients used the test results to make important medical decisions; 3) Most individuals did not regard their carrier status as a serious condition but worried about the implications for their children and relatives. Thus, there is moderate evidence that the process of testing for these mutations does not have serious adverse consequences but may improve understanding of VTE risk factors.
CONCLUSION: A single study suggested that clinicians might change management based on test results. Moderate evidence supports that anticoagulation reduces recurrent events in probands with FV Leiden or PT G20210A to the same extent as in non-carriers. Neither harms nor benefits of testing have been demonstrated conclusively in tested individuals. Future studies addressing the utility of testing should address whether management decisions based on test results affect the rates of recurrence of VTE in carriers of these mutations.

CODE STATUS DISCUSSIONS BETWEEN INTERNAL MEDICINE RESIDENTS AND HOSPITALIZED PATIENTS L.L. Loertscher[1]; T.J. Beckman[1]; S. Cha[2]; D. Reed[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Clinic, Rochester, MN. *(Tracking ID # 203700)*

BACKGROUND: Medical residents frequently participate in code status discussions with hospitalized patients, yet their competency in this role has not been evaluated. The objective of this study was to determine concordance between residents and patients regarding occurrence and components of code status discussions, and to identify factors associated with the conduct of comprehensive code status conversations.
METHODS: We completed a cross-sectional survey of consecutive pairs of hospitalized patients and admitting medical residents at Mayo Clinic in March 2007. We collected demographic information for residents (year of training, prior education on code status discussions, admission volume) and patients (age, level of education, comorbidities, functional capacity, cognitive status). We measured patients' and residents' perceptions of occurrence and content of code status discussions, as well as their knowledge of resuscitation procedures and outcomes. Responses from patients and residents were analyzed as matched pairs using McNemar's test and paired t-tests.
RESULTS: Forty-one of 45 (91%) patients and 20 of 21 (95%) internal medicine residents agreed to participate, resulting in 41 matched pairs of patients and residents. Residents and patients agreed that a code status conversation occurred in only 63% of cases; however, residents reported conducting a conversation 86% of the time. Agreement between residents and patients was more likely if residents had less than 4 admissions on the corresponding admitting day ($p=0.02$). Patients reported the inclusion of specific discussion components, such as resuscitation procedures (7%) and outcomes (0%), less frequently than residents (71% and 27% respectively, $p<0.001$).
CONCLUSION: Residents and patients demonstrated poor agreement on the occurrence and components of code status conversations. Residents' work load may impede timely and comprehensive code status discussions. Residency programs should identify ways to enhance residents' competency in eliciting patients' code status preferences and provide adequate time for code status discussions.

COLLABORATIVE CHRONIC DISEASE MANAGEMENT MODEL USING CARE MANAGERS AMONG PATIENTS WITH DIABETES IN PRIMARY CARE: PATIENTS AND PROVIDERS PREFERENCES AND PERCEPTIONS. R.S. De Jesus[1]; R. Stroebel[1]; S. Cha[2]; P. Targonski[1]; K. Vickers-Douglas[2]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Clinic, Rochester, MN. *(Tracking ID # 203748)*

BACKGROUND: Chronic disease management has particularly impacted primary care. The collaborative care model, using care managers, has been consistently shown in studies to be effective in achieving sustained treatment outcomes in chronic disease management. However, little effort has been placed in finding out patient preferences regarding their chronic disease care. If we are to adopt a provider endorsed, patient centered collaborative care model using care managers, there is a need to determine what patients and provider perspectives and preferences are. A survey was conducted to test the hypotheses that patients and providers are not neutral on how various aspects of the collaborative care model should be implemented and that both patients and providers have similar role expectations for a care manager.
METHODS: A questionnaire was mailed out randomly to 1000 Primary Care Internal Medicine (PCIM) paneled patients residing in Olmsted County, MN who were identified through the diabetes registry to have type 2 diabetes mellitus, a prototypical prevalent chronic disease. Nursing home patients were excluded. The tool consisted of a 20 item questionnaire consisting mostly of Likert scale questions that asked preferences and 3 open ended questions focusing on role expectations for a care manager. A similar questionnaire was sent to 42 primary care providers. Demographic characteristics were also obtained.
RESULTS: There were 253 (25.3%) patient responders and 28 (66%) provider responders. At least 50% of patients are female over 51 years with diabetes diagnosis of over 5 years. Providers are mostly male (59%), 41 years or older, and have been in practice for at least 10 years. Majority of patients (>70%) and providers (89%) expressed willingness to have various aspects of diabetes care managed by a care manager. Both groups would also be comfortable discussing their health concerns or management plans with a care manager. In contrast to 75% of providers who would be comfortable expanding the role of care manager to other chronic diseases, only 39.5% of patient responders would be willing to see a care manager for other chronic problems. Providers were less assured on the care manager's ability to assist patient with self-management; only half of them expressed confidence that a care manager would be able to help their patients get more self-activated in their diabetes care. Patients expressed different preferences on implementation of various aspects of their care; most desire a more individualized approach to their health care needs as reflected by their preferences on test result notification and education method.
CONCLUSION: Patients and providers have preferences on how various aspects of the collaborative care model should be implemented but both groups expressed willingness to collaborate with a care manager and have similar role expectations for a care manager.

COLORECTAL CANCER SCREENING AMONG ELDERLY PATIENTS WITH VARYING SEVERITY OF ILLNESS D. Haggstrom[1]; C.N. Klabunde[2]. [1]VA HSR&D Center on Implementing Evidence-based Practice, Indianapolis, IN; [2]National Cancer Institute, Bethesda, MD. *(Tracking ID # 205848)*

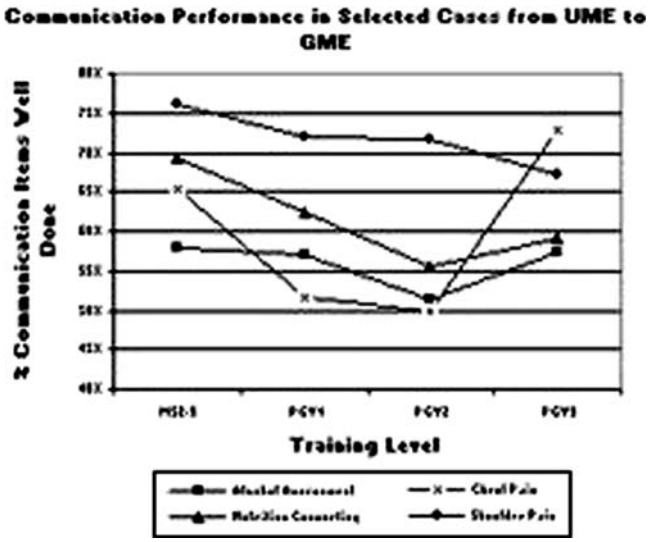
BACKGROUND: Screening patterns among physicians may be influenced by age and comorbidity. New U.S. Preventive Services Task Force guidelines in 2008 recommend against routine colorectal cancer (CRC) screening in adults age 76 to 85 years, but stated there may be considerations that support screening in an individual patient. The five-year survival rate of non-small cell lung cancer (NSCLC) among patients older than age 75 is less than 10%.
METHODS: A nationally representative survey of 1,266 primary care physicians, including the specialties of internal medicine, family practice, and obstetrics-gynecology, was administered in 2006–7, achieving a cooperation rate of 75.0% and an absolute response rate of 68.5%. Physician CRC screening recommendations among patients of varying age and comorbidity were measured using clinical vignettes.
RESULTS: For an 80 year-old individual, 26% of physicians recommended CRC screening for a patient with unresectable NSCLC, and 72% recommended CRC screening for a patient with ischemic cardiomyopathy (New York Heart Association, Class II). Physicians were more likely to recommend fecal occult blood test as the preferred screening modality for a healthy 80 year-old individual, compared to healthy 50 or 65 year-old individuals (16% vs 5% or 2%, respectively, $p<0.001$ for both comparisons). Obstetrics-gynecology physicians (41%) were significantly more likely than family practice (20%) and internal medicine physicians (18%) to recommend CRC screening among an 80 year-old patient with unresectable NSCLC ($p<0.001$ for both comparisons).
CONCLUSION: Physicians weigh comorbidity when screening older patients, and also consider different types of screening tests. However, a sizable proportion of physicians still recommend screening among patients unlikely to benefit from the test. Factors contributing to overutilization should be assessed, including physician factors, and interventions to reduce overuse should be developed.

COLORECTAL CANCER SCREENING RATES IN PATIENTS WITH CHRONIC MENTAL ILLNESSES AND SUBSTANCE USE DISORDERS: A RETROSPECTIVE NATION-WIDE DATA ANALYSES A. Aggarwal[1]; N. Li[2]; A. Lee[3]; L.E. Kazis[4]; D.R. Berlowitz[5]. [1]Virginia Commonwealth University, Richmond, VA; [2]Boston University School of Public Health, Boston, MA; [3]Massachusetss General Hospital and Southern California Permanente Medical Group, Pasadena, CA; [4]CHQOER, ENRM Veterans Affairs Medical Center, Boston University, Bedford, MA; [5]Boston University, Bedford, MA. *(Tracking ID # 205597)*

BACKGROUND: Colorectal cancer (CRC) is the second leading cause of cancer death for both genders in the US, accounting for 10% of all cancer related deaths in 2005. Despite of increasing awareness to the importance of CRC screening in general population, the effects of mental and substance abuse disorders on regular CRC screening have not been adequately studied. The purpose of this study was to determine the frequency of CRC screening among users of the national Veteran's Health Administration (VHA) with chronic mental illnesses (CMI) and substance use disorders (SUD), which is the largest integrated system in the US. We also measured and compared the frequency of CRC screening in major sub-groups of CMI and SUD: anxiety disorders, mood disorders, psychotic disorders, alcohol and drug use.
METHODS: In this case-control analysis we selected a study cohort of veterans with and without CMI and SUD in the fiscal year (FY) 2004. Eligibility criteria: 1. VHA user had at least one hospital stay or outpatient visit yearly from FY2000 -2004 and 2. Age of >51 at the beginning of FY2000. Patients were identified using International Classification of Diagnosis-9 codes (290 – 312 or 331) and CRC screening practices recommended by the American Cancer Society using a pre-defined algorithm to classify that procedure. Data on FOBT (annual), and flexible sigmoidoscopy, double contrast barium enema, and colonoscopy within the 5-year period (FY 2000–2004) were used to calculate CRC screening rates. Multivariate logistic regression models are used with independent variables (anxiety disorders, mood disorders, psychotic disorders, alcohol use or drug use), adjusted for age and gender. The dependent variable is CRC screening (yes/no). Statistical significance is indicated by an alpha value of 0.0001.
RESULTS: There were a total of 1.5 million eligible patients in the study. Patients with CMI and SUD were significantly younger (age 51–55), with similar proportions of gender and race as compared to the control group who had neither CMI nor SUD. Five year CRC screening in patients with CMI, SUD and in control group was 36.3%, 33.4% and 41.4%, respectively. In the multivariate logistic regression, when controlling for age and gender, the odds of having CRC screening were significantly lower in CMI (odds ratio (OR)=0.75, confidence interval (CI) 0.74–0.76) and SUD (OR=0.62, CI 0.60–0.64) when compared to the patients in the control group . These differences persisted in each of the sub-groups of CMI and SUD: anxiety disorders (OR=0.80, CI 0.79–0.81); mood disorders (OR=0.76, CI 0.75–0.78); psychotic disorders (OR=0.62, CI 0.60–0.64); alcohol use (OR=0.66, CI 0.63–0.70); and drug use (OR= 0.49, CI 0.45–0.53).
CONCLUSION: CMI and SUD patients have significantly reduced CRC screening rates. There are considerable differences within the major sub-groups of mental illnesses, alcohol and drug use disorders when compared with those without CMI and SUD. Clinicians need to pay close attention to those patients that fall into the CMI and SUD categories for purposes of CRC screening. Comprehensive assessment and systematic approach to this major preventable health disparity is essential in this vulnerable population.

COMMUNICATING WITH PATIENTS OUTSIDE OF THE OFFICE VISIT: USE OF THE INTERNET, EMAIL, AND TEXT MESSAGING IN A PRIMARY CARE POPULATION M.J. Gilchrist[1]; A. Tytell Brenner[1]; C. Lewis[1]; R. Malone[1]; S. Mcdonald[1]; M. Pignone[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 204541)*

BACKGROUND: Use of the Internet, email, and text messaging could improve the quality of medical care by enhancing communication between patients and physicians. The digital divide, however, may limit its applicability in clinical practice. We sought to determine access to, and interest in, using the Internet, email, and text messaging for communication outside of office visits in our clinical practice.
METHODS: We administered a face-to-face survey to patients at the University of North Carolina's General Internal Medicine practice over a 2-week period. Using a standardized sampling frame, we approached both attending and resident physicians' patients. Patients were asked about their use of the Internet, email, text messaging, and their interest in using these systems for healthcare communication. The surveys took approximately 5 minutes to complete. Exclusion criteria included dementia, patients scheduled for an acute care visit, and new-patient visits.
RESULTS: Our response rate was greater than 90%. Of the 187 patients surveyed, the mean age was 58.2 years (s.d. 13.9, range 18–88). 23% (n=43) reported not having completed high school, 22% (n=41) had graduated high school or obtained a GED, and 55% (n= 103) attended at least some college. 65% (n=121) of patients were female and 29% (n=53) reported a yearly income of less than $15,000. 39% (n=72) described themselves as African-American or black. 65% (n=122) of subjects reported having used the Internet, 56% (n=105) having used email, and 29% (n=54) having sent or received text messages on their cellular phones. 51% (n=95) access an email account once a week or more and 42% (n=78) once a day or more. Internet, email, cell phone, and text message users were significantly younger and reported higher incomes ($p<0.05$ for each) than non-users. Internet and email users were significantly more educated than non-users ($p<0.001$ for both). 70% (n=130) were interested in using an Internet-based system to view their clinical test results and 68% (n=127) were interested in using the Internet to ask their doctor a question. 25% (n=47) of all subjects expressed interest in using the Internet to discuss their health issues with other patients. Of the 65 who reported never using the Internet, 45% (n=29) said they never learned and 37% (n=24) reported having no interest. Other reasons included inability to afford a computer, fear of identity theft, and inability due to residual effects of a CVA.
CONCLUSION: The majority of patients in our clinical practice report that they use the Internet and email. Younger age and higher income are significantly associated with Internet, email, and text message use. Most patients expressed interest in using the Internet to augment their clinical encounters with their providers. Fewer, however were interested in sharing and discussing medical issues with other patients. Those who do not use the Internet name not having learned as the most common barrier.



COMMUNICATION PERFORMANCE IN SELECTED CASES FROM UME TO GME C. Gillespie[1]; K. Hanley[1]; S. Schlair[1]; A.L. Kalet[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 205516)*

BACKGROUND: There is some evidence that communication skills decline throughout training, although opportunities to assess skills in the same clinical contexts are not readily available and it is therefore difficult to compare across training levels. This study takes advantage of the use of the same Objective Structured Clinical Examination (OSCE) cases in undergraduate and graduate medical education at one institution to explore communication performance across training levels.
METHODS: Data are based on four OSCE cases used throughout the NYU SoM curricula, from the Patient, Physician and Society course in MS2 (2–3 stations, >150 students), to the end of 3 rd-year, high stakes Comprehensive Clinical Skills Exam (8 stations, >150 students), to the annual primary care internal medicine residency program OSCE (10 stations, 23–24 residents). These cases include: an assessment of problem drinking in a 45 y.o. woman (alcohol assessment); counseling of a 36 y.o. obese woman with a family history of diabetes (nutrition counseling); 56 y.o. woman complaining of chest pain (chest pain); 62 y.o. woman with past diagnosis of metastatic renal cell carcinoma and new onset pain (shoulder pain). Communication skills are assessed via an 11–17 item checklist focusing on relationship development, information gathering, and patient education and counseling. Items are rated by trained SPs as not, partly, or well done based on behavioral indicators of effective skills. Scores are % of items rated well done. Analyses have consistently suggested adequate reliability (inter-rater reliabilities .65-.85 and Cronbach's alphas .70 -.92). Descriptive analyses compare students' mean communication performance (and SDs) with those of primary care residents by their PGY.
RESULTS: Communication scores in these 4 cases are highest during medical school and appear to decline through at least the first two residency years. In the behavior change cases, alcohol assessment and nutrition counseling, PGY3 residents perform slightly better than PGY1s and 2 s. In the chest pain case, MS2–3 students performed substantially better than PGY1s and 2s but PGY3 s performed far better than all others. As expected, in 3/4 cases SDs decrease by training level; those for nutrition counseling, however, remain fairly large and constant.
CONCLUSION: These preliminary data support previous findings that communication skills may decline during medical training, although we found an upward trend at PGY3 in two cases and that PGY3 residents communicate more effectively in acute clinical contexts. It may also be that measures do not fully capture advanced skills or the tradeoff between communication and other clinical tasks. Next steps are to include larger resident samples and explore communication sub-domains and relationships between communication and physician effectiveness.

CO-MORBIDITIES ASSOCIATED WITH THE INCREASING BURDEN OF HEPATITIS C INFECTION B. Basseri[1]; D. Yamini[1]; P. Enayati[1]; E. Parker[1]; T. Tran[1]; J. Park[1]; G. Chee[1]; F.F. Poordad[1]. [1]Cedars-Sinai Medical Center, Hepatology and Liver Transplantation, Los Angeles, CA. *(Tracking ID # 204630)*

BACKGROUND: Hepatitis C virus (HCV) infection is involved in an increasing number of liver transplantations, inpatient hospitalizations, and direct health care cost. Given this increasing burden, we present an updated assessment of co-morbidities associated with HCV infection in comparison to the general population in the United States (US).
METHODS: We conducted a cross-sectional retrospective review of demographic and clinical data from 800 patients with HCV evaluated between January 1, 1998 and November 1, 2007. Patient data was collected in prospective fashion using a standardized questionnaire filled out by the patients at the first encounter. Data from HCV patients was compared to published epidemiologic data for the general US population.
RESULTS: 23.9% of HCV patients were obese, compared to a prevalence of 19.8 to 33.1% in US adults. Diabetes (12.5 vs. 7.3–8.4%) and end-stage renal disease (ESRD; 4.5 vs. 0.2%) were more prevalent in HCV, while hypertension (26.9 vs. 28.7–29.3%) and hyperlipidemia (12.3% vs. 53.2–56.1%) were not. Moderate to heavy alcohol consumption (41.5 vs. 4.7%), smoking (57.7 vs. 18.8–20.8% current smokers), and lifetime prevalence of drug use (46.8 vs. 14.6–15.6%), were far more common in HCV. HCV was also associated with an increased lifetime prevalence of incarceration (6.6 vs. 2.7%) and tattoos (20.3 vs. 14.0%). Markers associated with poor quality of life, including chronic fatigue (44.6 vs. 11.3–19.0%) and depression (29.3 vs. 5.0–10.3%), were more prevalent in HCV.
CONCLUSION: HCV is a disease with increasing burden that may partially be explained by an increased prevalence of diabetes, ESRD, drug and alcohol use, and indices of poor quality of life compared to the general US population. Generalists must address and appropriately manage these co-morbidities in patients with HCV.

Comparison of Co-morbidities to the General US Population

Co-morbidity	HCV (%)	General Population (%)
Diabetes	12.5	7.3–8.4
HIV	5.3	0.30–0.33
ESRD	4.5	0.2
Obesity	23.9	19.8–33.1
Hypertension	26.9	28.7–29.3
Hyperlipidemia	12.3	53.2–56.1
Significant Alcohol	41.5	4.7
History Smoking	57.7	18.8–20.8
History Drug Use	46.8	14.6–15.6
Depression	29.3	5.0–10.3
Fatigue	44.6	11.3–19.0
Sleep disorder	13.8	18.6–27.2
History Incarceration	6.6	2.7
History Tattoo(s)	20.3	14.0

COMPARATIVE RESIDENT AND ATTENDING SATISFACTION WITH AN EXPERIMENTAL INPATIENT MEDICAL CARE TEAM M.E. Thorndike[1]; J.T. Katz[1]; G.T. Mcmahon[1]. [1]Harvard Medical School, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205770)*

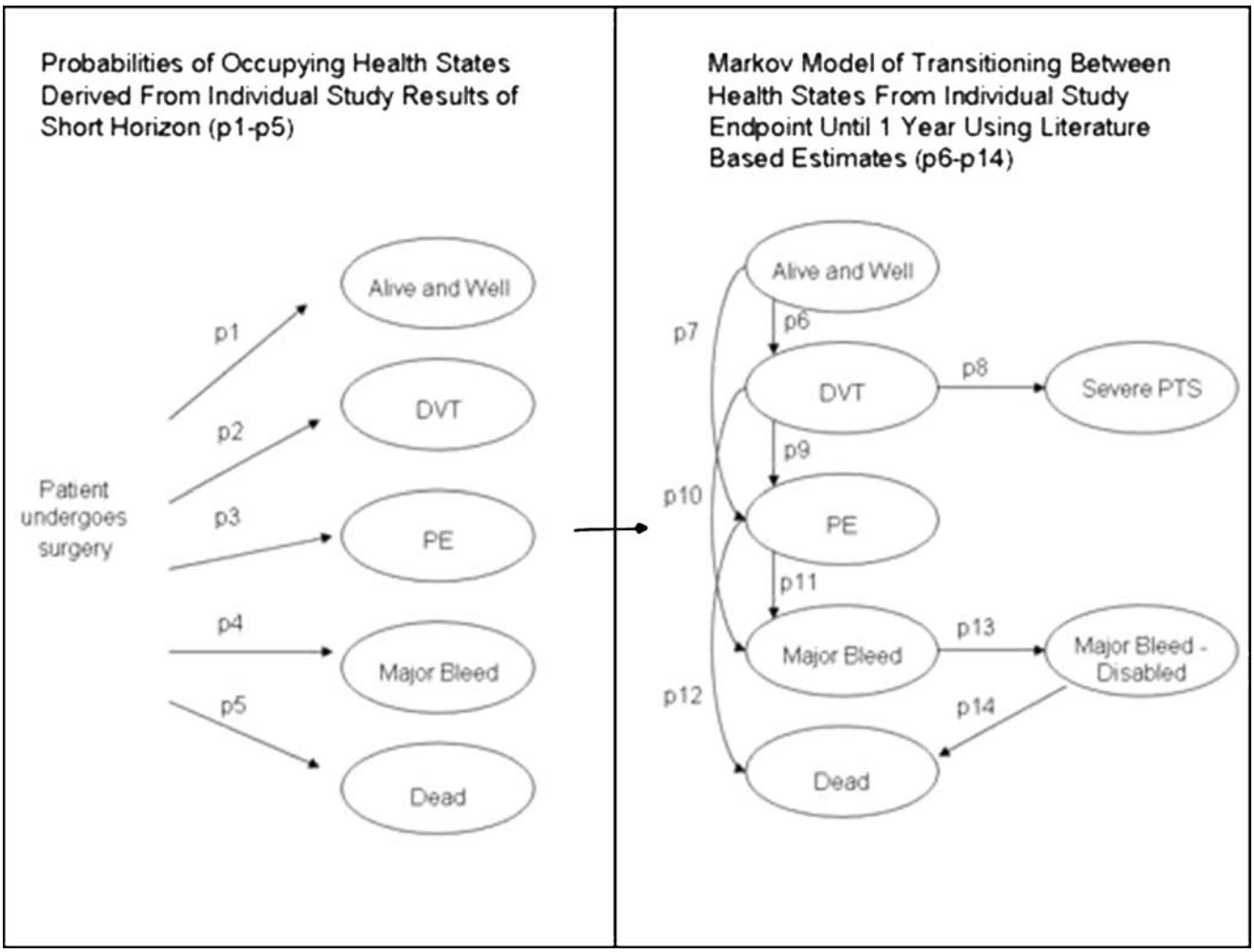
BACKGROUND: The Integrated Teaching Unit (ITU) is an experimental program of the Brigham and Women's Hospital Internal Medicine Residency Program. The unit was developed to examine the effect of reducing workload and providing more attending time on the quality of patient care and education. Key elements of the model include a dual-attending model, daily walk rounds with bedside teaching, constrained team census, increased daily teaching time with focus on resident-led teaching. We surveyed house officers and attendings who rotated on the unit about their experience as learners and teachers.
METHODS: A total of 118 house officers and 47 attendings who rotated through the ITU over a 1-year period were surveyed. House officers who rotated on the traditional service (GMS) at the same hospital (Faulkner Hospital, an affiliate of Brigham and Women's Hospital) over the same time period were similarly surveyed. A two-tailed Fisher's exact test was used to estimate significance.
RESULTS: Response rates for attendings and ITU and GMS residents were 87%, 83% and 83% respectively. Residents on the ITU were significantly more likely than GMS residents to report enjoying the rotation (78% vs. 55% respectively, $p=0.003$), receiving feedback from attendings (86% vs. 31%, $p<0.0001$), learning new physical exam skills (78% vs. 31%, $p<0.0001$), and obtaining more patient follow-up than usual (22% vs. 8%, $p=0.020$). Residents on the ITU were also significantly

more likely to rate their experience as "closest to my ideal residency experience" (41% vs. 6%, p<0.0001). Seventy percent of attendings reported that the ITU was the closest to the ideal teaching model they had experienced. When asked to rank components of the ITU model from most important to least important, residents and attendings agreed in ranking morning walk rounds, patient census caps, dual attending model and bedside teaching as the most important elements. **CONCLUSION:** Resident and attending satisfaction is significantly increased when their workload and educational needs are addressed as compared with a traditional team model. In particular, gains were made in bedside teaching of physical exam skills, provision of feedback, and increased access to post-discharge follow-up.

COMPARING COST-EFFECTIVENESS RESULTS ACROSS MULTIPLE STUDIES OF VTE PROPHYLAXIS WITH INDEPENDENT MODELING TO STANDARDIZE HORIZON LENGTH AND EFFECTIVENESS UNITS

A. Kapoor[1]; W. Chuang[2]; N. Radhakrishnan[3]; K.J. Smith[4]; D.R. Berlowitz[5]; J.B. Segal[6]; J.N. Katz[7]; E. Losina[8]. [1]Hospital Medicine Unit, Boston University School of Medicine, Boston, MA; [2]Hospitalist Medicine Group, Massachussetts General Hospital, Boston, MA; [3]Hospital Medicine Unit, Boston University, School of Medicine, Boston, MA; [4]Section of Decision Sciences and Clinical Systems Modeling, University of Pittsburgh School of Medicine, Pittsburgh, PA; [5]Bedford VA Medical Center, Bedford, MA; [6]Department of Medicine, Johns Hopkins University School of Medicine, Baltimore, MD; [7]Department of Orthopaedic Surgery and Division of Rheumatology, Immunology, and Allergy, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [8]Department of Orthopaedic Surgery, Brigham and Women's Hospital, Harvard Medical School; Department of Biostatistics, Boston University School of Public Health, Boston, MA. *(Tracking ID # 204098)*

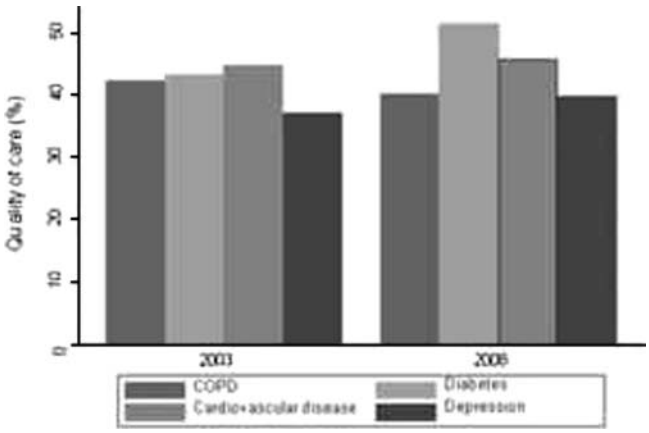
BACKGROUND: Comparisons across cost-effectiveness studies of venous thromboembolism (VTE) prophylaxis are limited by differences in the horizon used (time over which analysis was conducted) and effectiveness metrics reported. Short-term studies reporting costs per VTE prevented may be misleading compared to longer term analyses using cost per quality adjusted life year gained.
METHODS: We systematically reviewed cost-effectiveness studies of VTE prophylaxis medications currently recommended by the American College of Chest Physicians or the American Academy of Orthopedic Surgeons for patients undegoing total hip or knee replacement. This included aspirin, warfarin, low molecular weight heparin, or fondaparinux. We also examined comparisons between extended duration therapy (3 weeks or more) using any of the above medications versus short duration therapy (<3 weeks). To interpret the short term studies which reported results in costs/VTE prevented, we developed an independent Markov model, standardizing incremental cost-effectiveness ratios (ICERs) to $/QALY over a one year time horizon. In the model, hypothetical patients could occupy one of several mutually exclusive health states including Alive and Well, DVT, PE, Major Bleed, Dead, Post-Thrombotic Syndrome, and Major Bleed-Disabled. To calculate ICERs over a one year time horizon in $/QALY, we abstracted from each study the incremental cost, horizon, and the probability of occupying health states. These final costs and effects became the initial strategy costs and Markov state probabilities entered in our model. Other probabilities, costs, and utilities came from the medical literature. We also created a counter variable to track how many weeks had passed from the operative day, permitting the model to run to the same 1 year point for each published short term study.
RESULTS: We found 30 original studies reporting 52 cost-effectiveness results. Of the 52, 37 (71%) were short-term comparisons. Of the 37, 23 comparisons had sufficient information to standarize results to a one-year horizon. In 4 of the 23 (17%), conclusions about the cost-



effectiveness of a costlier medication changed after standardization. In these 4 studies, the ICER went from costing money to prevent VTEs (positive $/VTE) to saving money and gaining QALYs (dominant). In most of the remaining studies, it cost money to prevent VTEs in the short term and cost money to gain QALYs in the standardized result. By standardizing to a common horizon in QALYs, however, we were able to compare the cost/QALY result for each medication with commonly quoted thresholds of cost-effectiveness (e.g. $50,000/QALY). Combining results from the published long term studies and the results standardized to a 1 year horizon, we found that comparisons between LMWH and warfarin were inconclusive whereas fondaparinux dominated LMWH in nearly every comparison. Extended duration therapy appeared cost-effective after total hip replacement but there was insufficient evidence to draw a conclusion about prophylaxis after total knee replacement.
CONCLUSION: When comparing short-term, published cost-effectiveness results, it is informative to construct an independent model to standardize results to a common horizon and to convert effectiveness from disease based units to QALYs.

COMPARISON OF QUALITY OF PRACTICE AMONG RESIDENTS IN JAPAN BEFORE AND AFTER RENOVATION OF THE MEDICAL EDUCATION SYSTEM BY JAPANESE GOVERNMENT Y. Hayshino[1]; Y. Fukumoto[2]; F. Murakami[2]; J. Hayano[3]; T. Kanematsu[3]; H. Fukui[4]; T. Ino[5]; M. Soma[6]; A. Shindo[6]; Y. Kohri[7]; H. Ishimaru[7]; K. Shibuya[8]; H. Imura[8]; Y. Takeuchi[9]; T. Yamaguchi[9]; K. Matsui[10]; Y. Noguchi[11]; T. Shimada[1]; M. Ozaki[12]; J. Miyashita[13]; S. Okamura[7]; Y. Arimura[14]; S. Fukuhara[1]. [1]Kyoto University Graduate School of Medicine, Kyoto, Kyoto; [2]Yamaguchi University, Yamaguchi, Yamaguchi; [3]Nagoya City University, Nagoya, Aichi; [4]Nara Medical University, Kashihara, Nara; [5]Fujita Health University, Toyoake, Aichi; [6]Nihon University, Itabashi, Tokyo; [7]Tenri Hospital, Tenri, Nara; [8]Iizuka Hospital, Iizukashi, Fukuoka; [9]Toranomon Hospital, Minato-ku, Tokyo; [10]Kumamoto University, Kumamoto, Kumamoto; [11]Nagoya Second Daini Cross Hospital, Nagoya, Aichi; [12]Kitano Hospital, Osaka, Osaka; [13]Otowa Hospital, Yamashina, Kyoto; [14]Miyazaki University, Miyazaki-gun, Miyazaki. *(Tracking ID # 205352)*

BACKGROUND: In 2004, the Japanese government reformed the monospecialty-oriented postgraduate medical education program by introducing a new program requiring all residents to rotate through different clinical departments, including the psychiatry department. However, given that the time allocated for internal medicine education was relatively reduced in the new program, concern was raised over possible deterioration in quality of practice in internal medicine. Here, we evaluated the quality of internal medicine practice in first- and second-year residents before and after the renovation of medical education in Japan.
METHODS: Quality of practice was measured using validated clinical vignettes of four common outpatient conditions: chronic obstructive pulmonary disease (COPD), diabetes, cardiovascular disease, and depression. Primary data were collected from eight teaching hospitals in Japan in 2003 and 2008. Responses to the vignettes were judged against a master list of explicit quality criteria after taking into account updated clinical guidelines. Responses were then scored as percent correct, and the scores were compared using linear regression analysis after adjusting for years after participants' graduation and clustering in each facility.
RESULTS: This study enrolled 156 (70%) of the 221 eligible residents who received only the internal medicine program in 2003 and 254 (66%) of the 383 eligible residents who received the new rotating educational program in 2008. On average, the number of hours allocated to internal medicine education was reduced by 40% in the eight hospitals. Overall, the quality of care for the four common medical conditions in 2003 and 2008 was 44.0% and 44.3%, respectively, but this 0.03% difference was not statistically significant (p=0.93). The quality of depression care improved by 0.5% between 2003 and 2008, but the difference was not statistically significant (p=0.18). Only the improvement in the quality of diabetes care (+1.6%) was statistically significant, as demonstrated in the figure (p=0.003).
CONCLUSION: Despite the decrease in hours allocated to internal medicine education for young physicians, the quality of care for common medical conditions did not deteriorate following the introduction of rotating curricula in Japan. Further, although the new curriculum requires young doctors to rotate through the psychiatry department, the quality of depression care did not significantly improve. These results suggest that some benefit may be gained by broadening the study area of young Japanese doctors, allowing for still greater improvements in future medical education.



CONFLICT OF INTEREST OVERSIGHT IN NON-ACADEMIC RESEARCH SETTINGS K.P. Weinfurt[1]; M.A. Hall[2]; C. Hardy[1]; J.Y. Friedman[1]; K.A. Schulman[1]; J. Sugarman[3]. [1]Duke University, Durham, NC; [2]Wake Forest University, Winston-Salem, NC; [3]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205624)*

BACKGROUND: Concerns about financial conflicts of interest in clinical research have spawned a series of studies and oversight efforts. The bulk of this work has focused on academic medical centers (AMCs). Almost nothing is known, in contrast, about whether and how financial relationships are reviewed and managed at non-academic clinical research sites. This lack of information is troubling, given that the majority of clinical research takes place in such settings. These settings include community hospitals and clinics in which a significant number of general practitioners participate in research. This study compares the oversight and management of clinical investigators' financial relationships in non-academic and academic clinical research sites.
METHODS: We identified every clinical trial site that contributed research subjects to a phase III trial that was sponsored completely or partially by industry, had sites in the U.S., was registered in clintrials.gov, and was published in the New England Journal of Medicine and JAMA between January 1, 2006 and December 31, 2007. The 717 sites included AMCs (N=103, 14%), hospitals (N=272, 38%), and non-hospitals (N=338, 47%). We randomly selected sites within each category (AMC, hospital, and non-hospital) to recruit approximately 67 sites per category. We conducted semi-structured phone interviews with officials at each sites to determine whether sites follow a written policy governing investigators' financial relationships and to understand the nature of the conflict of interest review process.
RESULTS: The response rates were 66% for academic (N=61), 37% for hospital (N=61), and 27% for non-hospital (N=77) sites. Almost all AMCs (97%) and most hospitals (87%) followed a written COI policy, whereas only 44% of non-hospitals had a written policy (p<.0001). The sites differed in terms of transparency; most AMCs (81%) agreed to share their policies, compared to only 39% of hospitals and 26% of non-hospitals (p<.0001). AMCs and hospitals relied mainly on internal IRBs (69% and 71%), whereas non-hospitals relied primarily on independent IRBs (59%; p<.0001). Just less than half of each type of site reported that they reviewed whether per capita payments for doing research exceed the reasonable costs of conducting the research.
CONCLUSION: Among sites that participated in clinical trials published recently in the top two general medical journals, the vast majority were non-AMCs. The conflict of interest oversight and management at these sites differed significantly from that of AMCs. Greater consideration of the different environments in which clinical research occurs is needed to develop effective guidance concerning financial conflicts of interest in clinical research. Our findings also suggest that many sites do not review the reasonableness of one of the most frequently encountered financial relationships, per capita arrangements. Such a review is undoubtedly challenging, but the absence of any review is likely to leave such arrangements susceptible to abuse.

CONTRAINDICATIONS TO ANTI-COAGULATION AND THE DECISION TO INITIATE WARFARIN THERAPY IN NON-VALVULAR ATRIAL FIBRILLATION E. Ewen[1]; D.J. Elliott[1]; T.A. Simon[2]; J. Jackson[2]; W.S. Weintraub[1]. [1]Christiana Care Health System, Newark, DE; [2]Bristol-Myers Squibb, Princeton, NJ. *(Tracking ID # 205441)*

BACKGROUND: The initiation of anti-coagulation for stroke prevention in non-valvular atrial fibrillation (NVAF) requires a clinical assessment of risk and benefit. This study examined the relationship between the presence of contraindications and the initiation of warfarin therapy in patients with NVAF at risk for stroke in a community-based primary care population.
METHODS: We performed a retrospective cohort evaluation of patients with newly diagnosed NVAF from 1998–2008 in a large health system with a shared electronic medical record. The presence of NVAF, ten well-recognized potential contraindications to warfarin therapy, and the CHADS2 stroke risk score were collected at the time of diagnosis through a review of the problem list, medical record text, previous hospitalizations and emergency room use, laboratory values, and medication use. The primary outcome was a prescription for warfarin recorded in the medical record at any point after the diagnosis of NVAF. We used the 2-tailed independent samples t-test to compare the CHADS2 scores between those who did and did not receive warfarin. We used the Chi-square statistic to assess the univariate association between each contra-indication and warfarin prescription.
RESULTS: Of 511 patients identified with NVAF, 423, (83%) had a CHADS2 score $\geq$1. Of these, 201 (48%) had a relative contraindication to anti-coagulation. The mean age was 73 years, 49% were female, and 20% were African-American. A total of 255 pts (60%) received warfarin during follow-up. There was no significant difference in CHADS2 score between those who received anticoagulation and those who did not (mean 1.9 vs. 2.0, p=.42). Overall, 144 of 222 (65%) patients without a contraindication and 111 of 201 (55%) patients with a contraindication received warfarin (p=.047). Four contraindications were associated with a significant reduction in warfarin use (see Table).
CONCLUSION: Our data suggest that, of commonly-accepted contra-indications to warfarin therapy, only ICH, alcohol abuse, predisposition to falls and cirrhosis/hepatitis are related to a clinician's decision to initiate warfarin therapy in NVAF. In addition, almost 40% of patients with NVAF did not receive warfarin therapy despite a similar stroke risk. Future research should clarify the influence of warfarin contraindications on prescribing in actual clinical practice.

Proportion Treated with Warfarin by Type of Contraindication

Contraindication Type	# Warfarin/ # with Contraindication (%)	p-value *
Intracranial Hemorrhage	0/3 (0)	.032
GI/GU Hemorrhage	18/34 (53)	.347
Other Hemorrhage	5/6 (83)	.410
Alcohol Abuse	16/37 (43)	.034
Unruptured Cerebral Aneurysm	0/2 (0)	.157
Other Hemorrhagic Tendencies	24/34 (70)	.273
Predisposition to Falls	49/97 (51)	.033
Barriers to Adherence	27/56 (48)	.057
Cirrhosis/Hepatitis	5/18 (28)	.006
Renal Insufficiency	43/66 (65)	.379

* compared to the proportion with warfarin exposure and no documented contraindication

CONVENIENTLY FAT: EXAMINATION OF OBESOGENIC ENVIRONMENTS IN A MID-SOUTH COMMUNITY C.L. Martin[1]; R.A. Pope[1]; R. Kumar[1]; F. Kaweeta[1]; J.E. Bailey[1]. [1]University of Tennessee Health Science Center, Memphis, TN. *(Tracking ID # 206022)*

BACKGROUND: The obesity epidemic is the most important cause of premature death and unnecessary suffering for Americans. Availability of food sources and exercise outlets makes a neighborhood either health-promoting or health-compromising for its residents. This study examined the relationship of obesity to environmental factors in a Mid-South community.
METHODS: The study included 1,593 black and white non-Hispanic survey respondents in 33 distinct zip codes of Shelby County, TN. Demographics and obesity data were collected locally through a telephone survey in 2005 and 2007 using a modified version of the CDC Behavioral Risk Factor Surveillance System (BRFSS). This provided individuals' zip code of residence, body mass index, diet, exercise habits, ethnicity, age, gender, income, and education. Environmental factors were aggregated by zip code and included density of food sources (grocery stores, convenience stores, fast food restaurants), density of parks, and a neighborhood walkability score. Stores were categorized as either grocery stores or convenience stores based on the amount of produce for sale. All gas station stores, markets, grocery stores and supermarkets throughout Shelby County were contacted in a secondary telephone survey in 2008 and asked if they sell fruits and vegetables. Those reporting none, one, or two vegetables (typically potatoes and onions) were classified as convenience stores. The others were classified as grocery stores. Each zip code's walkability score was assigned through a validated algorithm (www.walkscore.com). Logistic regression (LR) was used to determine univariate associations between environmental factors and obesity. The final two multiple logistic regression (MLR) models were restricted to variables significant at the 95 percent confidence level, gender and a food supply variable related to our primary hypotheses. The first model included all respondents in a 90 percent sample (N=1,161). The second was confined further to only those respondents reporting education and income information (N=961).
RESULTS: In univariate analysis, the availability of large parks predicted (p<.01) a slightly lower likelihood of obesity. Walkability score was an important predictor (p=.001). In "very walkable" neighborhoods, 20.4% of residents were obese, compared to 30.8% in other neighborhoods. The availability of grocery stores and fast food were not significantly associated with obesity. Convenience stores were strongly (p<.001) associated with an individual's likelihood of being obese, but a two sample t-test indicated that this was only true for blacks. Convenience stores are more abundant than grocery stores in low-income, high-minority areas. Significant variables (p<0.05) in both final MLR models included: race (OR=2.30 and 2.06), age (0.02 and 0.04), and days of exercise (0.90 and 0.89). In the full sample, the interaction of black race with density of convenience store density yielded an OR= 1.15, indicating a significant increase in odds above the effect of race. When education was added, this interaction term was no longer significant, but the magnitude of the OR is similar. College education significantly reduces the odds of obesity (OR=0.59).
CONCLUSION: Neighborhood convenience store density is highly associated with obesity among blacks. Opportunities to improve health in these neighborhoods should support sale of fresh produce at convenience stores, encourage new venues for buying healthy foods and promote consumer education.

CORONARY RISK ASSESSMENT BY POINT-BASED VS. EQUATION-BASED FRAMINGHAM MODELS: SIGNIFICANT IMPLICATIONS FOR CLINICAL CARE W.J. Gordon[1]; J.M. Polansky[2]; J. Boscardin[3]; K. Fung[4]; M. Steinman[3]. [1]Weill Cornell Medical College, New York, NY; [2]Centers for Medicare and Medicaid Services, Baltimore, MD; [3]University of California, San Francisco, San Francisco, CA; [4]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 204716)*

BACKGROUND: National cholesterol guidelines use the Framingham model to estimate future coronary risk and thereby classify patients into different risk groups. The original, complex Framingham model and a simplified, point-based system are both widely used, yet may stratify patients into different risk groups with different lipid treatment strategies.
METHODS: Using data from 2005–2006 National Health and Nutrition Examination Survey (NHANES), we compared risk estimates and resultant risk group classification generated by the original and point-based Framingham models. Our sample included 1029 persons ages 20–79 for whom guidelines recommend formal risk stratification into groups at <10% 10-year coronary event risk, 10–20% risk, and >20% risk. Analyses were adjusted to make our results nationally representative.
RESULTS: Among 49 million adults for whom formal risk stratification is recommended by guidelines, the original Framingham model categorized 70% into the <10% risk group, 24% into the 10–20% risk group, and 6% into the >20% risk group. CHD risk estimates for the original and point-based Framingham models differed substantially at all risk strata, and more so for persons at higher risk. Overall, the point-based system classified 15.3% of adults (7.5 million) into different risk groups than the original model, with 10.7% (5.2 million) misclassified into higher risk groups and 4.7% (2.3 million) into lower risk groups, for a net impact of classifying 2.9 million Americans into higher-risk groups. The pattern of misclassifications varied by gender and underlying CHD

risk. For example, 8.7% of women at <10% CHD risk (1.3 million) were misclassified into higher-risk groups, while 49.9% of men at >20% CHD risk (1.4 million) were misclassified into lower-risk groups, each with correspondingly different lipid treatment strategies.
CONCLUSION: Compared to the original Framingham model, the point-based version misclassifies millions of Americans into higher- or lower-risk groups for which guidelines recommend different treatment strategies. Guidelines and risk prediction tools should adopt a clinically consistent, transparent, and standardized approach to cardiovascular risk assessment.

COST ANALYSIS OF THE GERIATRIC RESOURCES FOR ASSESSMENT AND CARE OF ELDERS (GRACE) MODEL OF PRIMARY CARE S.R. Counsell[1]; C.M. Callahan[1]; W. Tu[1]; T.E. Stump[1]; G.W. Arling[1]. [1]Indiana University Center for Aging Research, Indianapolis, IN. *(Tracking ID # 205950)*

BACKGROUND: The Geriatric Resources for Assessment and Care of Elders, or GRACE, model of primary care and geriatric care management has been shown to improve quality and outcomes of care in low-income seniors, and reduce acute care utilization in those at high-risk of hospitalization. The purpose of this study is to provide a cost analysis of GRACE from the healthcare system perspective.
METHODS: Controlled clinical trial of 951 adults aged 65 or older who received care at one of 7 community-based health centers of an urban public healthcare system. Subjects were randomized to receive the intervention (n=474) or usual care (n=477). The GRACE intervention includes a nurse practitioner and social worker who provide in-home assessment and care management over two years in collaboration with the primary care physician and a geriatrics interdisciplinary team, and guided by care protocols for common geriatric conditions. The GRACE model uses an integrated EMR and Web-based care management tracking tool, and provides integration with affiliated pharmacy, mental health, home health, community-based, and hospital services. Main outcome measures were chronic and preventive care costs (including intervention costs), acute care (emergency department and hospital) costs, and total costs in the full sample (n=951) and predefined groups at low-risk (n=725) and high-risk (n=226) of hospitalization. Cost data were obtained from a comprehensive database that contains the actual charges for all inpatient and outpatient facility fees, physician encounters, procedures and diagnostic testing, and rehabilitation and mental health services. Charge data were converted to costs using cost-to-charge ratios for the relevant year and cost center.
RESULTS: Baseline characteristics were similar between groups with mean age 72 years, 76% women, 60% black, 52% perceived health as fair/poor, and 15% needed help in basic ADLs; mean chronic disease count was 2.7 and hospital admission rate in prior year 0.23. In the full sample, mean two-year total costs for intervention patients was higher but not significantly different than costs in usual care patients ($14,348 vs. $11,834; P=.20). Mean two-year total costs were significantly higher for intervention patients in the group at low risk of hospitalization ($13,307 vs. $9,654; P=.01). Intervention patients in the high-risk group had lower but not significantly different mean two-year total costs compared to usual care ($17,713 vs. $18,776; P=.38). The high-risk group had greater two-year costs for chronic and preventive care ($9,724 vs. 6,210; P<.001), including intervention costs ($2,691), but this was offset by reduced hospital costs ($7,343 vs. $11,731; P<.001). Cost analysis in the dually eligible subgroup (n=309) also revealed that intervention patients had higher chronic and preventive care costs ($8,168 vs. $5,769; P<.001) and lower hospital costs ($5,858 vs. $8,277; P<.001) than usual care patients, resulting in similar two-year total costs ($14,612 vs. $14,677; P=.87).
CONCLUSION: The GRACE model of primary care serves as an example of an organized system of care that provides improved quality at similar cost when delivered to a vulnerable population at high risk of hospitalization. Payment reform such as the advanced medical home model will be required, however, for GRACE implementation beyond managed care Medicare systems since most services provided by GRACE are not reimbursed under current fee-for-service Medicare.

COST-EFFECTIVENESS OF ADHERENCE-IMPROVING INTERVENTIONS FOR ANTIHYPERTENSIVE AND LIPID-LOWERING MEDICATIONS R.H. Chapman[1]; S. Kowal[1]; S.B. Cherry[1]; C.P. Ferrufino[1]; C.S. Roberts[2]; L. Chen[2]. [1]IMS Health, Falls Church, VA; [2]Pfizer, Inc., New York, NY. *(Tracking ID # 205422)*

BACKGROUND: Adherence to cardiovascular (CV) medications is poor. Studies that investigate adherence-improving interventions rarely consider their costs. We assessed the cost-effectiveness of different adherence-improving interventions for CV medications.
METHODS: We reviewed MEDLINE (2002-October 2007) to update a published literature review (1972–2002) of interventions to improve adherence with antihypertensive and/or lipid-lowering therapies. Eligible studies evaluated 1 adherence intervention compared with a control, used an adherence measure other than self-report, and followed patients for ≥6 months. Effectiveness was calculated as ratio of adherence with an intervention versus a control group and defined as Relative Improvement (RI). Intervention costs were based on those reported, where available, or estimated based on reported resource use. Costs were standardized to 12 months and adjusted to 2007 US dollars using the medical component of the Consumer Price Index. Costs and effectiveness for each intervention were entered into a previously-published model designed to measure burden of non-adherence with antihypertensive and lipid-lowering medications in a hypothetical hypertensive population. Outputs included life expectancy, direct medical costs, and incremental cost per quality-adjusted life-year (QALY) gained.
RESULTS: We identified 755 new articles, 5 of which met all eligibility criteria; when combined with the prior review, 22 interventions remained from 14 studies. RI in adherence ranged from 1.13 to 3.60. Annualized intervention-only costs ranged from $19 to $260 per patient. After eliminating more costly/less effective interventions, only 2 remained (Table).
CONCLUSION: Of published adherence-improving interventions, reminders and educational materials and pharmacist's management appear to be cost-effective, and should be considered prior to other intervention types. Understanding relative cost-effectiveness of adherence interventions may guide design and implementation of efficient adherence-improving programs.

Table: Total and incremental costs (2007 US dollars) and quality-adjusted life-years (QALYs) gained for adherence-improving scenarios

Scenario	Total Health Care Costs ($)	Total QALY	Incremental Health Care Costs ($)	Incremental QALYs	Cost per QALY gained ($)
No adherence intervention	17,325	14.968	-	-	-
Self-monitoring, reminders, educational materials	17,520	15.006	194	0.039	$4,984
Pharmacist management in ambulatory care setting	17,896	15.066	$376	0.059	$6,358

COST-EFFECTIVENESS OF COLORECTAL CANCER SCREENING IN THE ELDERLY S. Vijan[1]; C. Lewis[2]; C. Deleon[2]; M. Pignone[2]. [1]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205670)*

BACKGROUND: Colorectal cancer screening is effective and cost-effective for adults ages 50–75. The US Preventive Services Task Force recently recommended against routine screening after age 75, but the effectiveness and cost-effectiveness of continuing screening in older individuals have not been well-quantified.
METHODS: We used a previously validated Markov decision model to examine the incremental cost-effectiveness of screening with annual fecal occult blood testing (FOBT) or colonoscopy every 10 years in adults over age 60. Using the perspective of a third-party payer, we included relevant benefits, age-specific rates of GI bleeding and perforation, and costs in 2006 dollars; costs and life-years were discounted at 3% per annum. Cohorts entered the model and began screening at age 50 and

were assumed to have a screening adherence of 60% in the base case. We conducted extensive sensitivity analyses to assess factors that influenced the effectiveness and cost-effectiveness of continued screening in older individuals.

RESULTS: The main results are in Table 1. We found that for colonoscopy, continuing screening beyond age 70 was more costly and less effective (i.e., caused harm) compared to stopping at age 70. For FOBT, we found that screening did not cause harm in the elderly, but costs over $100,000 per life-year to continue screening beyond age 80. Sensitivity analyses suggested these findings were relatively robust to reasonable ranges of variations in costs and rates of colonoscopy complications. However, results were highly sensitive to population adherence with primary screening. With perfect adherence, we found that continuing colonoscopy beyond age 60 was more costly and less effective than stopping at age 60, while screening with FOBT should stop after age 78. Lower adherence rates (20–40%) did not substantially change conclusions about when to stop screening with colonoscopy. However, in populations with lower adherence to FOBT, screening could continue through age 82.

CONCLUSION: Using colonoscopy to screen for colorectal cancer in the elderly may cause net harm if screening is continued beyond age 70. For FOBT, it appears that screening can be continued to about age 80 and remain effective and cost-effective. Results are highly sensitive to population adherence; at high rates of adherence, colonoscopy is harmful if continued beyond age 60. Alternative strategies, such as mixed testing approaches, should be considered in future research.

Table 1. Costs and effectiveness of screening by test and stopping age

Test/stopping age	Cost ($)	Life expectancy (yrs)	Incremental cost-effectiveness ratio
Colonoscopy / age 60	1554	17.1651	-
Colonoscopy / age 70	1623	17.1670	$36,160
Colonoscopy / age 80	1648	17.1668	(incremental harm)
FOBT / age 76	1336	17.1485	-
FOBT / age 78	1346	17.1488	$44,170
FOBT / age 80	1355	17.1489	$87,090
FOBT / age 82	1363	17.1489	28,000

COST-UTILITY OF COMMUNITY-BASED PATIENT ASSISTANCE PROGRAMS IN EARLY BREAST CANCER A. Stey[1]; K. Fei[1]; J. Weidmann[1]; A. Mendelson[1]; N.A. Bickell[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 203869)*

BACKGROUND: Poor, less educated and minority women with breast cancer have poorer quality of breast cancer care and worse survival. Patient needs & barriers to breast cancer care can impede their ability to obtain and complete treatment. High quality community-based patient assistance programs to help women with breast cancer abound. Few women are aware of and access these programs. It is unknown if patient assistance programs improve the quality of life of women with breast cancer. A RCT is underway to assess whether patient assistance programs improve the quality of breast cancer care and women's health status. We performed an analysis to determine the cost effectiveness of community-based patient assistance programs.

METHODS: We surveyed 89 women with new, primary early stage breast cancer patients in NYC and assessed their informational, psychosocial, and practical-access needs, their quality of life and health status (SF12). We derived Quality Adjusted Life Years (QALY) from SF12 data adjusted for baseline QALY using multiple regressions and then performed bivariate comparisons of women who did and did not attend patient assistance programs. We derived costs from the annual cost per visit of New York's Breast Health Resource Center multiplied by the hours utilized by each level of socioeconomic need using third party payer perspective. Tree-age cost-effectiveness software was used and willingness to pay was set at the USA's conventional $50,000 threshold.

RESULTS: Compared to women who did not attend community based patient assistance programs, women who sought patient assistance for 1 need (N=22), 2 needs (N=14), and 3 needs (N=26) had improved quality of life (QALY=0.68 vs 0.65 p<0.000, QALY=0.69 vs 0.66 p=.302, QALY=0.68 vs 0.632 p<0.000). Patients with no needs who attended community based patient assistance programs with no needs (N=22) actually had a loss in health status (QALY=0.66 vs 0.65 p<0.000). On average, patients with one need used 5 hours, two needs used 16 and three needs used 28 hours of community-based patient assistance. The average cost of each hour of community-based patient assistance was $73. Accordingly, treating patients with one need was $365, two needs $1148 and three needs cost $2049. The intervention, when targeted to patients with needs only, was shown to be cost-effective with an incremental cost effectiveness ration of $33,374 per quality adjusted life year.

CONCLUSION: Community based patient assistance program are a cost-effective way to improve quality of life in women with breast cancer who express ongoing needs even after accessing care. Patient assistance programs should be aimed towards breast cancer patients with needs.

CULTURAL COMPETENCY TRAINING AND PERFORMANCE REPORTS TO REDUCE RACIAL DISPARITIES IN DIABETES CARE: A RANDOMIZED CONTROLLED TRIAL T.D. Sequist[1]; G. Fitzmaurice[1]; R. Marshall[2]; S. Shaykevich[1]; A. Marston[2]; D.G. Safran[3]; J.Z. Ayanian[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Vanguard Medical Associates, Boston, MA; [3]Blue Cross Blue Shield of Massachusetts, Boston, MA. *(Tracking ID # 204129)*

BACKGROUND: Racial disparities in the quality of diabetes care are well documented. Increasing physician awareness of disparities and improving communication with patients of different backgrounds may improve diabetes outcomes among black patients.

METHODS: We conducted a randomized controlled trial of cultural competency training and performance feedback at 8 ambulatory health centers. Subjects included 122 primary care clinicians (91 physicians and 31 nurse practitioners) caring for 7,557 adults with diabetes, including 2,699 (36%) black patients and 4,858 (64%) white patients. Primary care teams consisting of physicians and nurse practitioners were randomly assigned to receive two days of cultural competency training consisting of small group facilitated discussions, community tours, and patient feedback. For the subsequent 12 months, intervention clinicians received monthly race-stratified performance reports that highlighted white-black differences in achieving clinical control of HbA1c (<7%), LDL cholesterol (<100 mg/dL), and blood pressure (<130/80 mmHg) across the 8 health centers and within their own patient panels; they also received educational materials regarding effective cross-cultural diabetes care. Clinicians were surveyed pre- and post-intervention to assess awareness of racial disparities in diabetes care, with response rates of 88% and 83%, respectively. Primary study outcomes assessed at 12 months included: 1) physician recognition of racial differences in diabetes care within their medical group, health center and patient panel; and 2) rates of achieving clinical control targets among black patients, adjusted for clustering within primary care teams. The study had greater than 80% power to detect differences as small as 7.6% between black patients in the intervention and control groups in the three measures of disease control.

RESULTS: Patients' mean age was 62 years, 49% were male, 58% had commercial insurance, and 35% were covered by Medicare. Among 60 clinicians randomized to receive the intervention, 60% attended the cultural competency training and all received the performance reports and educational materials. At baseline, significant white-black differences were evident in achieving HbA1c <7% (46% vs 40%), LDL cholesterol <100 mg/dL (55% vs 43%), and blood pressure <130/80 mmHg (32% vs 24%) (all p<0.05). Intervention clinicians were more likely than control physicians to acknowledge the presence of racial disparities in the 8 health centers as a whole (78% vs 57%, p=0.04) and also in their local health center (70% vs 51%, p=0.06), but not with reference to their own patient panel (60% vs 43%, p=0.31). Among black patients of intervention and control clinicians, no difference was noted in achieving targets for HbA1c control (48% vs 45%, p=0.36), LDL cholesterol control (48% vs 49%, p=0.68), or BP control (23% vs 25%, p=0.73).

CONCLUSION: Cultural competency training combined with race-stratified performance reports increased clinicians' awareness of racial disparities in diabetes care within the medical group, but did not improve clinical outcomes among black patients. (ClinicalTrials.gov identifier NCT00436176)

DECISION-MAKING ROLE PREFERENCES OF PATIENTS WITH HIV R.P. Kumar[1]; G. Chander[1]; T. Korthuis[2]; S. Saha[2]; V. Sharp[3]; J. Cohn[4]; R.D. Moore[1]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Oregon Health & Science University, Portland, OR; [3]Saint Lukes Roosevelt, New York, NY; [4]Wayne State University, Detroit, MI. *(Tracking ID # 204170)*

BACKGROUND: Although patients with HIV who prefer to share decisions with their providers have better health outcomes, little is known about decision-making role preferences in this population. We sought to identify patient, provider, and patient-provider relationship factors associated with the decision-making role preferences of HIV patients.
METHODS: We conducted a cross-sectional analysis of patient and provider questionnaires from the Enhancing Communication and HIV Outcomes (ECHO) Study, which explored possible racial/ethnic disparities in the interpersonal quality of HIV care at four sites (Baltimore, Detroit, New York, and Portland). Patients were asked how they prefer to be involved in the decision-making process (doctor makes all/most decisions, patients and doctors share decisions, or patients make decisions alone). We used unadjusted and adjusted multinomial logistic regression analyses, with clustering by provider, to evaluate decision-making preferences in relation to patient characteristics (self-reported race, age, gender, substance abuse, depressive symptoms, and HIV viral load), provider characteristics (self-reported race, age, and gender), and relationship characteristics (length of relationship, patient satisfaction with care, and patient ratings of communication quality).
RESULTS: Forty-five providers and 437 of their HIV-infected patients participated in the study. Participating providers had a mean age of 44.5 years (SD 8.1 years), and more than half were female (58%) and white (69%). HIV-infected individuals had a mean age of 45.4 years (SD 9.4 years), and were mostly male (66%), African American (58%), and had a high school education (72%). More than half of the patient sample had depressive symptoms with scores on the CES-D10 of ≥10 (58%). When queried about decision-making preferences, 72% of patients preferred to share decisions with their provider, 23% wanted their provider to make all or most decisions, and 5% wanted to make all decisions themselves. Compared to patients who preferred to share decisions with their provider, patients who preferred their provider make most/all decisions were less likely to be African American (OR 0.45, 95%CI 0.25–0.81), be >40 years of age (compared to those <40 years), perceive high quality communication with their provider in the realm of decision-making (OR 0.42, 95% CI 0.24–0.74), and have an African-American provider (OR 0.30, 95% CI 0.17–0.52), and were more likely to have depressive symptoms (OR 1.89, 95% CI 1.03–3.47), be very satisfied with their care (OR 1.88, 95% CI 1.09–3.24), and have an older provider (OR 1.03, 95% CI 1.00–1.06). Patients who preferred to make decisions alone were less likely to be African American than patients who preferred to share decisions (OR 0.27, 95% CI 0.09–0.77). Decision-making preferences were not related to patient substance abuse, HIV viral load, gender, or to the length of the patient-provider relationship.
CONCLUSION: Although previous studies have shown an increased preference among African Americans and older patients for providers to make decisions, our study of HIV patients found that both of these groups were more likely to prefer a shared decision-making role. By maintaining a high quality of communication related to decision-making, providers may be able to encourage patients towards a preference for shared decision-making.

DECLINING HEALTH STATUS BY YEARS IN US AMONG HISPANIC ADULTS: THE NATIONAL HEALTH INTERVIEW SURVEY 2000–2005
L.P. Pabon-Nau[1]; J.B. Meigs[1]; R.W. Grant[2]. [1]Massachusetts General Hospital, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 206061)*

BACKGROUND: The impact of acculturation on health status and healthcare access for the Hispanic population has not been fully explored. Our objectives were: 1) To describe the health related characteristics of Hispanic immigrants by years in the US. 2) To test the hypothesis that self-reported health declines with years in US, even after adjusting for age, improved economic status and healthcare access.
METHODS: The National Health Interview Survey (NHIS) is a yearly face-to-face survey of non-institutionalized civilians. NHIS uses a complex sample design involving stratification, clustering, and multi-stage sampling. We compiled NHIS data from the years 2000 to 2005 on 19,053 foreign-born Hispanic adults (ages 18–85). We performed a cross-sectional analysis of baseline characteristics using chi-square and t-tests based on how long participants had lived in the US (1–4 years, 5–9 years, 10–14 years, 15 years or greater). We then used logistic regression to evaluate the effect of years in the US on self reported health status. We adjusted for age, gender, BMI, socioeconomic status (employment, education), healthcare access (insurance, routine care, number of physician visits) and acculturation (language of interview, citizenship). We extrapolated the sample to the US civilian non-Institutionalized population using weights provided by the National Health Center for Health Statistics (NCHS). All statistical analysis was performed using SAS-callable Survey Data Analysis (SUDAAN 10).
RESULTS: Demographic characteristics of the Hispanic population varied significantly by years in US. Mean age ranged from 30.4 (SE= 0.3) for newer immigrants to 47.7 (SE=0.3, p=<0.001) for those living in the US greater than 15 years. BMI also progressively increased from 25.6 (SE=0.1) to 27.7(SE=0.1, p<0.001)). In addition, smoking increased from 23 to 31% (p=<0.001) and alcohol consumption increased from mean of 0.6 (SE=0.04) to 0.7 (0.02, p=<0.001)) drinks per week. Furthermore, 72% of immigrants less than 5 years in the US were uninsured, compared to 29% of those living in the US for more than 15years (p=<0.001). The overall rate of self-reported poor/fair health status ranged from 7% for newer immigrants and 19% for those living in the US greater than 15 years (p=<0.001) In multivariate analyses of the overall Hispanic immigrant population that controlled for age and gender differences, the odds of reporting poor/fair health status was significantly lower for those in the US 1–4 years (OR=0.61 [95% CI: 0.48, 0.77]) and those in the US 10–14 years (OR=0.80 ,[CI: 0.66, 0.96]) relative to Hispanics living in the US for greater than 15 years, adjusting for socioeconomics, healthcare access, and acculturation. Stratifying this same analysis by age quartiles showed that 38–50 year old Hispanics living in the US for 1–4 years (OR=0.51, [CI:0.32,0.82]), and those living 5–9 years (OR=0.59, [CI: 0.39,0.90]) still had lower odds of reported poor/fair health status compared to those living in the US for greater than 15 years.
CONCLUSION: Self-reported health status declined among Hispanic immigrants with increasing years living in the United States. Adjusting for age, healthcare access and socioeconomic status did not attenuate this effect. This study highlights the need to further explore the impact of acculturation on health behaviors which directly impact health status.

DE-CONSTRUCTING THE WALLS BETWEEN INJURY AND CARE: EXPERIENCES OF BLACK MALE VICTIMS OF VIOLENCE
J.M. Liebschutz[1]; S.L. Schwartz[2]; J. Hoyte[3]; T.L. James[2]; L. Conoscenti[4]; D. Harper[5]; D. Killebrew[5]; L. Muhammad[2]; A. Christian[2]; R. Bishop[2]. [1]Boston University, Boston, MA; [2]Boston Medical Center, Boston, MA; [3]Tufts University, Medford, MA; [4]Boston VA Healthcare System, Boston, MA; [5]Pyramid Builders, Boston, MA. *(Tracking ID # 204301)*

BACKGROUND: Few health care programs have been shown to meet the needs and improve outcomes of victims of gun shot and stabbings, which disproportionately affect black males in urban areas. We examined factors that promote or limit use of medical and mental health care after violent injury in urban black men.
METHODS: Black men, ages 18–35, who had medical treatment for gun shot or stabbing were recruited through fliers and word of mouth. They were interviewed individually (n=12) or in pairs (n=2) by trained interviewers using a semi-structured guide assessing injury and subsequent medical care experience. Interviews were audio-recorded and transcribed. Research team members from different disciplines (medicine, social work, psychology, patient advocacy) and ethnic backgrounds (3 white, 7 black) performed a transcript analysis to develop a coding scheme. Using Grounded Theory methods, themes found in early interviews were asked about in later interviews. All transcripts were coded by >2 authors, with discrepancies resolved by discussion.
RESULTS: Of 16 participants, 5 had been stabbed, 3 had been shot and 8 had experienced both types of violence. Themes reflecting barriers to health care included: 1) Disconnect in the immediate aftermath; for example, participants reported that they did not realize they were seriously injured ("just a scratch" "poke"), were disoriented (woke up and "did not know where I was…my insides were wide open"), or were consumed with anger ("When you first get stabbed, your mind goes blank. You don't think about anything but just revenge."). 2) Institutional mistrust (money motivates care, blurred lines between health care and police). 3) Foreshortened Future: expectations they would die young ("It's just a way of life"). 4) Desire for self-efficacy: Intention to fix mental and substance abuse issues on own, ineffectiveness of mental health care. ("I can handle this on my own.") Themes indicating facilitators of care included: 1) competency of clinicians ("you know how to do your job"). 2) Personality of clinician and efforts to get to know

patient personally. 3) Shared experience, especially race concordance, for mental health clinicians ("have to grow up in the hood"). 4) Injury or other turning points in their life such as birth of child serving as a "wake up call". 5) "Positive people": future-oriented friends and family who speak honestly and respectfully about moving forward in life.
CONCLUSION: Health care clinicians may not realize that black male patients with gun shot and stabbings may be unable to focus on the medical issues due to disassociation, disorientation and anger after injury. The basic assumptions supporting clinical care may not be shared by these patients, who may mistrust health care institutions. Competent and personable clinicians who focus on positive, future-oriented goals may help facilitate access to care.

DEFINING AN EMERGING EPIDEMIC: HCV SEROPREVALENCE IN A LARGE, TERTIARY-CARE HEALTH NETWORK IN PENNSYLVANIA
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BACKGROUND: In the United States, 1.6% of the population is infected with the hepatitis C virus (HCV), representing approximately 4–5 million individuals. Local estimates previously suggested a prevalence of 0.78% in the Lehigh Valley, far less than NHANES data would predict. Our objective is to establish a prevalence of HCV in the community served by the 986 bed tertiary-care system of Lehigh Valley Health Network (LVHN), the largest health network in Pennsylvania.
METHODS: 1000 consecutive leftover blood samples were studied: 399 inpatients and 601 outpatients (including Emergency Department). Samples were stratified by age and sex based on hospital admission statistics. Baseline demographics including age, sex, zip code of residence, and site of care (inpatient vs. outpatient) were collected. De-identified samples were analyzed for HCV via Abbott's Microparticle Enzyme ImmunoAssay (RIBA performed on those not meeting the CDC's recommended signal to cut-off ratio of 9.9 for true antibody positivity) and for human immunodeficiency virus (HIV) via ELISA with confirmatory Western blot.
RESULTS: Overall, 28 samples (2.8%) tested positive for HCV. The highest HCV prevalence was seen among those aged 45–54 years old (8.2%), representing 60.7% of all HCV-positive tests. The prevalence among those aged 35–44 years old was 3.6% [χ^2 $p<0.001$]. Men were more than twice as likely as women to be HCV-positive (OR 2.2; CI [1.03,4.81]). HCV seroprevalence was evenly distributed among inpatient and outpatient settings (χ^2 $p>0.05$) and among urban, suburban, and rural areas. Three subjects (10.7% of HCV-positive subjects), all inpatients who lived in an urban area, were co-infected with HIV.
CONCLUSION: HCV seroprevalence in LVHN far exceeds previous local estimates and is nearly twice the national prevalence. Whereas illicit drug use is commonly considered to be more prevalent in urban areas, HCV-positive subjects in this study were scattered widely among the urban, suburban, and rural areas served by LVHN. Thus, a significant number of HCV-positive individuals may be missed if local testing efforts targeted urban centers alone. Broad testing for HCV, particularly among individuals born between 1954 and 1973, would result in the diagnosis of a significant number of HCV-infected individuals and allow referral for potentially curative peginterferon alfa and ribavirin combination therapy.

DELIVERY OF PREVENTIVE SERVICES TO SOUTH ASIANS LIVING IN THE UNITED STATES: MONITORING PERFORMANCE USING A COMPOSITE MEASURE, 2001
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BACKGROUND: There is limited information on health status of South Asians, a rapidly growing population in the United States, whose country of origin include India, Pakistan, and Bangladesh. Our objective was to examine the delivery of routine clinical preventive serivces to South Asian adults in 2001 using a composite measure.
METHODS: Data collected via self-administered mail survey to a nationwide probability sample of South Asians living in the United States. The composite measure includes screening for colorectal cancer, cervical cancer, breast cancer, high blood pressure, elevated lipids, and vaccinations against influenza, pneumococccus, and tetanus. The composite measure quantifies the percentage of adults who are up-to-date with the complete set of recommended schedules. Sample size was 480.
RESULTS: South Asians living in the United States belong to a high socioeconomic strata, with 83% receiving a bachelor's degree or higher, 47% having a household income greater than $80,000, and 90% having health insurance. One-fourth of the sample were up-to-date with their recommended preventive services. The percentage of men and women who were up-to-date on all selected measures was 26.1% and 24.9%, respectively. 22% of the sample received more than the recommended services; 17.3% men and 30.1% women. More than half the sample were not up-to-date with their preventive health services. In multivariate analysis, results varied by age, insurance status, and having a regular source of care.
CONCLUSION: Despite the high socioeconomic status, the majority of South Asians living in the United States are not receiving the appropriate amount of preventive health services. These results agree with prior work addressing quality of care delivery to adults in the U.S.

DEMENTIA, GOALS OF CARE, AND SURROGATE DECISION MAKING TOWARD THE END OF LIFE
L.C. Kaldjian[1]; L.A. Shinkunas[1]; M.E. Bern-Klug[1]; S.K. Schultz[1]. [1]University of Iowa, Iowa City, IA. *(Tracking ID # 205157)*

BACKGROUND: Communication between physicians and patients' families is pivotal in the care of persons with dementia, especially toward the end of life, and the challenges of communication call for efforts to assist surrogates in shared decision making. Discussing goals of care may help surrogates in the context. The objective of this study was to better understand the goals and treatments surrogates are willing to authorize and to investigate their underlying beliefs and values.
METHODS: We conducted in-depth, guided interviews (by phone and in person) of 21 surrogates of patients with dementia who lacked decision making capacity. Patients/surrogates were recruited through the outpatient and inpatient services of an academic medical center in the Midwest.
RESULTS: Patients had a mean Katz ADL score of 8 (range, 1–12) and 52% lived in a nursing home. Surrogates were mainly adult children (76%) or spouses (19%) of patients, had a mean age of 60 years, were predominantly women (71%), and frequently had power of attorney for healthcare (81%). Surrogates' responses regarding goals, treatments, beliefs, and values are shown in the Table.
CONCLUSION: These preliminary data suggest considerable variability among surrogates of persons with dementia regarding the goals of care and treatments they are willing to support and the beliefs and values that may influence their decisions. Further investigation of goals of care in this setting appears warranted.

Data from 21 Surrogate Decision Makers

	% who agreed
Surrogates' assessments of goals of care for their loved one:	
It is important to cure physical problems.	33
It is important to help prolong life.	55
It is important to maintain the current level of mental health.	71
It is important to maintain the current level of physical health.	76
It is important to maintain physical and emotional comfort.	100
Surrogates' willingness to authorize life-sustaining medical treatments:	
Willing to authorize intravenous fluids	95
Willing to authorize antibiotics	95
Willing to authorize cardiopulmonary resuscitation	24
Willing to authorize a feeding tube	19
Surrogates' assessment of the impact of dementia on their loved one:	
Dementia has reduced other people's respect for my loved one.	43
Dementia has reduced my loved one's value as a human being.	52
Dementia has reduced my loved one's dignity.	52

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My loved one's life is still a life worth living.	67
Role of surrogates' religious or spiritual beliefs:	
My beliefs influence my decisions about my loved one's medical care.	29
My beliefs influence whether I think my loved one's life is a life worth living.	43
My beliefs influence the way I think about my loved one's dignity.	62
My beliefs influence how or why I care for my loved one.	71

DETECTION OF DIAGNOSTIC ERRORS USING ELECTRONIC HEALTH RECORDS H. Singh[1]; T. Davis[1]; M.M. Khan[1]; E.J. Thomas[2]. [1]Houston Center for Quality of Care and Utilization Studies, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]University of Texas Health Science Center at Houston, Houston, TX. *(Tracking ID # 204474)*

BACKGROUND: Despite their frequency, severity, and cost, ambulatory diagnostic errors are an understudied area of patient safety research and often difficult to recognize. To identify diagnostic errors, we previously developed and tested a computerized trigger, a signal alerting providers to review the medical record to determine if an actual or potential patient safety event occurred. In this study we attempted to improve the positive predictive value (PPV) of this trigger and tested its generalizability beyond trainee clinics.
METHODS: Our original trigger consisted of identifying a primary care visit (index visit) followed by a hospitalization within 10 days (PPV= 16.1% for diagnostic error at the index visit). Based upon our previous findings, we increased this time period to 14 days and tested methods to electronically exclude false positive generators (e.g. planned admissions for unrelated elective procedures). False positives previously accounted for as high as 34% of triggered charts. To test generalizability, we applied the updated trigger (i.e. index visit followed by unplanned hospitalization within 14 days) to primary care visits to all types of providers including attending physicians, allied health providers and trainees. Using a Structured Query Language (SQL) based program, we applied the new trigger to electronic health records of a large VA facility to identify visits meeting our criteria between 10/01/06 and 03/31/07. We then briefly reviewed all identified records to confirm inclusion. Index visits where no clinical notes were documented (such as when patients left without being seen by provider) were excluded from detailed review. Eligible records were randomly assigned to trained reviewers, who used a structured data collection instrument designed for diagnostic error identification. Reviewers were chief or senior residents from outside institutions and were blinded to the goals of the study and the presence or absence of triggers. Each record was initially reviewed by two independent reviewers; in cases of disagreement a third reviewer evaluated the record.
RESULTS: We applied the trigger to 70,980 primary care visits in the study period yielding 257 records (0.36%). We manually excluded 24 false positive records giving a rate of 9.3% for false positives for the new trigger. From the remaining 233 records, we then randomly selected and reviewed 178 records for the presence or absence of diagnostic error. In 70 cases, a third review was used to settle disagreement. In 52 cases, two reviewers agreed on the presence of diagnostic error giving an initial PPV of 29.2%. However, when we accounted for a 9.3% manual exclusion rate, we estimated the PPV of the electronic trigger itself to be 26.6%. When compared to our previous work, this represented an increase by 10.5% in PPV (p-value<.0001) of the electronic trigger and a decrease by 24.7% in false positive triggers (p-value<.0001).
CONCLUSION: Computerized trigger methods hold a greater potential to detect diagnostic errors in primary care systems using integrated electronic health records than previously determined. Improving the signal to noise ratio by reducing false positive triggers appears to be an easily feasible and useful strategy to improve the PPV of such triggers.

DETERMINANTS AND BREADTH OF CHRONIC KIDNEY DISEASE EDUCATION DELIVERED BY PRIMARY CARE PHYSICIANS TO HYPERTENSIVE PATIENTS R. Charles[1]; L.A. Cooper[1]; N.R. Powe[1]; L. Boulware[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205633)*

BACKGROUND: High quality education to improve patients' understanding about chronic illness has been shown to improve clinical outcomes. However, the prevalence, determinants, and characteristics of primary care physician (PCP)-delivered education about chronic kidney disease (CKD) for patients at high risk for CKD have not been evaluated.
METHODS: As part of a randomized control trial for management of hypertension in 15 Maryland practices, we used audio-taped encounters between hypertensive patients and their PCPs to identify CKD discussions. We transcribed and categorized discussion content related to CKD into themes and assessed discussions' intensiveness [not=1–2 sentences versus more=>2 sentences] and breadth [PCPs' assessment of patients' educational needs (prior knowledge of CKD), understanding of new concepts related to CKD (PCP requested patient repeat the information or invited patient questions), and inclusion of unclarified medical jargon. We used multivariable analysis clustered by physicians to identify independent predictors of CKD discussions adjusting for patient, physician, and visit characteristics.
RESULTS: Many of the 236 hypertensive patients (mean age 59 years) were African American (60%), female (66%), and had no college education (73%), 44% had diabetes, 42% had 3 or more co-morbid conditions and 18% (of the 113 patients with blood and urine studies) had CKD (glomerular filtration rate <60 ml/min/1.73 m2 or presence of microalbuminuria). More than half of the 40 PCPs were in practice for less than 10 years (51%). The median (Interquartile Range (IQR)) visit length was 14.7 (10.9 to 20) minutes. Among 236 patient-physician encounters, 26% had CKD discussions, which was lower than discussions related to diabetes (60%) or hypertension (72%). The discussion content focused on laboratory assessment (23%), treatment/prevention (7%), risks/causes (6%), or complications of CKD (0.4%). CKD discussions were more common during visits of patients with versus without CKD (48% versus 24%, p=0.03). Most discussions were not intensive (67%, n=41) and neither the intensiveness nor the number of CKD content topics discussed during a single visit varied by patients' presence of CKD. Almost a quarter (21%) of visits contained unclarified medical jargon. Moreover, none of the visits with CKD discussions included assessment of patients' educational needs and only 2% included assessment of patients' understanding of new concepts. After adjustment, CKD discussions were less common among patients having some (versus no) college education [OR (95%CI): 0.2 (0.07–0.4)] or three or more (versus less) co-morbidities [OR (95%CI): 0.4 (0.2–0.8)]. CKD discussions were more common with physicians practicing less (versus more) than 10 years [OR (95%CI): 2.2 (1.0–4.5)], when visits lasted at least 15 (versus less) minutes [OR (95%CI): 4.8 (2.1–11.1)], and when diabetes was (versus was not) discussed [OR (95%CI): 3.3 (1.3–8.0)].
CONCLUSION: The prevalence of PCP-delivered CKD education among high risk patients was low. Most PCP-delivered CKD education occurred during longer visits, with patients with little co-morbidity, and by PCPs closer to their training years. However, the education was neither intensive nor complete in regard to assessment of patients' educational needs and understanding of new concepts. Studies identifying barriers to PCP delivery of high quality CKD patient education are needed.

DIABETES SELF-CARE AND QUALITY OF CARE INDICATORS FROM A NATIONAL SAMPLE OF VETERANS AND NON-VETERANS C.P. Lynch[1]; L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205690)*

BACKGROUND: As one of the leading causes of death and disability, diabetes has become a priority condition under which provider performance is assessed with an increasing number of studies focused on disease self-management and adherence to help improve adverse cardiovascular outcomes (myocardial infarction, stroke, and peripheral vascular disease). The Veterans Hospital Administration (VA), which serves a population with a greater burden of diabetes thus higher risk for poor outcomes, has undergone organizational changes with evidence of improved processes of care. However, there is a paucity of data from single sources demonstrating how process measures for quality of care differ between veteran and non-veteran populations so we examined differences in multiple diabetes self-care and quality of care indicators by veteran status in a large population-based sample.
METHODS: Data from 264,684 individuals sampled from the 2003 Behavioral Risk Factor Surveillance Survey were analyzed. Indicators of quality included (1) self-care behaviors (eating ≥5 servings of fruits and vegetables daily, meeting physical activity (PA) recommendations,

checking their feet for sores or irritations, testing blood sugars at least once daily) and (2) health provider actions done in the past 12 months (≥2 office visits, ≥2 glycosylated hemoglobin checks, ≥1 foot exams, ≥1 dilated eye exams, daily aspirin use, having flu shot or pneumonia vaccine). In unadjusted analyses, these diabetes quality indicators were compared between veterans and non-veterans. Multiple logistic regression was used to determine the independent effect of veteran status on likelihood of meeting guidelines for each quality indicator controlling for age, sex, race/ethnicity, education, income, health insurance, and attendance of diabetes education classes. STATA version 10 was used for statistical analysis to account for the complex survey design and to yield population estimates.

RESULTS: Overall, diabetes prevalence was approximately 7.5%; 14.2% were veterans. Of those with diabetes (n=21,111), veterans comprised 23.4% and were significantly older than non-veterans (55% versus 32%, respectively). Rates of having insurance and access to health care providers were high in both groups. Diabetes education was lower among veterans (44.5%) than non-veterans (50.2%). Using non-veterans as the reference group, adjusted analyses for self-care behaviors only showed veterans were significantly more likely to check their feet, OR 1.34 (95% CI 1.09–1.64). Quality of care indicators by providers showed veterans were 34% higher likelihood of getting dilated eye exams (OR 1.34, 95% CI 1.10–1.64), 28% higher likelihood of daily aspirin use (OR 1.28, 95% CI 1.03–1.60) as well as having a flu shot (OR 1.28, 95% CI 1.07–1.54), and 36% higher likelihood of having received pneumonia vaccine (OR 1.36, 95% CI 1.12–1.65).

CONCLUSION: Veterans have higher rates of diabetes but better quality of care than the general population despite no significant differences in access to care. However, these measures also advocate for more diabetes and diet education among veterans. Though diabetic veterans likely receive a higher quality of care, their self-management behaviors may be lacking. These results can inform health professionals about where further improvements can be made in exceeding national standards for diabetes practice management.

DIABETICS WITH PERIPHERAL ARTERIAL DISEASE ARE SUBOPTIMALLY MANAGED K. Gujral[1]; N. La[1]; S. Lunos[1]; T.C. Collins[1]. [1]University of Minnesota, Minneapolis, MN. *(Tracking ID # 205237)*

BACKGROUND: Coronary artery disease (CAD) and peripheral arterial disease (PAD) share the same atherosclerotic risk factors. Persons with PAD are at increased risk for systemic ischemic events including myocardial infarction and stroke. Prior work suggests that patients with PAD are less likely to receive optimal medical management when compared to patients with CAD. Given that diabetes mellitus is a CAD equivalent disease, we sought to determine if the presence of diabetes mellitus would improve risk factor management in persons with PAD only as compared to those with CAD and PAD. We also compared PAD leg symptom subtypes (i.e., classic claudication versus atypical leg symptoms) between the two groups.

METHODS: We conducted a cross-sectional study using baseline data from community-dwelling persons with diabetes mellitus and PAD who were enrolled in a walking intervention trial. The diagnosis of diabetes mellitus and CAD were based on self-report. The diagnosis of PAD was based on the ankle-brachial index (ABI; ratio of the systolic blood pressure in the ankle to that in the arm <0.9. We compared levels of risk factor to that of national guidelines.

RESULTS: We enrolled 108 persons with co-existing diabetes mellitus and PAD. The mean age of the cohort was 67 years (SD±10.5). Of the 108 persons, enrolled, 67 (62%) were found to have PAD only, while 41 (38%) were found to have both PAD and CAD. As compared to 29(70%) of persons with CAD and PAD, 33 (49.3%) of persons in the PAD alone group had completed prior screening for PAD (p<0.05). Uncontrolled hypertension was found in 48(71.6%) in the PAD alone group vs. 19 (50%) in the CAD and PAD group, (p<0.05). Sub-optimal LDL levels were present in 37 (54%) of the PAD only group vs.14 (35%) of the CAD and PAD group (p=0.07). Statins were prescribed for 42 (72%) of persons in the PAD alone group vs. 28(82%) of persons in the CAD and PAD group, (p>0.05). Regarding leg symptom subtypes, only 35 (52.2%) in the PAD alone group presented with classic claudication as compared to 30(73.2%) in the CAD and PAD group, p<0.05.

CONCLUSION: In a cohort of persons with diabetes mellitus and PAD, the additional diagnosis of CAD is associated with prior screening for PAD and more optimal control of hypertension. We note that classic claudication was more prevalent in persons with both CAD and PAD versus PAD alone. The higher prevalence of classic leg symptoms may provide clinicians with a reminder to optimize medical management including aggressive control of traditional atherosclerotic risk factors. More work is needed to determine those processes of care that would improve risk factor management in persons with PAD alone.

DIAGNOSTIC EFFICACY OF TAGGED WHITE BLOOD CELL SCANS IN THE WORK-UP OF OCCULT INFECTION J.G. Dastidar[1]; P. Malani[1]; S.K. Cinti[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205864)*

BACKGROUND: Tagged white blood cell scans (TWBCS) are often used as a diagnostic study when searching for an occult infection after most other studies have been performed. These studies are not inexpensive, averaging near $400 per study at our institution. Little is known about how often these scans yield new information that was not known from previous studies, or information that affects management.

METHODS: We looked at every adult patient who underwent a TWBCS for the two years between August 2004-August 2006, resulting in 498 scans. We excluded all patients who underwent the scan for follow-up of known tumor (239 patients) as well as those who underwent the scan to look for a specific infection e.g. post-op wound infections or osteomyelitis (189 patients). This left 70 TWBCS, of which one was excluded as no patient data was available, and one patient underwent two TWBCS. We then looked at specific parameters of the 68 cases analyzed, including presence of fever, leukocytosis, and bloodstream infections (BSI), to assess whether any of these were useful predictors of cases in which TWBCS could yield further diagnostic information.

RESULTS: The mean age of patients analyzed was 54.1 yr +/- 17.7 yr with 38 (59.4%) males. 40 scans were specifically ordered by infectious disease physicians, others from a variety of sources. Patients had a wide range of issues prompting scan and the TWBCS was generally done after other tests had been completed. Fever was present for 35 cases (51.5% of scans), with range of days of fever from 1–120 (median was 7 days), leukocytosis was present in 46 cases (67.6%), and persistent BSI was present in 36 cases (52.2%). The TWBCS changed the outcome in only 16 cases (23.5%). In the 16 patients where the TWBCS made a different in clinical management, 11 were those with BSIs. Among the 16 cases where the result changed the management, 4 were normal and 12 were abnormal. Staph aureus was the most important pathogen in those with persistent bloodstream infection with 15 cases (14 MRSA and 1 MSSA). 41 of 68 (60.3%) scans were actually abnormal, and the remainder were normal. Comparing odds of being abnormal in setting Staph aureus bacteremia compared to all other cases OR=5.8 (CI 1.2–28.3), p=0.03. Among these 15 cases, 13 scans abnormal (86.7%). However, among these 13 abnormal scans, the TWBCS only changed management in 4 patients.

CONCLUSION: The TWBCS is a nuclear medicine study that is often ordered in the work-up of occult infection. Our data indicate that this study is of highest diagnostic yield in cases where patients had persistent bloodstream infections, particularly those with persistent Staph aureus bacteremia. The TWBCS may be helpful in evaluating specifically for prosthetic vascular graft infections. They may also be a reasonable alternative in those with impaired renal function limiting the use the contrast-enhanced CT scans.

DIFFERENCES IN HOSPITAL CHOICES FOR BLACK AND WHITE PATIENTS WITH ACUTE MYOCARDIAL INFARCTION I. Popescu[1]; M.S. Vaughan Sarrazin[1]; P. Cram[1]. [1]University of Iowa, Iowa City, IA. *(Tracking ID # 205501)*

BACKGROUND: Recent studies have found that racial disparities in the management of acute myocardial infarction (AMI) are partly due to differences in hospitals where black and white patients seek care. However, the causes of these differences are less clear. Our main objective was to examine the relationship between hospital choices for black and white patients with AMI, and travel distance and other hospital characteristics.

METHODS: We used 2002–2005 Medicare Provider Analysis and Review (MedPAR) Part A data to identify all black and white patients treated for AMI at 1198 hospitals in 42 hospital referral regions (HRRs) (302,184 patients) that admitted at least 500 black patients during the study period. We used hierarchical models that adjusted for patient demo-

graphics and comorbidity, and included hospital random effects, to estimate predicted and expected 30-day mortality for each patient. The ratio of predicted-to-expected mortality was aggregated for each hospital and used as a measure of hospital quality; hospitals with mortality in the top 20% of all hospitals were categorized as high-mortality and the lowest 20% as low-mortality. Hospitals were categorized as having revascularization programs or not based upon MedPAR revascularization volumes. We also calculated distance from each patient's home to all locally available hospitals using zip code based centroids. We used McFadden's conditional multinomial logit model to examine whether hospital choice differed for black and white patients while adjusting for travel distance and hospital characteristics. Analyses were performed on all patients and on a subset of patients matched by zip code of residence (N=54370).
RESULTS: In unadjusted analyses, black patients were more likely to reside in lower income zip code areas (mean income $34,086 vs. $45,230, p<.001), and lived closer (p<.001) to hospitals with revascularization (mean distance 9 vs. 11 miles) and to low-mortality hospitals (mean distance 18 vs. 23 miles). In adjusted analyses using conditional logit models, as compared to white AMI patients, black AMI patients were less likely (p<.001) to be admitted to the closest available hospitals (OR 0.62, 95%CI 0.59–0.65), to hospitals providing coronary revascularization (OR 0.61, 95%CI 0.58–0.64), and to low-mortality hospitals (OR 0.85, 95%CI 0.82–0.88), but more likely (p>.001) to be admitted to high-mortality hospitals (OR 1.12, 95%CI 1.08–1.16). In the matched subset of blacks and whites living in the same zip code, blacks with AMI were still less likely to be admitted to the closest hospital (OR 0.92 95%CI 0.86–0.98, p=.002), to hospitals with revascularization (OR 0.76, 95%CI 0.71–0.81, p<.001), and to low-mortality hospitals (OR 0.89, 95%CI 0.84–0.94, p<.001), but differences were less marked.
CONCLUSION: Black patients with AMI were significantly less likely to be admitted to the nearest hospitals, to hospitals with revascularization programs, and to hospitals with superior outcomes. Given that prompt guideline-concordant treatment is the cornerstone of AMI management, efforts to improve AMI care for minorities should focus identifying the causes of racial differences in hospital choice.

DIFFERENCES IN HOUSESTAFF SERVICE PATIENTS' AND PROVIDERS' PERSPECTIVES OF HOSPITAL CARE D.M. Windish[1]; D.P. Olson[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 204927)*

BACKGROUND: Studies have shown that patients have poor comprehension about many aspects of their hospital care including their diagnosis, treatment and provider names. It is unclear if there is agreement between patients and physicians regarding many elements of hospitalization. We sought to assess housestaff patient knowledge and perspectives about several aspects of inpatient care and correlate this with their providers'assessments.
METHODS: We used two validated Likert-style instruments, the Picker Patient Experience Survey and CAHPS questionnaire, to assess housestaff patients' experiences in a teaching hospital. Responses were recorded as never, sometimes, usually or always. All cognitively-sound, adult patients on the internal medicine teaching service were asked to participate in the study on the day of discharge. Using similar questionnaires, we also surveyed corresponding residents, interns, and attending physicians regarding their patients' perspectives and the understanding of the care they provided to these patients. Comparisons were made using the Wilcoxon signed rank test and chi-square analyses.
RESULTS: A total of 48 patients and 17 providers were interviewed in 2008. Patients had a mean age of 59.7 years [range 21–95] and 42% were male. The mean provider age was 35.1 years [range 25–60]. The average patient length of stay was 4.9 days [range 2–25 days]. Patients reported that they had a mean of 5.1 doctors caring for them during their hospitalization. While 76% of patients felt there was one main doctor, only 20.8% could state the name of that doctor correctly. Two-thirds of providers felt patients knew who they were by name. However, only 14.2%, 6.8% and 18.2% of patients knew the name of the attending, resident and intern, respectively [all p<0.001] while 42.9% to 54.6% of patients recognized their providers' faces by picture. Seventy percent of providers felt patients knew their diagnosis, but only 41.3% of patients did [p=0.04]. Thirty percent of providers and 58.3% of patients responded that their doctors always explain things in a way patients can completely understand [p<0.0001]. Patients were less likely to feel that they wanted to be more involved in decisions about care (37.5%) vs. 94.1% of providers stating patients would [p< 0.0001]. Patients were more likely than providers to feel that their pain was always well controlled (41.4% vs. 17.7%, [p=0.0008]). Sixty-five percent of patients stated they received a medication in the hospital they had never received before, and 90% felt they were always or usually told why. Conversely, 90% of patients stated they were never told of any side effects of these new medications, in contrast to 82.3% of physicians who stated they at least sometimes tell patients about side effects [p< 0.0001]. 100% of providers stated they at least sometimes discussed their patients' fears and anxieties compared to 50% of patients who said their doctors did this [p<0.0001]. 95% of patients felt that they were treated by doctors with courtesy and respect while in the hospital.
CONCLUSION: There are significant differences between patients' and providers' impressions about patient knowledge and care received in the hospital. Steps to improve patient-provider communication and remedy these differences should be identified and implemented.

DIFFERENCES IN PERSPECTIVES ON DIET AND EXERCISE BETWEEN MEXICAN AMERICAN AND AFRICAN AMERICAN LOW-INCOME PATIENTS WITH DIABETES E.B. Lynch[1]; A. Fernandez[2]; E. Mendenhall[3]; E. Jacobs[4]. [1]Rush University Medical Center, Chicago, IL; [2]University of California, San Francisco, San Francisco, CA; [3]Northwestern University, Chicago, IL; [4]Stroger Hospital of Cook County & Rush University Medical Center, Chicago, IL. *(Tracking ID # 205383)*

BACKGROUND: Interventions to reduce the disproportionate impact of diabetes in African American and Mexican American communities are needed. These communities are often served in the same health care settings and interventions are often developed aimed at both groups, with no cultural specificity. We used focus groups to examine if African American and Mexican American patients with diabetes have similar or different views of the role of diet and exercise in diabetes self-management.
METHODS: We conducted 14 focus groups with a total of 91 participants recruited from safety net institutions in Chicago and San Francisco: 5 with African Americans (n=38), 4 with Spanish-speaking Mexicans (n= 32), and 3 with English-speaking Mexicans (n=21). The discussions were moderated by culturally and linguistically matched moderators using a semi-structured interview guide, probing participants perspectives on their etiologic beliefs about diabetes, barriers to caring for their diabetes, and diabetes self-management. Focus groups were audio taped, transcribed, and coded for themes by two coders. Inter-rater reliability was high (kappa=0.96). We focused this analysis on discussions of the role of diet and exercise in the management diabetes. Two of the authors (EL & EJ) identified prominent themes in the Mexican groups and the African American groups.
RESULTS: Themes were similar across the English and Spanish-speaking Mexican groups and so are discussed together. Notions of exercise varied between the Mexican and African American groups. Mexicans were more likely to discuss engaging in intentional exercise of long duration (e.g. walking 30–60 minutes per day), while African-Americans were more likely to discuss exercise as regular activities of daily living (e.g. walking upstairs). A number of Mexicans, but no African-Americans, mentioned that lack of exercise was a cause of diabetes and/ or discussed the bad health consequences resulting from lack of exercise. One Mexican participant mentioned that medicines from the doctor wouldn't work without exercise. By contrast, exercise was mentioned in African American groups as important in self-management but not elaborated upon. The most prevalent dietary behavior mentioned across both African American and Mexican groups was decreasing starches. Additional dietary actions to help control diabetes were mentioned by Mexican participants but not African-American participants. Eating more fruits and vegetables, balanced meals, and smaller portions of food to help control diabetes was an important theme in the Mexican focus groups but not in the African-American focus groups.
CONCLUSION: Low-income African Americans and Mexican Americans with diabetes have important differences in their perspectives on exercise and diet in diabetes self-management. These differences should inform interventions aimed at low-income populations with diabetes.

DIFFERENCES IN THERAPY INTENSIFICATION FOR GLYCEMIC AND LIPID CONTROL IN DIABETIC PATIENTS WITH AND WITHOUT LIMITED LIFE EXPECTANCY L. Woodard[1]; T. Urech[1]; C. Robinson[1]; M. Kuebeler[1]; L.A. Petersen[1]. [1]HSR&D Center of Excellence, Houston, TX. *(Tracking ID # 205587)*

BACKGROUND: Avoiding inappropriate treatment of chronically ill patients with limited life expectancy (LLE) is an important consideration for pay-for-performance and quality improvement programs. We examined glycemic and lipid control, and compared therapy intensification between diabetic patients with and without LLE.
METHODS: We identified a national cohort of patients with diabetes who received care in the Veterans Health Administration (VA) during fiscal year (FY) 2007 using diagnosis codes, glucose readings, or prescription of diabetes medications in VA administrative data sources. We then identified a subset of diabetic patients that met at least one LLE indicator. We conducted a literature review and convened an expert panel to define condition-specific algorithms to identify seriously ill patients with congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), dementia, end-stage liver disease (ESLD), and primary/metastatic cancers. We compared diabetes quality of care for glycemic and lipid control at index [Hemoglobin (Hb) A1c <7%, low-density lipoprotein (LDL) <100 mg/dL] and therapy intensification for uncontrolled readings within eight weeks of the index reading. Therapy intensification included initiating a new medication, adding a medication to the patient's existing regimen, or increasing the dosage of a current medication.
RESULTS: Twenty percent of the FY 2007 VA patient population had diabetes. 50,366 (5.9%) of diabetic patients had at least one LLE indicator. Of these, 91.6% had only one life-limiting condition, with COPD being the most prevalent condition among the subset (49.0%). LLE patients were more likely to have an LDL measurement compared to patients with no LLE (94.0% vs. 91.0%; p<0.001) but less likely to have an HbA1c result (92.4% vs. 93.3%; p<0.001). Compared to diabetic patients without LLE, LLE patients were more likely to have HbA1c and LDL levels controlled at index (51.4% vs. 46.9%; p<0.001; 54.4% vs. 51.3%; p<0.001). Although LLE patients had more primary care encounters within six months following their index date (2.6 vs 1.8 visits; p<0.001), they were less likely to receive treatment in response to elevated HbA1c or LDL levels (31.6% vs. 36.9%; p<0.001; 27.3% vs. 32.1%; p<0.001). Specifically, patients with LLE were less likely to be started on a new medication or have a medication added to their existing regimen for glycemic control and lipid management (70.6% vs. 72.4%; p<0.001; 62.7% vs. 67.6%; p<0.001). Our findings were similar when we assessed glycemic control using a threshold of HbA1c≤9%.
CONCLUSION: Contrary to our hypothesis, LLE patients were more likely than those without LLE to have HbA1c and LDL levels controlled at index. However, they were less likely to receive therapy intensification for elevated levels, which likely reflects appropriate care in the setting of a life-limiting condition. Providers appear to be appropriately less aggressive in treating patients with LLE. Further research is needed to determine if these findings persist across other measures of chronic illness care.

DIGITAL DIVIDE OR URBAN LEGEND? USE OF INFORMATION TECHNOLOGY BY INNER-CITY WOMEN. L. Samal[1]; E.S. Brandon[2]; H.E. Hutton[1]; E.J. Erbelding[1]; J. Finkelstein[1]; G. Chander[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Hamilton College, Clinton, NY. *(Tracking ID # 204539)*

BACKGROUND: Behavioral interventions delivered via information technology (IT) have shown promising results, but access to IT is unknown amongst inner-city women. We hypothesized a low rate of IT use by women seeking care at a Sexually Transmitted Disease (STD) Clinic and a significant negative association within this sample between substance abuse and internet use.
METHODS: This was a cross-sectional survey of 200 English-speaking women presenting to a Baltimore City STD Clinic. Participants completed a self-administered survey querying IT use, substance abuse, and demographic characteristics. IT use was assessed with the following three questions: 1) "How often do you use the internet? Never, Once per month, <1 day per week, 1–6 days per week, Daily;" 2) "Do you use a cell phone? Yes or No;" and 3) "Do you send or receive text messages? Yes or No." Substance abuse was defined as either cocaine use or heroin use in the past month. Education responses were categorized as grades 6–12, GED/high school diploma, or some college/college diploma, and age responses were divided into quintiles. We performed a statistical analysis using multivariate logistic regression to assess the association of substance abuse with internet use after controlling for education level, age quintile, and race.
RESULTS: Respondents were young (mean age=30 years, range 18–62), predominantly African American (88%), and equally distributed across education levels. Seven percent reported substance abuse. Almost all respondents (93%) reported cell phone use. A sizable majority (78%) sent or received text messages. The rate of any internet use was 80%; 31% reported daily use, 16% reported weekly use, and 32% reported less frequent use. Of 39 respondents who reported never using the internet, 79% used a cell phone and 44% sent or receive text messages. In a multivariate logistic regression controlling for education level, age quintile, and race, substance abuse was not significantly associated with internet use (OR 0.63, 95%CI 0.16–2.41, p-value 0.50). Furthermore, younger age quintile and higher education level were positively associated with internet use.
CONCLUSION: Many women use the internet, but less than a third use it on a daily basis. A large majority of women, including internet users and nonusers, use cell phones. As cell phone use is almost universal in this sample, cell phones may be a more promising vehicle than the internet for IT-based delivery of risk reduction and health promotion messages in this population.

DIMINISHING RETURNS: MORE BLOOD PRESSURE MEDICATIONS INCREASE CHANCES OF RUNNING OUT OF MEDICINE M.M. Safford[1]; N.J. Petersen[2]; E. Funkhouser[1]; B.S. Agee[3]; T.K. Houston[3]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]Houston Center for Quality of Care and Utilization Studies, Houston, TX; [3]Birmingham VA Medical Center, Birmingham, AL. *(Tracking ID # 205055)*

BACKGROUND: To reduce unwanted diabetes outcomes, increasing attention is being focused on medication intensification, especially for blood pressure (BP). However, appropriate medication intensification is difficult when patients have not taken their medication prior to a visit. Among VA diabetes patients, a widely used pharmacy-based measure of adherence, the medication possession ratio, is reportedly over 80%, it is unclear how often such patients run out of BP medications leading up to a visit. We report the frequency of this problem, and signals which could alert physicians to it.
METHODS: We studied diabetes patients at a VA facility from 2000–5 on at least one BP medication, and with at least 2 primary care visits with BP >140/90. The second visit was defined as the index visit. We examined whether gaps of 3 or more days ("gaps") leading up to the index visit occurred in any BP medication. Logistic regression models examined associations between gaps and sociodemographic characteristics, the number of classes of BP medication, the BP value and the year of the index visit; among those with gaps, linear regression models examined associations with the number of total gap days.
RESULTS: Of the 5266 patients with 2 visits with uncontrolled BP, 1463 (27.7%) experienced a gap of at least one BP medication leading up the the index visit (see Table). Individuals on more classes of BP medications and with higher diastolic BP were more likely to have gaps. Odds of a gap did not differ by sociodemographics, marital status, visit year, or systolic BP level. Among patients with a gap, the mean gap was large, and likely to be larger for those on more classes.
CONCLUSION: Medication gaps leading up to visits are a very common barrier to appropriate intensification of BP medications. Physicians should evaluate and address refill problems at every visit, especially for those on multiple classes, and health systems may consider targeting patients on multiple BP medications for special assistance with refills.

Table. Medication gaps leading up to an office visit among diabetes patients with at least 2 visits with BP>140/90, by number of classes of BP medication.

	Among All 5266 Patients			Among 1463 Patients with a Gap	
Number of Classes	N	% with a Gap	Predicted Probability* of a Gap (95% CI)	Mean Number of Gap Days (±SD)	Predicted Increase in Mean Gap Days** (p)
1	1558	18%	15% (12, 18)	42 (±26)	ref
2	1764	26%	23% (20, 27)	44 (±34)	2 (0.49)
3	1206	33%	30% (24, 36)	51 (±42)	10 (<.01)
4 or more	738	44%	40% (35, 45)	51 (±41)	10 (<.01)

*Variables in prediction model: Number of classes, age, sex, race, marital status, BP, year of visit. **Parameter estimates from linear regression model with p for difference compared to 1 class.

DISCHARGES AGAINST MEDICAL ADVICE ARE ASSOCIATED WITH READMISSION AND ALL-CAUSE MORTALITY W. Southern[1]; E. Bellin[2]; J. Arnsten[2]. [1]Society of General Internal Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205467)*

BACKGROUND: Approximately 3 million patients are discharged from hospitals against medical advice (AMA) each year. Being discharged AMA may be associated with increased risk for readmission and mortality.
METHODS: We extracted data on all admissions to the medical service of a single large urban medical center from 7/1/2002 through 4/30/2008. Admissions were classified as either discharged AMA or discharged home with physician consent, based on an administrative disposition code. Admissions discharged to another facility or requiring home care services were excluded. We merged the data with the Social Security Death Registry to allow assessment of mortality events occurring outside our institution. Because many patients had more than one admission during the study period, we performed all analyses using methods that were robust to clusters of admissions within patients. We first compared characteristics of patients discharged AMA vs. discharged with physician consent using t-tests, chi-squared and Wilcoxon rank-sum tests, then analyzed readmission and mortality events using Kaplan-Meier and log-rank tests. Finally, we constructed Cox-proportional hazards models to assess independent associations between being discharged AMA and both readmission and mortality rates.
RESULTS: There were 151,717 admissions during the study period, with 3,544 admissions discharged AMA and 80,536 admissions discharged with physician consent. Admissions discharged to another facility (n=33,267), requiring home care (n=26,178), and who expired in the hospital (n=5,285) were excluded. Compared to admissions discharged with physician consent, admissions discharged AMA were younger (mean 48.7 years vs. 58.2 years, p<0.001), more likely to be male (62.8% vs. 43.1%, p<0.001) and had more co-morbidities (mean Charlson score 2.27 vs. 1.77, p<0.001). Admissions discharged AMA were also more likely to be readmitted within 30 days (24.7% vs. 11.3%, p<0.001) and had higher 30-day mortality risk (1.27% vs. 0.67%, p< 0.001). After adjusting for age, sex, Charlson comorbidity score, and admission labs (creatinine and albumin), admissions discharged AMA remained at increased risk for 30-day readmission (HR=1.77, 95% CI 1.56 – 2.00) and 30-day mortality (HR=1.87, 95% CI 1.29 – 2.68). In addition, among readmissions, median time to readmission was shorter for admissions discharged AMA than admissions discharged with physician consent (6 vs. 11 days, p<0.001).
CONCLUSION: Being discharged AMA is associated with increased risk for 30-day readmission and 30-day mortality, compared to being discharged with physician consent. Patients considering leaving the hospital AMA should be advised of the increased risk. Interventions aimed at decreasing AMA discharges may improve outcomes of care.

DISCRIMINATION IN HEALTH CARE AND PATIENT WILLINGNESS TO UNDERGO JOINT REPLACEMENT L.R. Hausmann[1]; M.K. Mor[2]; M. Geng[2]; D. Kresevic[3]; R. Grant[3]; S. Ibrahim[2]. [1]VA Pittsburgh Healthcare System, Pittsburgh, PA; [2]VA Pittsburgh Health Care System and the University of Pittsburgh, Pittsburgh, PA; [3]Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH. *(Tracking ID # 204754)*

BACKGROUND: There are clear racial disparities in the receipt of joint replacement (JR) as a treatment for end-stage knee/hip osteoarthritis (OA). Racial differences in patient preference for JR, a strong predictor of whether patients receive this elective surgery, may contribute to this disparity. Few determinants of patient preferences for JR, however, have been explored. One potential determinant is patients' experiences with discrimination in the health care setting, which could lower patients' willingness to undergo JR. This study examined whether patients who perceive they have encountered discrimination in health care settings are less willing to undergo joint replacement in a sample of white and African American (AA) patients with knee/hip OA.
METHODS: Our sample was drawn from patients seeking treatment for moderate to severe knee/hip OA at orthopedic clinics in two Midwest VA medical centers. Prior to a clinic visit, patients completed a survey that assessed their experiences with discrimination while seeking health care and their willingness to undergo joint replacement (definitely willing vs. probably willing or less). Discrimination based on race and class were each assessed with established measures that asked patients how often they had experienced 7 forms of discrimination (e.g., been treated with less respect) because of their race or class while previously seeking health care. For analyses, race and class discrimination were each dichotomized into no versus any experiences with that type of discrimination. We used separate logistic regression models to test whether race discrimination and class discrimination were associated with patient willingness to undergo JR. Additional models tested these associations after adjusting for patient race, income, age, education, clinical severity of OA, comorbidities, study site, and clustering by provider.
RESULTS: The sample included 300 white and 123 AA patients ages 50 to 89 (Mean=62 years, SD=9). The sample was mostly male (96%) and 42% reported annual incomes<$20,000. Perceived race and class discrimination were reported by 39% and 59% of the sample, respectively. A total of 270 patients (64%) were definitely willing to undergo JR. In unadjusted analyses, both perceived race discrimination (OR=.49, 95% CI=.32-.74) and perceived class discrimination (OR=.57, 95% CI=.35-.93) were associated with a lower likelihood of willingness to undergo JR. These associations persisted after adjusting for race, income, and study covariates (race discrimination adjusted OR=.58, 95% CI=.36-.94; class discrimination adjusted OR=.56, 95% CI=.33-.95).
CONCLUSION: Patients who perceive they have experienced discrimination in the health care setting based on their race or class are less willing to undergo JR as a treatment for end-stage knee/hip OA. Efforts to understand the complex determinants of patient preferences for elective surgical procedures such as JR should be sensitive to the possible effects of past discriminatory experiences.

DISPARITIES IN BLOOD PRESSURE CONTROL IN A LARGE, POPULATION-BASED SAMPLE OF OLDER AFRICAN AMERICANS AND WHITES J. Delgado[1]; E. Jacobs[2]; L. Barnes[2]; T. Lewis[3]; D.A. Evans[2]; C. Mendes De Leon[2]. [1]John Stroger Hospital of Cook County, Chicago, IL; [2]Rush University Medical Center, Chicago, IL; [3]Yale University School of Medicine, New Haven, CT. *(Tracking ID # 205374)*

BACKGROUND: Cardiovascular disease is the leading cause of mortality among adults in the United States. It occurs mostly in older age; 83% of adults who die from cardiovascular diseases are 65 years of age or older. African Americans tend to have a higher risk of cardiovascular conditions relative to whites, in particular hypertension and stroke. There is little information on racial disparities in the control of cardiovascular risk factors in this older population. Our objective is to determine racial differences in blood pressure control in a large cohort of African-American and white older adults.
METHODS: Data come from the Chicago Health and Aging Program (CHAP), a population-based study of older adults. The present data come from the baseline interview of this study collected between 1993 and 2008. Blood pressure was measured using established procedures, with two assessments with a standard sphygmomanometer on subjects in a seated position. The average of the two diastolic and systolic readings was used to determine blood pressure control. The analysis was restricted to subjects with hypertension, defined by either a self-reported history of a physician-diagnosis of hypertension or by current use of anti-hypertensive medications. Blood pressure control was defined on the basis of a systolic blood pressure<140 mmHg, and a diastolic blood pressure of <90 mmHg. Logistic regression analysis was performed to test for racial differences in blood pressure control after adjustment for age, sex, and in subsequent models for socio-economic factors.
RESULTS: Of the 9152 participants enrolled in CHAP, 6106 (67%) met criteria for having hypertension. The prevalence of hypertension was higher among African-Americans than non-Hispanic whites (70% vs 60%, p<0.001). Blood pressure control among hypertensive subjects was 49%, with a lower proportion of African Americans than non-Hispanic whites (47% vs. 54%, p<0.001) who were adequately controlled. After controlling for age and sex, African Americans were less likely to have their blood pressure controlled than whites (OR=0.81, 95%CI 0.72–0.92, p=0.001). After adjustment for education and income, the difference between black-white blood pressure control was reduced and non-significant (OR=0.91; 95%CI 0.80–1.05); with adjustment for income having the greatest impact on the change in significance (data not shown).
CONCLUSION: There are significant racial disparities in blood pressure control among older adults, despite universal health coverage in this population through the Medicare program. This disparity appears to be due primarily to socio-economic factors, and especially income. Future studies need to explore if the recent introduction of the Medicare Part D benefit has led to reductions in racial disparities in blood pressure control.

DO DEPRESSION SYMPTOMS AFFECT THE QUALITY OF PATIENT-PROVIDER COMMUNICATION AND MEDICATION ADHERENCE IN HYPERTENSIVE BLACKS? A. Schoenthaler[1]; S. Sethi[1]; S. Gallagher[1]; F. De La Calle[1]; S. Fernandez[1]; J.E. Ravenell[1]; G. Ogedegbe[1]. [1]New York University, New York, NY. *(Tracking ID # 204584)*

BACKGROUND: The quality of patient-provider communication is at the heart of an effective interaction between patients and providers in primary care practices. Studies have consistently shown that patient's perception of the quality of provider communication is associated with better self-reported medication adherence among patients with chronic disease. Recent evidence suggests the presence of depressive symptoms negatively affects patient's perception of their provider's communication. However, no study has assessed whether the relationship between depressive symptoms and perceived quality of provider communication affects health outcomes.
METHODS: Using the Baron and Kenny framework of mediation, we assessed whether patient perception of provider communication mediated the relationship between depressive symptoms and medication adherence in 485 black hypertensive patients. Patients' rating of their providers' communication was assessed with a perceived communication style questionnaire; lower scores indicate more collaborative communication. Depressive symptoms were assessed with the PHQ-9 scale; patients scoring >4 were characterized as depressed. Medication adherence was assessed with the 4-item Morisky questionnaire; higher scores indicated better adherence. Four regression models were used to estimate the relative effect size needed to produce a mediational effect, with medication adherence as the outcome variable; depressive symptoms as the predictor variable; and perceived communication as the hypothesized mediator.
RESULTS: Fixty-six percent of the sample (mean age 58 years; 70% female; 72% HS education or below) reported being non-adherent, 51% rated their provider's communication to be non-collaborative, and 47% were categorized as depressed (mean PHQ-9 score, 4.4). In multivariate analysis adjusted for patient characteristics, depressive symptoms were associated with communication being rated as non-collaborative (=0.01, p=0.02) and worse medication adherence (=-0.06, p<0.001). Communication rated as collaborative was associated with better medication adherence (=-.38, p=.005). The relationship between depressive and medication adherence was slightly reduced when controlling for communication (ß=-.050, p<0.001; R^2=0.11) indicating that communication and depressive symptoms are independent correlates of medication adherence.
CONCLUSION: Longitudinal research is needed to understand the effects of depressive symptoms on perceptions of provider communication and medication adherence in this patient population.

DO FATALISTIC BELIEFS CONTRIBUTE TO THE RACIAL/ETHNIC DISPARITIES IN COLORECTAL CANCER SCREENING RATES IN THE U.S.?: AN ANALYSIS OF THE 2003/2005 HINTS J. Diaz[1]; M. Waring[1]; W. Rakowski[2]; C.B. Eaton[1]. [1]Alpert Medical School of Brown University, Pawtucket, RI; [2]Brown University, Providence, RI. *(Tracking ID # 205600)*

BACKGROUND: Although colorectal cancer (CRC) is the second most commonly diagnosed cancer in the U.S., CRC screening rates are low despite evidence-based guidelines and lower among African Americans and Latinos compared to non-Latino Whites. Differences in knowledge, attitudes, and beliefs may be barriers to cancer screening among African Americans and Latinos and may impact their preventive health behavior. Fatalism is one such belief that has been suggested as a barrier to cancer screening. The purpose of this study is to examine whether fatalistic beliefs explain the lower rates of CRC screening among non-Latino African-Americans and Latinos compared to non-Latino whites.
METHODS: Cross-sectional analysis of the nationally representative 2003/2005 Health Information and National Trends Survey (HINTS). Participants aged 50+ years, without a history of CRC, who reported CRC screening, fatalistic beliefs about cancer (2003) and colon cancer (2005), and were not missing other covariates (n=3,473, representing 99.3 million U.S. adults).
RESULTS: Appropriate colorectal screening was defined as a fecal occult blood testing within the prior 12 months and/or a lower endoscopy within the past 10 years. Fatalistic beliefs were assessed with two items: "It seems like almost everything causes cancer (colon cancer)" and "There's not much people can do to lower their chances of getting cancer (colon cancer)". Participants were grouped as agreeing with none, one, or both of these questions. We estimated odds ratios (ORs) of CRC screening, in relation to race/ethnicity, adjusting for the complex sampling of the HINTS. While approximately a third of participants of each racial/ethnic group endorsed one fatalism item, Latinos were more likely to endorse both items (31% versus 12% of non-Latino whites, 17% of non-Latino African-Americans, and 16% of participants of another race/ethnicity or multiracial). After adjusting for survey year, gender, age in decades, marital status, education, current employment, annual household income, health insurance, number of doctor visits in the past year, personal history of cancer other than CRC, family history of any cancer, smoking, and inactivity, non-Latino African-Americans (OR=0.6; 95% CI: 0.4 – 0.9), Latinos (OR=0.7; 95% CI: 0.4- 1.0), and participants of other race/ethnicity (OR=0.6; 95% CI: 0.4 – 0.9) had lower rates of CRC screening than non-Latino whites. These ORs were unchanged after inclusion of fatalistic beliefs and fatalism was not associated with odds of CRC screening (OR=1.1; 95% CI: 0.8 – 1.4 for one item endorsed and OR=1.3; 95% CI: 0.9 – 1.8 for two fatalism items endorsed compared to agreement with neither item).
CONCLUSION: We hypothesized that fatalistic beliefs about cancer might contribute to the racial/ethnic disparities in CRC screening among adults in the U.S.. However, although we found that Latinos were more likely to hold fatalistic beliefs, these beliefs did not mediate the relationship between race/ethnicity and CRC screening. Future research is needed to better understand racial/ethnic disparities in CRC screening, including attitudes and behaviors.

DO FINANCIAL INCENTIVES TO HEALTH CARE PROVIDERS GENERATE GREATER INTEREST IN ADHERING TO PERFORMANCE MEASURES THAN AUDIT AND FEEDBACK ALONE? L.A. Petersen[1]; K. Simpson[1]; T. Urech[1]; L. Woodard[1]; S. Hysong[1]; R.A. Dudley[2]. [1]HSR&D Center of Excellence, Houston, TX; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204870)*

BACKGROUND: Few data exist regarding the effectiveness of pay-for-performance programs, and some claim that financial incentives for quality are ineffective and/or unnecessary in motivating physicians to improve care. We evaluated whether participants who receive financial incentives in addition to audit and feedback for their performance in delivering guideline-recommended hypertension care demonstrate greater interest in their performance than those who receive audit and feedback alone.
METHODS: We used data from an ongoing 12-site cluster randomized controlled trial designed to assess the effectiveness of financial incentives (pay-for-performance) in improving adherence to guideline-recommended hypertension care, as measured by prescription of Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7) guideline-recommended medications, achievement of guideline-recommended blood pressure goals, and appropriate clinical response to uncontrolled blood pressure. Participants were primary care providers and their team members who supported their care of hypertension patients (98 participants in the intervention arms and 20 in the control arm). All study participants received a baseline educational session about JNC 7 hypertension management as well as audit and feedback on their performance at the end of each four-month study period. Intervention subjects additionally received monetary rewards at the end of a four-month study period based on their adherence to guideline-recommended care. Participants accessed their feedback reports and viewed any payments earned by logging onto a secure study website, which also provided resources on the JNC 7 hypertension guidelines and information about the study measures and procedures. Having tracked participants' activity on the study website, we assessed participant interest in viewing their performance results by comparing the following measures in the intervention versus control arms approximately two months after participants had received their website login information: ever logging into the website; ever visiting the page which displays a participant's feedback report; and ever completing a survey which follows the feedback reports of each participant. A two-sided Fisher's exact statistic evaluated the significance of each comparison.
RESULTS: The percentage of participants having logged into the website was significantly greater in the intervention arms (64%) than in the control arm (30%; p=0.006) after the first incentive period. In addition, a significantly greater percentage of intervention arm participants (60%) viewed their performance feedback reports on the study website compared to control arm participants (25%; p=0.006). Finally, the percentage of participants who completed the survey following their

feedback report was significantly greater in the intervention arms (47%) than in the control arm (15%; p=0.011).
CONCLUSION: Participants who receive financial incentives in addition to audit and feedback for their performance in delivering guideline-recommended hypertension care demonstrate greater interest in their performance than those who receive audit and feedback alone. These preliminary results suggest that, if properly designed, financial incentives have the potential to increase awareness of the extent to which providers' practice adheres to evidence-based guidelines.

DO GIFTS FROM THE PHARMACEUTICAL INDUSTRY AFFECT PATIENT TRUST IN PHYSICIANS? M.J. Green[1]; R.B. Masters[1]; B. James[1]; B. Simmons[2]. [1]Penn State College of Medicine, Hershey, PA; [2]St. Vincent Hospital, Indianapolis, IN. *(Tracking ID # 205170)*

BACKGROUND: Gifting (meals and other tokens of appreciation) from the pharmaceutical industry to physicians is common, but the appropriateness of such activities has been questioned. Despite the prevalence of meals and gifts, little is known about patients' knowledge of and attitudes toward these practices, and whether this impacts patients' trust in their physicians.
METHODS: We surveyed consecutive patients in waiting rooms of five outpatient clinics at a mid-Atlantic academic medical center. The survey consisted of 61 items with multiple choice and Likert-style response options addressing: 1) awareness of drug industry activities in physician offices; 2) attitudes about the acceptance of gifts by physicians; and 3) the impact of gifting on patients' trust in their physician.
RESULTS: Of the 220 individuals approached, 200 agreed to participate and 192 completed the survey (RR=87%). Respondents' age ranged from 18–89 (mean 53 years), and they were predominantly female (61%), white (91%), and well educated (46% with ≥ college degree). The vast majority (89%) had a regular doctor. General awareness of drug industry presence in medical offices was high. Most felt they knew whether or not the office/waiting room had: drug industry ads (68% indicated they knew whether they were present), items containing drug industry logos (69%) or patient education materials (62%). However, awareness of specific activities was lower. Fewer than half knew whether the office was visited by industry sales representatives (48%) or had industry-sponsored meals (25%), and fewer still knew whether or not their physician had engaged in any of the following industry-sponsored activities: conducted research for industry (23%), accepted meals (22%), gave lectures (20%), went on trips (17%), accepted small (16%) or large (12%) gifts, or attended social activities (15%). Respondents indicated that several particular activities would lower their trust in their physician: accepting gifts >$100 in value (59% said this would lower trust), going on industry-sponsored trips (58%) or sporting events (54%), owning stock in a company producing prescribed medications (49%), and accepting gifts of <$100 value (47%). Activities with the least negative effect on trust were: giving lectures or conducting research on behalf of drug companies (40% and 27%, respectively), accepting meals (33%), or using pens/notepads with drug company logos on them (5%). Trust was not affected by the following: having a regular physician, physician gender, receipt of medication samples, or participants' age (except people <65 were more likely to distrust physicians who accepted meals, p=0.06). However, women (compared to men) expressed greater distrust in physicians who: went on industry sponsored trips (p=.013), accepted gifts >$100 (p=.036), were paid to conduct research (p=0.013) or give lectures (p=0.048) for the drug industry, or held drug company stock (p=0.031).
CONCLUSION: Most patients expressed awareness of industry presence in their doctors' offices, but were not aware of specific activities in which their physicians engaged. Certain activities (particularly large gifts and social activities) would lower patients' trust in their doctors. These data suggest that if the medical profession is to maintain trust between doctors and patients, there is a need for more transparent disclosure of gifts, and/or more strict regulation of activities that result in real (or perceived) conflicts of interest.

DO INTERPERSONAL AND COMMUNICATION SKILLS DIFFER BETWEEN THIRD-YEAR MEDICAL STUDENTS WHO ULTIMATELY MATCH IN CORE VERSUS NONCORE SPECIALTIES? A.I. Schwarcz[1]; S. Doorley[1]; D. Spevack[1]; F. Milan[1]; R.J. Ostfeld[1]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205911)*

BACKGROUND: Different fields of medicine lend themselves to having more patient interaction and more continuity of care between physician and patient. It is unknown whether interpersonal and communication skills differ among students who ultimately choose these various fields.
METHODS: A retrospective cohort study of 594 medical students graduating from a single medical school in New York from 2005 to 2008 was performed. During their third year of medical school each student participated in a Clinical Skills Assessment (CSA), consisting of eight clinical cases with standardized patients. The CSA is similar in design to the United States Medical Licensing Exam Step 2 Clinical Skills exam and interpersonal and communication skills (ICS) are assessed by standardized patients using an 11-item, 3-point behaviorally anchored checklist. As described in a previous paper, core versus noncore specialties have more interpersonal contact and continuity of care with patients. Core specialties include Internal Medicine, Pediatrics, Psychiatry, Family Practice, and Obstetrics/Gynecology. Noncore specialties include all other fields. Statistical analysis was done using Stata software, version 9.1 (College Station, TX). Data are presented as the median and 25th, 75th interquartile range.
RESULTS: For the overall cohort, the median ICS was 90.9 [83.3, 95.5] and the median age was 25.6 [24.8, 27.2]. Three hundred thirty-two students and 262 students matched in core and noncore specialties, respectively. The median age for the core and noncore groups were 25.6 [24.8, 26.9] and 25.6 [24.8, 27.5], respectively. Forty and sixty-four percent of the core and non-core groups were male, respectively. Students who matched in the core specialties had higher ICS scores on the CSA exam than those who matched in the noncore specialties, (92.4 [84.9, 95.5] vs. 89.0 [80.3, 95.5], p=0.001). On adjusted analysis, students scoring below the 50th percentile in ICS had increased odds of matching in noncore specialties, (OR=1.78, (1.27, 2.49), p=0.001) as compared to core specialties, when controlling for age and gender. Compared to Internal Medicine (n=171), (90.9 [84.9, 95.5]), Psychiatry (n=30), (93.9 [86.7, 97.0], p=0.05) had a higher ICS score and Anesthesia (n=31), Pathology (n=7) and Radiology (n=53), (84.9 [70.3, 90.9], p=0.0003, 83.0 [69.9, 87.1], p=0.009 and 86.4 [75.6, 95.5], p=0.02, respectively) had lower ICS scores. Women (n=295) had higher ICS scores than men (n=299), (90.9 [84.9, 95.5] vs. 89.4 [81.8, 95.5], p=0.04).
CONCLUSION: Third year medical students who ultimately matched in core specialties, defined as fields which have more interpersonal contact and continuity of care between physician and patient, had higher interpersonal and communication skills scores than those who matched in noncore specialties. Perhaps students' level of interpersonal and communication skills with patients influence their choice of specialty. Additional study is needed to further support or refute these findings.

DO PRIMARY CARE PHYSICIANS INITIATE MEDICAL ENCOUNTER AS THEY SHOULD? S. Rey-Bellet[1]; P. Rodondi[1]; M. Zuercher[2]; N. Rodondi[1]; M. Vannotti[2]. [1]Department of Ambulatory Care and Community Medicine, University of Lausanne, Lausanne, ; [2]Department of Psychiatry, University of Lausanne, Lausanne. *(Tracking ID # 204328)*

BACKGROUND: At the beginning of a medical encounter, physician should initiate the encounter by establishing initial contact and by identifying the reason(s) for the visit, as suggested by the Calgary-Cambridge guide to the medical interview. The first minutes provide an important foundation for future interactions. One task of establishing initial contact consists of greetings and demonstrating interest to the patient, sometimes during a brief social exchange. Then physician should elicit patient's agenda with an appropriate opening question. Little is known about the exact content of the social exchange. We aimed to analyze the beginning of the encounter, its content, gender differences and how physician identify the reason(s) for the encounter.
METHODS: 99 patients were videotaped during their medical encounters in an academic primary care clinic. We performed a qualitative and quantitative analysis of patient-physician videotaped encounters. We examined the presence or absence of a social exchange at the beginning. These social exchanges were coded according to their content by two independent investigators (kappa=1.0 and =0.97 for the presence of a social exchange and for the content respectively). Their content was classified in three categories: biomedical (e.g., medical and family history, physical condition), psychosocial (e.g., stress, emotions, feelings) and biopsychosocial (mixed). First encounters and emergency visits were excluded.

RESULTS: A social exchange at the beginning of the encounter was present in 68% of office visits. The content of the social exchange was biopsychosocial in 24% encounters, psychosocial in 12% and biomedical in 64%. The content of the biomedical social exchanges were essentially summaries of patient's symptoms discussed during a former encounter (e.g., decision to wait before doing a chest radiography or too high value of glycemia). The mean±SD duration of the social exchange was 57±12 seconds. The content of the social exchange was not related to physician gender (P=0.15), but was significantly associated with patient gender, being psychosocial in 3% if the patient was a male and in 24% if the patient was a female (P=0.03). Physicians used opening questions to identify the patient's main agenda for the encounter in only 23% of the encounters. In 77% of the encounters, physicians first discussed problems identified in an earlier visit, without giving the opportunity to the patient to first mention a new issue.
CONCLUSION: At the beginning of an encounter, only a quarter of physicians use opening questions to identify the patient's main agenda. An initial social exchange is present in two thirds of the encounter, but its duration is most often close to one minute and its content is especially biomedical. The content of the social exchange seems to differ according to patient gender, being more likely psychosocial for women. Physicians might forget that patients could develop other complaints than the one identified as the chief complaint during a former encounter. Further studies are needed to understand why physicians do not begin their encounter with an open question, although guides to medical interview underline its importance.

DO PRIMARY CARE PROVIDERS CORRECTLY IDENTIFY PATIENTS NOT TAKING BLOOD PRESSURE MEDICATIONS AS PRESCRIBED?
J.A. Meddings[1]; E.A. Kerr[2]; M.E. Heisler[2]; M.M. Hogan[2]; T.P. Hofer[2]. [1]University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI. *(Tracking ID # 205026)*

BACKGROUND: Many patients have uncontrolled blood pressure (BP) because they are not taking medications as prescribed. Adherence problems can be difficult for providers to detect and address. One objective measure of adherence is whether the patient is refilling medications in a timely fashion to possess enough pills to take as prescribed. We compared pharmacy refill records with providers' assessments to determine how often providers correctly identified patients with poor adherence to chronic BP medications. We further evaluated how providers' assessments of adherence influenced decisions to intensify medications when BP was uncontrolled.
METHODS: The study population included 1169 veterans with diabetes who presented with a BP≥140/90 at scheduled visits to 92 primary care providers at 9 Veterans Affairs facilities. Using retrospective VA pharmacy refill records, we utilized a continuous multiple-interval measure of medication gaps (CMG), adjusted for oversupply, to assess the total number of days in the year prior to the visit that the patient did not have prescribed medications available. A CMG of ≥20% is considered to be clinically significant refill non-adherence. Providers assessed each patients' adherence in a post-visit survey by responding to two questions: a) how often does your patient adhere to the BP regimen (scored from 1="none of time" to 5="all of time"), and b) how much does adherence make it difficult to control this patient's BP (scored from 1="not at all" to 5="a great deal"). We considered a provider to characterize a patient as having significant non-adherence if a provider reported the patient was taking medications "none of time" (score 1) or close to it (score 2), or if the provider indicated that adherence made the patient's blood pressure difficult to control by "a great deal" (score 5) or close to it (score 4). Providers also answered questions regarding if and how the antihypertensive regimen was changed at the visit; providers clearly intensified the regimen if they added or increased a BP medication without stopping another medication or decreasing its dose.
RESULTS: 907 patients had VA pharmacy prescriptions for chronic antihypertensive medications. Patients were prescribed a mean of 2.6 BP medication classes and had a mean CMG of 13.3% of days in the past year. Overall, providers indicated significant non-adherence regarding BP medications for 227 (25%) of the 907 patients and intensified BP medications for 372 patients (41%) at the study visit. 201 (22%) of the 907 patients had refill records indicating medication was not available for ≥20% of days in past year; providers characterized only 84 (42%) of these 201 patients as having significant non-adherence, and intensified medications for 41 of these 84 patients (49%).
CONCLUSION: Providers appeared to recognize an adherence issue for less than half of patients whose pharmacy records indicated significant refills gaps. Making an objective measure of adherence, such as the CMG, available during the clinic visit may help providers recognize and address adherence issues with their patients, and make more appropriate decisions about BP medication management in the setting of adherence challenges. Of concern, providers often intensified BP medications even as they acknowledged serious adherence problems, suggesting providers may have more confidence in their ability to improve blood pressure by intensifying medications rather than addressing adherence issues.

DO RURAL REPRODUCTIVE-AGED WOMEN RECEIVE LESS PREVENTIVE HEALTHCARE COUNSELING THAN URBAN WOMEN?
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BACKGROUND: Preventive health screening is less frequent among rural women compared to urban women. Preventive counseling is equally important for high quality primary healthcare delivery, but little prior research has explored whether rurality impacts receipt of preventive counseling.
METHODS: Data were collected from 2004–2005 for the Central Pennsylvania Women's Health Study, a cohort of 2002 women aged 18–45. Guideline-concordant preventive healthcare counseling was based on United States Preventive Services Task Force recommendations before 2004: screen and counsel all adults for tobacco use and alcohol misuse, provide routine counseling about effective contraception, and provide intensive counseling to promote weight loss for obese patients. Subjects self-identified demographics. Rurality was classified based on Rural-Urban Commuting Area codes. Obesity was calculated based on self-reported height and weight. Subjects identified whether they had discussed smoking, alcohol or drug use, birth control, nutrition, weight management, or physical activity with a health professional within the past year. We assessed bivariate relationships between receipt of counseling and rurality, then developed multivariate models to assess the independent contribution of rurality to each of the following: counseling for 1) smoking, 2) alcohol/drug use, 3) contraception, and, among obese subjects only, counseling for 4) diet, 5) weight management, and 6) exercise. All multivariate analyses employed logistic regression, controlling for age, race, education, and regular healthcare provider.
RESULTS: 768 (39%) of the women were rural. Compared to urban women, rural women were more likely to be of the oldest age group (35–45 years) (54% versus 49%, p<.05), identify as white (97% versus 85%, p<.001), have a regular healthcare provider (91% versus 88%, p=.05), and have less than or equal to a high school education (45% versus 37%, p<.001). There were no significant differences between urban and rural women in household income or continuous health insurance coverage over the past year. In unadjusted models, rural women were less likely to receive counseling for alcohol or drug use (10% versus 13%, p=.03) and birth control (30% versus 36%, p=.01), but were equally likely to receive tobacco counseling. Among the 444 women identified as obese, rural women were less likely to receive exercise counseling (53% versus 66%, p<.01), but were equally likely to receive diet and weight management counseling. In six multivariate models, rurality was independently associated with lack of preventive counseling in only one (exercise counseling among obese women.) Adjusting for demographics fully attenuated the effect of rurality in each of the five remaining models. Older age was independently associated with nonreceipt of preventive counseling in three models (tobacco use, alcohol/drug use, birth control,) a finding that was preserved in analyses controlling for smoking and binge drinking. The interaction of poverty and rurality is explored.
CONCLUSION: In multivariate analysis, obese rural women were less likely to receive exercise counseling than obese urban women. Rurality did not affect receipt of counseling for tobacco, alcohol and birth control. Rural and nonrural healthcare providers should ensure counseling for alcohol, tobacco use and birth control to older reproductive-aged women. Rural providers should ensure comprehensive weight management counseling for obese patients.

DO RURAL VETERANS RECEIVE FEWER ECHOCARDIOGRAMS?
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BACKGROUND: Patients residing in rural areas often have reduced access to physicians and advanced medical technology. This may be particularly true for patients receiving care in a highly regionalized delivery system such as the Veterans Administration (VA) Healthcare System. The objective of our study is to examine echocardiography (echo) utilization among veterans residing in urban and rural regions of the United States.
METHODS: We used administrative data from the Veterans Administration (VA) to identify all patients receiving either inpatient or outpatient echos between 1999 – 2007 using relevant CPT or ICD-9-CM procedure codes. We also identified the total number of patients receiving regular care at the VA ("VA users") defined as patients with at least 2 primary care visits during the year of their echo. We classified each veteran as living in an Urban, Large Rural, Small Rural or Isolated geographic region using the Rural-Urban Commuting Areas (RUCA) classification system. For each year, we calculated the number of echos performed per 1000 VA users for veterans living in each geographic region. We compared trends with the Cochran-Armitage test and used a generalized linear model to compare rates between patients from different residence categories.
RESULTS: The mean annual rate of echo use during the study period was 62.8 per 1000 veterans. For veterans living in each of the four geographic regions there was a gradual downward trend in echo use between 1999 and 2003 and a subsequent increase thereafter. Echo use in Urban areas differed significantly from echo use in Large Rural areas (64.3 vs. 57.7 per 1000 VA users)($P<.0001$). There was however no evidence that veterans in the more rural areas (Small Rural or Isolated areas) received less echos when compared to Urban areas, (61.5 vs. 64.3 and 63.8 vs. 64.3 respectively).
CONCLUSION: We found no evidence that rural veterans received less echocardiography than urban veterans. These findings suggest that the regionalization of the VA delivery system does not limit the performance of echocardiography for rural veterans. Additional studies are needed to insure that rural veterans do not have reduced access to other important tests and procedures.

DOES A PRIOR HISTORY OF MEDICATION ASSOCIATED ANGIOEDEMA OR ANAPHYLAXIS REMAIN SALIENT IN SUBSEQUENT MEDICAL RECORDS? K.M. Thomas[1]; A.M. Davis[1]; D. Harriman[1]; S. Parveen[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 205307)*

BACKGROUND: Angioedema and anaphylaxis are important side effects of several common drugs, including ACE inhibitors, aspirin, and penicillin. These reactions occur unpredictably and may not be recognized as a drug side effect by physicians. ACE inhibitors are the most commonly recognized medication-related etiology, an issue of high clinical importance given that prescribing these agents is a standard of care in diabetes and heart failure. These serious adverse reactions occur more often in African-American individuals, adding importance in our medical center to identify patients who have experienced this potentially dangerous side-effect, and to guard them from any repeat exposure. Our aim is to review all cases of angioedema and anaphylaxis caused by medications at our institution over the past 8 years and to evaluate whether the current medical record adequately documents this history.
METHODS: All emergency room visits and inpatient admissions from 1/1/2000 through 8/1/2008 with any of the ICD-9 codes for 277.6 (hereditary angioedema), 995.1 (angioneurotic edema), or anaphylaxis (995.0, 995.6, 999.4) were retrieved. These records were reviewed for data on age, gender, race, and etiology. If patient were admitted, data on length of stay, ICU days, and complications was collected. Next, a random sampling of cases (10 per year) was then reviewed. In those cases where an etiology was documented, the most recent clinic note or discharge summary was reviewed to determine whether the offending agent was listed as an allergy and, if so, whether the severity of the reaction was listed. Particular attention was paid to cases in which an ACE inhibitor was deemed to be the offending agent.
RESULTS: A total of 372 cases between 2000–2008 with the pre-specified ICD-9 codes were identified resulting in an average length of stay of 8.8 days. The average age of affected patients was 50.7 with 57% involving women and 62% involving African Americans In a random sample of 90 cases (10 per year), an etiology was identified in 59%. 51% these cases were caused by ACE-inhibitors while 13% were caused by Pencillins or their derivatives. In cases caused by ACE inhibitors, 70% of patients had a subsequent clinic note or discharge summary, with the allergy listed in only 68% of these notes. Further, when the allergy was listed, the severity of the reaction was listed only 85% of the time.
CONCLUSION: Angioedema is an important side-effect of several widely used medications that results in considerable morbidity and may not be consistently documented in subsequent clinic notes. In our patient population, older, African-American women are the most commonly affected. Review of over 350 cases at our institution revealed that despite an average hospital stay of over 8 days, the allergy falls off the medical record in nearly one third of all cases. Additionally, even in cases when the allergy is listed in the most recent medical record, the severity of the reaction is present only 85% of the time. This pilot study should inform strategies to reduce recurrent allergic reactions, including culturally competent patient communication strategies, and redundant methods to ensure that a history of severe reactions remains salient to treating physicians as time passes from the initial event.

DOES DIABETIC DISEASE MANAGEMENT REDUCE EMERGENCY DEPARTMENT UTILIZATION FOR HIGH-RISK MEDICAID PATIENTS? C. Pedley[1]; M. Smoak[1]; D. Graves[1]; J.L. Wofford[1]. [1]Wake Forest University School of Medicine, Winston-Salem, NC. *(Tracking ID # 204950)*

BACKGROUND: The hospital emergency department (ED) represents a strategic and expensive point in the care of diabetic patients, and reduction of ED utilization is a goal of diabetic disease management (DDM) programs. Because of our clinic's high ED utilization rate for Medicaid patients, we sought to determine the impact of a new DDM on ED utilization and to explore reasons why Medicaid diabetic patients go to the ED.
METHODS: All Medicaid diabetics assigned to our urban community health center as a medical home were eligible for a new practice-based DDM. As part of enrollment, two diabetic educators designated patients as high risk for future resource use based on the A1C and previous ED utilization. We established an overall ED utilization rate for these high-risk diabetics over the two years that included program initiation, and then compared ED utilization before (6 months before program initiation) with that after the implementation (6 months after program initiation). We also compared the correlation of ED utilization rate with age, gender, and A1C%. We examined reasons for ED utilization by chart review of the first ED visit for each patient, and determined the necessity of ED utilization (2 physician consensus) and rate of hospitalization.
RESULTS: The population of 149 high-risk diabetic patients were of mean age 48.9 years (+12.4) and predominantly female (73%) with an mean A1C of 10.1%(+2.3) at the time of program enrollment. Over a two-year period when program was being implemented, there were 757 ED visits for 149 high-risk diabetic patients, an overall rate of 2.8 ED visits/yr/pt. There was no statistical difference by gender and no correlation between ED utilization and A1C. but a significant inverse relationship between number of ED visits and age ($r=-0.15$). 13 high ED utilizers (>10/yr) were responsible for 45% of visits (338/757). Based on chart review of the first ED visit for each patient, 13% (14/110) resulted in hospital admission, and in 20% (22/110) of ED visits, diabetes was a contributing reason for the ED visit. 31% (34/110) of ED visits were judged unnecessary for this high risk population. The implementation of the DDM was associated with a decrease from 2.6 to 2.1 ED visits/year/patient, the equivalent of 64 ED visits saved per year.
CONCLUSION: Within the first year of implementation, a practice-based Medicaid disease management program targeting high-risk diabetics was associated with a significant but modest reduction in ED utilization. Nearly half of all ED visits were by high ED utilizers in this high-risk population. Focusing on improving clinic access and telephone contact with high utilizers should be a future priority.

DOES HEALTH LITERACY AFFECT ASTHMA-BELIEFS AMONG OLDER ASTHMATICS? A. Federman[1]; M.S. Wolf[2]; J. Wisnivesky[1]; H. Leventhal[3]; E. Halm[4]. [1]Mount Sinai School of Medicine, New York, NY; [2]Northwestern University, Chicago, IL; [3]Rutgers University, New Brunswick, NJ; [4]UT Southwestern Medical Center, Dallas, TX. *(Tracking ID # 205288)*

BACKGROUND: Asthma is a major contributor to morbidity and mortality in older adults. Engaging older adults in better disease self-

management could improve asthma outcomes, but they often have erroneous beliefs about the disease as well as high rates of inadequate health literacy (HL), both of which are associated with poor health outcomes. Understanding the relationship between asthma beliefs and HL could inform interventions to improve asthma self-management.
METHODS: We interviewed 81 older asthmatics (age 50 y), in English or Spanish, in the hospital-based primary care clinic of a large, urban academic medical center in New York City, NY (response, 66%). We used the Short Test of Functional Health Literacy in Adults (STOFHLA) and validated measures of asthma beliefs, including chronicity (Belief that asthma is temporary) and curability (Expect the doctor to cure the asthma), and the no symptoms/no asthma belief (Have asthma only when having symptoms). Asthma severity was measured with the 5-item Asthma Control Questionnaire.
RESULTS: The mean age was 61 years, 81% were women, 59% Latino, 35% black, and health status was rated as poor-fair by 56%. HL was inadequate in 38% and was associated with worse asthma control (p=.03). Individuals with inadequate HL were more likely to have the no symptom/no asthma belief (51% vs. 27%, p=.03), to think they won't always have asthma, (chronicity: 62% vs. 34%, p=.07), and to expect their physician to cure them of their asthma (curability: 57% vs. 28%, p=.01). The association of HL with the cure belief remained statistically significant after adjusting for age, sex, and Hispanic ethnicity (AOR 3.4, 95% CI 1.2–9.4, p=.02). The association did not achieve statistical significance for the chronicity belief (AOR 1.8, 95% CI 0.5–6.9, p=.38) and the no symptoms/no asthma belief (AOR 2.2, 95% CI 0.82–5.8, p=.12).
CONCLUSION: Asthma beliefs associated with poor outcomes were more common among older asthmatics with inadequate health literacy, and inadequate health literacy was significantly associated with the belief that asthma could be cured after adjusting for other factors that influence beliefs (age, Hispanic ethnicity). This observation raises the possibility that health beliefs may be a pathway through which inadequate HL influences asthma and other health outcomes.

DOES MENOPAUSE MATTER? THE IMPACT OF MENOPAUSE ON HEALTH RELATED QUALITY OF LIFE
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BACKGROUND: Menopause is implicated in negatively impacting Health Related Quality of Life (HRQoL). This may be due in part to menopausal symptoms and associated bother. We examine the impact of menopausal status and menopausal symptoms on HRQoL
METHODS: Beginning in January 2005, we enrolled 728 mid-life women aged 40–65 in a longitudinal study examining the impact of menopause on HRQoL. Women completed annual questionnaires that included HRQoL (the Mental and Physical Health Composites (MHC and PHC) of the RAND-36; our outcomes) and primary independent variables: menopausal status (based on bleeding patern), symptoms (hot flashes and vaginal dryness), and, among symptom reporters, bothersomeness of the symptom. Other covariables included: social support, medical comorbidities, hormone therapy use, race and ethnicity, attitudes towards menopause and aging, and body mass index. We report here on 3 years of data. We constructed separate linear mixed effects models, including all covariables, with random intercept and both time varying and baseline data that examined the impact of: 1) status, 2) status plus hot flashes or vaginal dryness and 3) status, hot flashes or vaginal dryness, plus bothersomeness. We modeled symptom status over time (i.e., no-yes, yes-yes, yes-no) compared to women who remained symptom free (no-no).
RESULTS: Women were 50.8±6.4 years old and ranged across menopausal statuses; 52% reported hot flashes or vaginal dryness. Compared to reproductive aged women, late peri, early, and late postmenopausal women had worse MHC scores (b=-4.6, -2.9, -3.9, p=.001, .01, .002, respectively) and PHC scores (b=-2.6, -2.3, -3.6, p=.04, .03, .002, respectively). Persistent (yes-yes) hot flashes were associated with worse MHC scores (b=-4.8, p<.001). Developing (no-yes), or having persistent, hot flashes were associated with lower PHC scores (b=-3.4, -3.8, p=.002, <.001, respectively). When bothersomeness was included, persistent hot flashes still resulted in worse MHC scores (b=-3.7, p=.003), and developing or persistent hot flashes still resulted in worse PHC scores (-3.0, -3.8, p=.03, .001, respectively). Bothersomeness itself had an independent negative effect of on MHC (b=-3.4, p=.03) but not PHC scores. The impact of menopausal status on HRQoLwas decreased in these models that included hot flashes. We found no significant effect of vaginal dryness status over time (e.g., no-yes) on HRQoL; as with hot flashes, the impact of menopausal status was decreased in these models. When we looked at bothersomeness of symptoms, vaginal dryness continued to have no impact on HRQoL, but bothersomeness was associated with worse MCH and PHC scores (b=-2.3 and -1.8, p=.008 and .03). As with hot flashes, the impact of menopausal status on HRQoL was decreased.
CONCLUSION: While menopausal status does have a negative impact on HRQoL, menopausal symptoms, specifically hot flashes, seem to account for much of this effect. For hot flashes, the negative impact on HRQoL exists even without reporting the symptom as bothersome. In women who report vaginal dryness, it is reporting vaginal dryness as bothersome that leads to worse HRQoL. As we speak with our mid-life patients, we should attend to both the presence as well as the bothersomeness of hot flashes and vaginal dryness to help guide treatment decisions.

DOES OBESITY DECREASE SCREENING FOR COLON CANCER?
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BACKGROUND: Obesity is associated with increased colon cancer incidence and mortality. Although obese women are less likely to undergo cervical and breast cancer screening, it is unclear if obesity is associated with decreased colon cancer screening.
METHODS: We searched the PubMed, CINAHL, and Cochrane Library electronic databases through July 2008 to conduct a systematic review and meta-analysis of original, English-language articles which addressed the relationship between obesity and recent colon cancer screening (fecal occult blood testing in past year, flexible sigmoidoscopy within 5 years, and/or colonoscopy within 10 years). We excluded studies conducted in special populations (e.g., patients with prior colon cancer) or those not conducted in the United States. Data were abstracted using standardized abstraction forms. Using the DerSimonian and Laird method, random effects models were used to calculate combined odds ratios for colon cancer screening according to body mass index (BMI) using the following standard BMI classifications: 1) dichotomous (<30 kg/m^2 or ≥30 kg/m^2) and 2) categorical (normal 18.5–24.9 kg/m^2, overweight 25–29.9 kg/m^2, class I obesity 30–34.9 kg/m^2, class II obesity 35–39.9 kg/m^2, and class III obesity ≥40 kg/m^2).
RESULTS: Of 5057 citations, 18 articles (15 unique studies) were included. Eight articles used nationally-representative surveys (three based on the 2000 National Health Interview Survey). Nine articles reported an inverse relationship between BMI and colon cancer screening. Eleven articles defined recent colon cancer screening as report of any of the 3 modalities, four as endoscopy, two as flexible sigmoidoscopy, and 1 as fecal occult blood testing only. Compared to normal BMI, combined odds ratios (OR) and 95% confidence intervals (CI) for colon cancer screening were 0.99 (CI 0.92 to 1.06), 1.04 (CI 0.95 to 1.14), 1.01 (CI 0.83 to 1.21), and 0.86 (CI 0.66 to 1.12) for the overweight (8 articles) and class I (7 articles), II (4 articles), and III (5 articles) obesity categories respectively. In the 3 studies that compared those with class II+III obesity combined to those with a normal BMI, the combined OR was 0.85 (CI 0.79 to 0.91). Among the 3 studies that reported BMI as a dichotomous variable, there was a non-statistically significant lower screening rate for colon cancer in the obese group: OR 0.92 (CI 0.80 to 1.05). Of 9 articles which evaluated screening by sex, six found an inverse association by BMI among women, and 5 found an inverse association among men. Among the 6 local studies conducted among primarily white populations, four reported an inverse association between BMI and colon cancer screening. Of 3 local studies conducted in primarily black populations, one found an inverse association between BMI and colon cancer screening. Two of 3 studies which evaluated the relationship between BMI and colon cancer screening among Hispanic participants reported an inverse association. One study reported less screening among obese Asians compared to Asians who were not obese.
CONCLUSION: Severely obese people may have a lower prevalence of up-to-date colon cancer screening relative to their lean counterparts. Further study is necessary to determine if this potential association varies by sex or ethnicity.

DRUG FORMULARY CULTURE SURVEY: MEASURING THE TEMPERATURE OF CLINICIANS' BOILING BLOOD G.D. Schiff[1]; J.E. Duhig[2]; M.I. Edison[3]; B.L. Galanter[3]; M.J. Koronkowski[4]; B.L. Lambert[5]; A. Lodolce[4]; S. Pickard[2]; C. Wilke[2]. [1]Center for Patient Safety Research and Practice, Division of General Internal Medicine, Brigham and Women's Hospital, Boston, MA; [2]University of Illinois at Chicago, Department of Pharmacy Administration, Chicago, IL; [3]University of Illinois at Chicago, College of Medicine, Chicago, IL; [4]University of Illinois at Chicago, Department of Pharmacy Practice, Chicago, IL; 5University of Illinois at Chicago, TOP-MED Center for Education and Research on Therapeutics, Chicago, IL. *(Tracking ID # 205954)*

BACKGROUND: Drug formularies are near ubiquitous features of health care policy and medical practice. However, there has been a checkered history of clinician role and buy-in related to formulary design, aims, as well views towards operational aspects of formulary decision-making and implementation. There has been minimal research into ways formulary processes have been experienced by clinicians and how their attitudes and behaviors have been shaped by these interactions, which in turn is likely to impact on adherence and efficacy of formulary policies. As part of the Attorney General Consumer and Prescriber Formulary Leveraged Improved Prescribing (FLIP) education project, we designed a survey instrument to measure "formulary culture" and assess physicians' attitudes and perceptions related to formularies and related medication-use issues.
METHODS: After literature review and extensive iterative development and pilot testing we administered an online 50-item culture survey to resident and faculty internists and family practitioners at 2 public urban teaching hospitals. Surveys were also administered directly to members of the formulary committee at the 2 institutions.
RESULTS: A total of 189 surveys were completed. Measures of global trust, confidence, and credibility revealed widely diverging support and understanding of formularies using Likert scale agreement (1—strongly disagree to 5—strongly agree) with statements of support: "Formularies are good for patient care" mean (s.d., median) 3.58 (0.96, 4), "I support goals of the formulary" 3.87 (0.86, 4) "Formularies are not necessary" 2.16 (0.84, 2) and "Formularies excessively interfere with my clinical practice" 2.77 (0.94, 3). When asked about formulary decision making processes, a similar range of views was evident: "I trust formulary decisions because they are based on evidence" 3.37 (0.85, 3), "Formularies are mainly concerned about cost" 3.74 (0.94, 4) and "Formulary process is biased against pharmaceutical industry" 2.72 (0.90, 3). Regarding communication and operational aspects of the formulary, 20.6% agreed that the formulary committee did a good job in communicating its decisions and 51.1% believed that formulary restrictions make clinicians "jump through too many hoops." Exploratory factor analysis identified 12 factors, subsequently collapsed to 6. Three factors demonstrated internal consistency (Cronbach's Alpha >0.7): a) general attitudes towards formularies, b) trust in formulary committee decisions, and c) attitudes towards pharmaceutical industry influences.
CONCLUSION: A multidimensional formulary culture survey revealed a wide range of views amongst clinicians at 2 institutions. Attitudes about prescribing correlated with perceptions of formularies. Differing policies at the 2 institutions appear to be shaping differing attitudes toward formularies. The survey tool holds potential for assessing attitudes and behaviors in different sites, tracking changes over time and in response to interventions, and informing policymakers about issues, effectiveness, and barriers related to formulary policymaking.

DYSPNEA ASSESSMENT TOOL FOR PATIENTS WITH HEART FAILURE: DEVELOPMENT AND VALIDATION OF A COMPUTER ADAPTIVE TEST B. Ruo[1]; S. Choi[2]; D. Baker[1]; K.L. Grady[1]; D. Cella[2]. [1]Northwestern University, Chicago, IL; [2]Northshore University HealthSystem, Evanston, IL. *(Tracking ID # 203979)*

BACKGROUND: Dyspnea is a common symptom among patients with heart failure (HF). Better symptom assessment could identify high risk patients for targeted intervention and improve assessment of treatment efficacy. Barriers to utilizing current measures of symptoms of HF include the imprecision of surveys and the time required for administration. Currently, the most efficient survey tools are computer adaptive tests (CATs). Computer adaptive testing can obtain a precise measurement in a short time since the selection of questions is influenced by the individual's responses to prior questions. This allows for a more focused series of questions tailored to each patient's ability level. Our goal was to create a standardized, rapid, precise tool to assess dyspnea using CATs.
METHODS: To create a preliminary dyspnea item bank, we reviewed the literature and pooled questions from various questionnaires assessing dyspnea. We showed these questions to expert clinicians to determine content validity and adequate breadth of coverage. We then conducted 20 one-on-one patient interviews to assess relevance of the questions and to determine comprehensibility of the question and response choices. For testing of the preliminary dyspnea item bank, participants were recruited from the cardiology clinics at Northwestern Medical Faculty Foundation and NorthShore University HealthSystem. Eligible participants consisted of adult patients (age 21) with systolic and/or diastolic HF. Non-ambulatory patients were excluded because a six-minute walk test was included to measure functional performance. Since prior studies creating item banks with similar item response theory models found sample sizes of 150 to be adequate, we aimed to recruit 200 participants. All 55 questions in the preliminary item bank were administered to the patients. Each question asks how much shortness of breath (none, mild, moderate, severe) the patient had when doing an activity. For concurrent validity, patients were asked to rank their shortness of breath on a scale of 0–10 and to complete a six-minute walk. The data was analyzed using item response theory and a graded rating scale model to create a final item bank. Parscale software was used for the analyses and to generate CATs. A simulation CAT score was generated to compare with the item bank score for each patient.
RESULTS: For item bank calibration, we recruited 201 patients with HF. Their average age was 59 (SD=14) and 50% were female; 49% were White and 42% were African American. More than half of the patients had left ventricular ejection fractions <40%. A dyspnea item bank was created consisting of 44 items. The item bank scores have good concurrent validity as demonstrated by the strong correlation (r=0.76) with the overall single shortness of breath question and a moderate negative relationship with six-minute walk distance (r=-0.56). The CATs generated from the item bank can assess dyspnea by administering on average 10 questions, a greater than 75% reduction in questions compared with the item bank. The CAT scores have excellent correlation (r=0.98) with the scores from answering all questions in the item bank.
CONCLUSION: This computer based tool for dyspnea assessment obtains similar precision to that of answering the entire item bank but with much less patient burden. It has potential future applications in rapid routine assessments with immediate presentation of results for clinical care or in research studies.

EDUCATIONAL LEVEL PREDICTS MASKED HYPERTENSION IN A COMMUNITY SAMPLE OF BLACK AND LATINO(A) ADULTS A. Schoenthaler[1]; J.N. Tobin[2]; E. Brondolo[3]. [1]New York University, New York, NY; [2]Clinical Directors Network, Inc., New York City, NY; [3]St John's University, New York, NY. *(Tracking ID # 205292)*

BACKGROUND: While it is increasingly clear that masked hypertension (HTN) is a risk factor for cardiovascular (CVD) and cerebrovascular (CVA), disease less is known about the risk factors for masked HTN. Characterizing the sociodemographic characteristics that increase the risk for masked HTN may help identify those for whom further clinical evaluation is warranted. This may be particularly important in minority populations whose members experience disproportionate rates of CVD and CVA-related morbidity and mortality.
METHODS: Participants included 630 adults (51% Black, 48% Latino (a), 1% mixed race; 50% women) with a mean age of 39 years. Sociodemographic measures included patient age, gender, BMI, race (Black, Latino, mixed), and educational level (< high school (HS), HS or some college, college graduate). Clinic measures of blood pressure (BP) were obtained on the initial visit; a 24-hr ABP recording was obtained within 2 weeks following the clinic visit. Patients were identified as having masked HTN if they had normal BP at the clinic visit (SBP <=120 mmHg, and DBP <=80 mmHg) and elevated mean ambulatory blood pressure (ABP; SBP >=135 or DBP >=85 mmHg).
RESULTS: Initial analyses used a case-control approach in which we examined the initially normotensive participants, contrasting those who remained normotensive during the ABP assessment (n=105) with those who showed elevated ABP (i.e., masked HTN; n=50). Next we performed logistic regression to determine whether variables of age, gender, BMI, race, and educational level can differentiate between normotensive and masked hypertensive participants. Educational level significantly differentiated the 2 groups; participants with less than a HS education

were significantly more likely to have masked HTN than remain normotensive (OR: 0.49, 95CI: 0.27 – 0.92; p=.02).
CONCLUSION: Inquiring about patients' educational level may help determine if patients who are normotensive at the clinic visit might benefit from further clinical follow-up.

EFFECT OF A COLLABORATIVE CARE INTERVENTION ON PATIENTS WITH ISCHEMIC HEART DISEASE S.D. Fihn[1]; J. Rumsfeld[2]; P.H. Diehr[3]; M. Mcdonell[4]; M. Stadius[4]; M. Gerrity[5]; G. Larsen[5]; P.A. Heidenreich[6]; C. Bryson[4]. [1]VA Office of Quality and Performance, Seattle, WA; [2]Eastern Colorado Health Care System, Denver, CO; [3]University of Washington, Seattle, WA; [4]VA Puget Sound Health Care System, Seattle, WA; [5]VA Portland, Portland, OR; [6]VA Palo Alto Health Care System, Palo Alto, CA. *(Tracking ID # 205599)*

BACKGROUND: There are an estimated 9 million patients with chronic stable angina (CSA) in the US whose outpatient care costs nearly $1.5 billion annually. Previous studies indicated that in up to one third of patients, treatment of anginal symptoms was potentially inadequate. We sought to determine whether an intervention based upon collaborative care model and directed through the primary care provider (PCP) would provide better outcomes related to symptoms and quality of life than routine care.
METHODS: We conducted a randomized trial in General Internal Medicine Clinics and community-based outpatient clinics (CBOCs) of four academically affiliated VA Health Care Systems. Providers caring for eligible patients were randomized, clustered by clinic. We mailed the Seattle Angina Questionnaire (SAQ) to approximately 25,000 patients with a diagnosis of ischemic heart disease to identify those reporting angina more than twice weekly. A collaborative care team at each site, comprised of a cardiologist, internist, nurse specialist and research assistant met regularly to develop diagnostic and treatment plans and to conduct progress evaluations for intervention patients. Guideline-based recommendations were sent in the form of unsigned orders and notes in the electronic health record (EHR) to PCPs who were ask to sign, modify or reject. In addition, the team facilitated access to cardiology consultation, provided local leadership, conducted patient educational sessions and distributed educational materials. Control arm patients received usual care. Main outcomes were adjusted score changes from baseline to 12 months in: angina frequency, physical limitation and quality of life as measured by the SAQ; overall physical and mental health status as measured by the Veterans Rand 12-item Health Survey and an 8-item survey of depressive symptoms; and satisfaction with care (Seattle Outpatient Satisfaction Questionnaire).
RESULTS: 703 patients assigned to185 providers were enrolled. Mean age of patients was 67, 98% (687/703) were male, 28% (194/703) were assigned to staff providers (MD, Nurse Practitioner or Physician Assistant) vs. trainees (residents and fellows), 53% (371/703) received care at the main VA facility vs. CBOCs, and 19% (133/703) received at least some care from non-VA cardiologists. Collaborative care teams conducted 895 reviews and made 1241 recommendations. Providers accepted/signed 95% (1181/1241) of recommended orders (medications, tests, consults) and notes in the EHR. Patients in intervention and control group arms did not differ significantly on main outcomes. The primary outcome measure, SAQ angina frequency score, improved .93 points more in the treatment group than in the control group (p=.665). The treatment group showed more improvement (positive coefficients) for 9 of 13 health status measures, but no individual difference was statistically significant.
CONCLUSION: This collaborative care intervention did not significantly improve clinical outcomes of patients with CSA although trends on most outcomes favored the intervention group. In part, this may have reflected high quality of care already being provided to patients enrolled in the study, including care by cardiologists. Delivering guideline-based recommendations within the EHR for review and sign-off by patients' PCPs was well received by clinicians.

EFFECT OF A PATIENT DECISION AID AND ACADEMIC DETAILING FOR INCREASING COLORECTAL CANCER SCREENING AMONG MEMBERS OF A MANAGED CARE PLAN: A CONTROLLED TRIAL C. Lewis[1]; M. Pignone[1]; L.A. Schild[2]; T. Scott[2]; A. Winquist[2]; B. Rimer[1]; K. Glanz[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]Emory University, Atlanta, GA. *(Tracking ID # 204686)*

BACKGROUND: Colorectal cancer screening is effective but under-utilized. Better means are needed to ensure that patients are offered and complete screening. Previous studies have suggested that patient-directed decision aids and academic detailing directed to providers are individually effective in increasing screening, but these interventions have not been tested in combination.
METHODS: We conducted a cluster controlled trial in which we compared the effect of a combined intervention (academic detailing to practices and mailed decision aids to patients) among members of Aetna health plans from practices in two regions (Atlanta and Central Florida). Eligible practices had at least 50 age-eligible (ages 50–75) Aetna patients. Eligible patients were average risk and not up to date with screening (FOBT within 1 year, sigmoidoscopy or barium enema within 5 years, colonoscopy within 10 years) based on claims and self-report. Intervention practices received two sessions of academic detailing from trained physician detailers; intervention practice patient participants also received a mailed package with our previously tested patient decision aid. Control group members received usual care. The main outcome of interest was completion of CRC screening within 12 months, based on self-report. Unadjusted odds ratios (OR) and 95% confidence intervals (95% CI) were calculated accounting for clustering of patients by practice. We also performed adjusted analyses to account for baseline differences between groups.
RESULTS: Of 217 practices contacted, 32 agreed to participate (16 intervention, 16 control). Among these practices, 2954 potentially eligible patients were identified; 1594 (54%) completed an eligibility survey and 770 (48%) were found to be eligible. Of these, 443 (57%) agreed to participate. Mean age was 57.5 years; 62% were female; 81% were White, 15% were African American. Of the 443 enrolled, 372 (84%) completed the 1 year outcome survey. In the intervention group, 62 of 167 (37.1%) reported receiving CRC screening by the time of the year 1 survey, compared with 64 of 205 (31.2%) in the control group (OR=1.6; 95% CI=0.9–2.7; p=0.1186). These results did not differ after adjustment for baseline characteristics between groups.
CONCLUSION: The combination of mailed patient decision aids and practice-level academic detailing had little effect on colorectal cancer screening among participating health plan members.

EFFECT OF ACTIONABLE REMINDERS ON PERFORMANCE OF OVERDUE TESTING R. El-Kareh[1]; T. Gandhi[1]; E.G. Poon[1]; L.P. Newmark[2]; J.P. Ungar[1]; J. Orav[1]; T. Sequist[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners Healthcare, Wellesley, MA. *(Tracking ID # 205176)*

BACKGROUND: Many patients do not receive appropriate testing for preventive care and chronic disease management. Electronic reminders linked to computerized order entry (actionable reminders) might facilitate ordering of overdue tests by allowing the physician to easily order the recommended test when viewing the reminder. We studied the impact of actionable reminders on cancer screening, osteoporosis screening, and diabetes care.
METHODS: We identified 4 primary care clinics (62 primary care clinicians) where actionable reminders were implemented in 2007 (intervention sites), as well as 4 control clinics (64 primary care clinicians) matched to the intervention sites based on baseline screening mammography rates. At the intervention sites, reminders prompted primary care clinicans during office visits with patients overdue for the following exams: 1) annual mammography in women 40–80 years old, 2) one-time bone density exam in patients at high risk for fracture, and 3) hemoglobin A1c every six months and low-density lipoprotein (LDL) every 12 months among patients with diabetes. Reminders had links to outpatient order entry to facilitate ordering of lab or radiology tests with a single click. We analyzed patient visits during a six month period prior to the actionable reminder implementation and during a six month period following implementation. For visits at which patients were overdue for each exam, we determined the proportion followed by performance of the exam within two weeks for blood tests or within two months for mammograms or bone density exams (Table 1). We fit multivariable logistic regression models with generalized estimating equations to measure the effect of the reminders on the testing rates after adjusting for patient sex, race, insurance status, baseline testing rate at each clinic, and clustering of patients within clinicians.
RESULTS: There was no difference in rates of appropriate testing between the intervention and control sites for screening mammography, bone density exams, and diabetes care (see Table 1).

Table 1. Performance of overdue tests

	Study period # tested/#overdue (%)		
Overdue tests	**Pre-intervention**	**Post-intervention**	**p value**
Mammogram			
Intervention	483/5696 (8.5)	578/5263 (11.0)	0.20
Control	463/4030 (11.5)	553/3881 (14.3)	
Bone density scan			
Intervention	125/2935 (4.3)	163/2651 (6.2)	0.61
Control	94/1854 (5.1)	116/2017 (5.8)	
Hemoglobin A1c in diabetics			
Intervention	150/322 (46.6)	176/379 (46.4)	0.71
Control	151/279 (54.1)	151/311 (48.6)	
LDL in diabetics			
Intervention	92/252 (36.5)	78/323 (24.2)	0.58
Control	73/241 (30.3)	62/300 (20.7)	

LDL = low-density lipoprotein

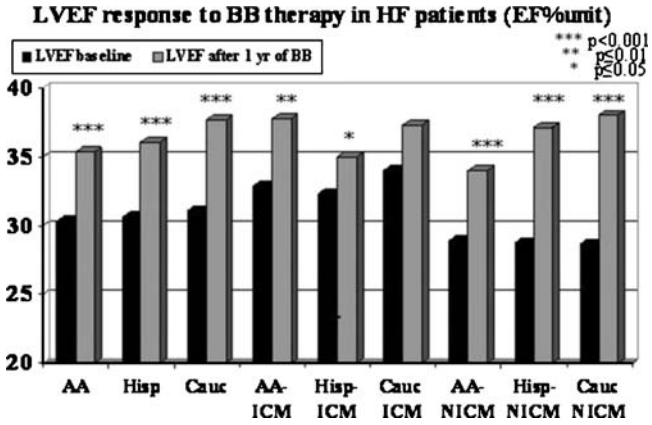
CONCLUSION: Actionable reminders did not improve receipt of breast cancer screening, osteoporosis screening, and diabetes care. Future work should focus on understanding the limitations of such systems and how to improve their effectiveness.

EFFECT OF ALCOHOL CONSUMPTION ON BIOLOGICAL MARKERS ASSOCIATED WITH RISK OF CARDIOVASCULAR DISEASE: A SYSTEMATIC REVIEW S.E. Brien[1]; P.E. Ronksley[1]; B.J. Turner[2]; K.J. Mukamal[3]; W.A. Ghali[1]. [1]University of Calgary, Calgary, Alberta; [2]University of Pennsylvania, Philadelphia, PA; [3]Harvard University, Brookline, MA. *(Tracking ID # 204338)*

BACKGROUND: Moderate alcohol consumption may be cardio-protective, and numerous studies have been conducted in recent years to elucidate the biological mechanisms that underlie this phenomenon. We conducted a systematic review of interventional studies assessing the effect of alcohol consumption on the levels of various biological markers associated with cardiovascular risk.
METHODS: MEDLINE (1950 through October 2008) and EMBASE (1980 through October 2008) databases were searched using terms for three comprehensive search themes: exposure of interest (alcohol consumption), measures of interest (plasma concentrations of lipids, inflammatory markers, hemostatic factors, endothelial cell function markers and adipocyte hormones), and study design (clinical trials, crossover studies and before-after interventional studies). Titles and abstracts were screened in duplicate (kappa: 0.80; 95% CI 0.65, 0.94) and disagreements were resolved with discussion and consensus. The title and abstract review identified studies of intentional alcohol interventions and effect on biological markers in adults without pre-existing cardiovascular disease. Full text review selected studies comparing fasting blood levels of the specific biological markers after alcohol intervention to levels following a no-alcohol period.
RESULTS: 4309 articles were identified and 57 were selected for full text review. 41 articles pertained to lipid biomarkers [triglycerides (34), cholesterol (30), LDL (26), HDL (38), apoprotein A1 (19), lipoprotein(a) (5)], 12 measured inflammatory markers [c-reactive protein (7), leukocytes (1), interleukin-6 (5), TNF-alpha (6), e-selectin (2)], 11 measured haemostatic factors [PAI-1 (2), von Willebrand Factor (2), tPA (3), plasminogen (1), fibrinogen (7), thromboxane (1)], 3 measured endothelial cell function markers [ICAM-1 (3), VCAM (2)], and 6 measured adipocyte hormones [adiponectin (5), leptin (2)]. Results varied by duration and dose of alcohol given, age of subjects and concurrent interventions (e.g., controlled diet). Despite this heterogeneity, semi-quantitative synthesis of results revealed favorable alcohol effects for: increased HDL (32 of 38 studies), increased ApoA1 (11 of 19 studies), decreased fibrinogen (6 of 7 studies), and increased adiponectin (3 of 5 studies). Results for other biomarkers, such as total triglycerides, total cholesterol, LDL, c-reactive protein, interleukin-6 and TNF-alpha indicated either no effect of alcohol, or inconsistent/inconclusive results across studies.
CONCLUSION: Alcohol consumption is associated with favorable changes in the levels of several biomarkers of possible relevance to the pathogenesis of cardiovascular disease. These biomarker effects may causally underlie the previously reported cardio-protective effects of alcohol.

EFFECT OF B ADRENORECEPTOR ANTAGONISM ON LEFT VENTRICULAR EJECTION FRACTION IN AFRICAN AMERICAN, HISPANIC AND CAUCASIAN SUBJECTS WITH CHRONIC HEART FAILURE I. Kelesidis[1]; C. Varughese[1]; P. Hourani[1]; R. Zolty[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205391)*

BACKGROUND: Heart Failure (HF) is a common and unfavorable diagnosis among the elderly. Several large randomized trials have confirmed that b-blockade (BB) improves left ventricular ejection fraction (LVEF) and reduces mortality in HF patients. However, this benefit displays a high degree of inter-individual and inter-ethnic variation. The aim of this study was to compare LVEF response to BB between African American (AA), Hispanic and Caucasian patients with HF.
METHODS: Sixty five AA, seventy six Hispanic, and forty six Caucasian patients with LVEF ≤40% from any etiology were selected from the HF Clinic at the Albert Einstein College of Medicine. LVEF response to one year of BB was evaluated retrospectively. LVEF was determined from the modified Simpson's Rule using 2-D echocardiography. Responders to beta blockade were defined as patients with an absolute increase in LVEF ≥5% after maximal doses of b-blockers.
RESULTS: There was a significant mean LVEF increase in all ethnic groups ($p<0.001$) after one year stable dose of beta blocker. There was no difference between the mean LVEF responses of the three ethnic groups ($p=0.626$). Overall, 55.1% of our patients responded to beta blockers and increased their LVEF by 11.66±7.19, $p<0.001$ and the mean ΔLVEF in responders was about the same for AA, Hispanics and Caucasians. Subgroup analysis by presence or absence of ischemic cardiomyopathy (ICM) revealed a significant increase in LVEF in each ethnic group ($p \leq 0.01$) except Caucasian patients with ICM. In stepwise multiple linear regression analysis of ΔLVEF with the available covariates for the whole population, etiology of cardiomyopathy ($b=0.234$, $p=0.002$), baseline LVEF ($b=0.402$, $p<0.001$) and NYHA classification ($b=-0.228$, $p=0.001$) at b-blocker stable dose independently predicted the mean change of LVEF. Finally, the type of race was not a major predictor of significant ΔLVEF response after 1 year of BB (OR 1.549, $p=0.213$ for Caucasians, OR=0.766, $p=0.387$ for AA and OR=0.926, $p=0.797$ for Hispanics).
CONCLUSION: This study demonstrated a strong, significant LVEF improvement in the HF AA, Hispanic and Caucasian populations when treated with BB. This LVEF response was not different between ethnic groups. Etiology of cardiomyopathy and baseline LVEF are important predictors of LVEF response to beta blockers but not the type of race. Responders patients with NICM had a more significant mean change in EF compared with the ICM group.



Racial differences of LVEF response to BB therapy

EFFECT OF REPEAT BACK ON PATIENT PERCEPTIONS OF INFORMED CONSENT FOR SURGERY A.V. Prochazka[1]; A.S. Fink[2]; W. Henderson[3]; D. Bartenfeld[4]; C. Nyirenda[3]. [1]Denver VA Medical Center, Denver, CO; [2]Atlanta VAMC, Decatur, GA; [3]University of Colorado Denver, Aurora, CO; [4]Atlanta VAMC, Atlanta, GA. *(Tracking ID # 204148)*

BACKGROUND: Comprehension of informed consent (IC) for surgery is suboptimal. Repeat-back (RB) – asking the patient to repeat in their own words key elements of the consent – has been proposed as a means to improve the consent process In a randomized trial of RB-enhanced informed consent, we assessed patient perceptions of the consent process.
METHODS: Patients scheduled for elective surgeries (total hip arthroplasty (n=137), carotid endarterectomy (n=178), laparoscopic cholecystectomy (n=179) or radical prostatectomy (n=81)) at 7 VA Medical

Centers were enrolled. IC was obtained using iMedConsent, the VA's computer-based IC platform. Patients were randomized to RB (a module added to the iMedConsent package) or standard iMedConsent (No RB). In the RB group the consent could not be completed until the surgeon received satisfactory responses regarding critical consent elements. All patients completed a Likert scale questionnaire immediately after signing the IC. The items included time for decision, satisfaction with consent, whether the consent was easy to understand, whether the patient got the right amount of information about the reason for surgery, the benefits, the risks and the alternatives. Statistical comparisons of groups were performed using t-tests and Chi Square tests.
RESULTS: We enrolled 575 subjects (276 RB and 299 No RB). 92% were men, mean age was 61.6 years, and mean reading ability was at high school level as measured by the REALM test. The RB group spent longer on the consent [13.6 minutes (sd 10.2)] than did the No RB group [9.2 minutes (sd 5.7)], p=0.001. The groups were comparable in perceptions of time to make a decision [RB 88% Strongly Agree (SA), No RB 88% SA, p=0.61}, satisfaction with the way consent was obtained (RB 90% SA, no RB 87% SA, p=0.27), whether the consent was easy to understand (RB 69% SA, No RB 67% SA, p=0.73). Both groups felt they received the right amount regarding the reason for surgery (RB 85% SA, No RB 87%, p=0.61), the benefits of surgery (RB 87% SA, No RB 86% SA, p=0.29) and the risks (RB 87% SA, No RB 84% SA, p=0.19). More of the RB group felt they got the right amount of information about alternatives to surgery (RB 80% SA) than did the No RB group (69% SA), p=0.01.
CONCLUSION: RB took longer than No RB, but the consent process was perceived as being comparable in the two study groups. RB was perceived to offer better provision of information about alternatives to surgery. RB does not negatively influence the consent process and may be a useful approach to improving informed consent for surgery.

EFFECTIVENESS OF A COMMUNITY HEALTH WORKER INTERVENTION AMONG AFRICAN AMERICAN AND LATINO ADULTS WITH TYPE 2 DIABETES: A RANDOMIZED CONTROLLED TRIAL DEVELOPED AND IMPLEMENTED USING COMMUNITY-BASED PARTICIPATORY RESEARCH (CBPR) METHODS M. Heisler[1]; A. Rosland[1]; E.C. Kieffer[1]; S. Brandy[1]; G. Palmisano[2]; M. Anderson[2]; R. Guzman[3]; M.S. Spencer[1]. [1]University of Michigan, Ann Arbor, MI; [2]REACH Detroit Partnership/Community Health and Social Services (CHASS) Clinic, Detroit, MI; [3]Community Health and Social Services (CHASS) Clinic, Detroit, MI. *(Tracking ID # 203584)*

BACKGROUND: Community health worker (CHW) interventions have shown promise in disseminating diabetes education and resources and in improving diabetes outcomes among adults with diabetes in underserved communities. Few CHW interventions have been grounded in behavioral theories or developed and rigorously evaluated in conjunction with community partners. Using community-based participatory research methods (CBPR) in partnership with community organizations, we tested the effectiveness of a culturally tailored, empowerment-based community health worker intervention for improving glycemic control among African American and Latino adults living in inner-city Detroit.
METHODS: We used a randomized, six-month delayed, controlled group study design. 164 African American and Latino participants living in southwest and eastside Detroit were recruited from two health systems. Using an empowerment-based approach, community health workers provided culturally tailored diabetes self-management education, regular telephone and home contacts, and a clinic visit during the six month intervention period. The control group received enhanced usual care and information on community resources and activities. Hemoglobin A1c was the primary outcome measure. Secondary outcomes included lipids, blood pressure, diabetes knowledge, self management behaviors, and diabetes-specific emotional distress.
RESULTS: Participants in the intervention group had a mean A1c of 8.7% at baseline, which improved to 7.8% at six months (-0.9% [p< 0.01]). The change in A1c for the control group was not significant (8.6 to 8.3 [-0.3]). The difference in the change in A1c between the two groups was -0.6% (p<0.05). Significant improvements among intervention participants were also demonstrated for other clinical and behavioral variables, such as LDL, diabetes knowledge, and diabetes-specific emotional distress.
CONCLUSION: The intervention had a clinically significant impact on reducing A1c among participants and improving other key diabetes outcomes compared to the control group. This study contributes to the growing evidence for the effectiveness of community health workers trained in effective behavioral approaches and their role as members of multi-disciplinary teams engaged in culturally appropriate health care delivery. Our findings also confirm the feasibility of conducting rigorous research in disempowered communities using CBPR principles and methods.

EFFECTIVENESS OF ANTIBIOTIC CLASS IN ACUTE EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE M. Rothberg[1]; P. Pekow[2]; M. Lahti[3]; O. Brody[2]; D. Skiest[1]; P. Lindenauer[4]. [1]Society of General Internal Medicine, Springfield, MA; [2]Baystate Medical Center, Springfield, MA; [3]University of Massachusetts, Amherst, MA; [4]Tufts University, Springfield, MA. *(Tracking ID # 204572)*

BACKGROUND: Acute exacerbations of chronic obstructive pulmonary disease (AECOPD) are a leading cause of hospitalization in the US. Based on the results of meta-analyses of randomized trials, guidelines recommend treatment with antibiotics for most exacerbations, however there is insufficient evidence to guide antibiotic selection, and recommendations vary across guidelines. The objective of this study was to compare the effectiveness of different classes of antibiotic on a composite measure of treatment failure among a broadly representative group of patients hospitalized for AECOPD.
METHODS: We conducted a retrospective cohort study of patient hospitalized for AECOPD in 2001 at 375 U.S. hospitals that participated in a database used for measuring quality of care and resource utilization that contains detailed information about diagnoses, tests and treatments. Patients were included if they were >40 years old and had a principal diagnosis of AECOPD or a principal diagnosis of respiratory failure paired with a secondary diagnosis of AECOPD, and received at least 2 consecutive days of an appropriate antibiotic beginning on hospital day 1 or 2. Patients admitted directly to the ICU, having any other diagnosis representing bacterial infection, or whose length of stay was <2 days were excluded. We developed multivariable models to estimate the effects of 1) quinolones, macrolides and tetracyclines (atypical coverage vs. other) and 2) macrolides vs. quinolones on a composite measure of treatment failure, defined as the initiation of mechanical ventilation after hospital day 2, inpatient death, or readmission within 30 days, and antibiotic-associated diarrhea. Models were adjusted for a wide range of patient (e.g. demographics, comorbidities), physician (e.g. specialty) and hospital factors (e.g. size, teaching status); other treatments (e.g. steroids, bronchodilators); and the propensity for treatment with a specific class of antibiotics. Generalized estimating equations were used to account for the effects of patient and physician clustering. We also performed a group treatment (GT) analysis, substituting the hospital rate of treatment with a given class of antibiotic for the actual treatment received.
RESULTS: Of the 26,248 patients, 56% received a quinolone, 28% a macrolide, and 37% a cephalosporin, 4% a tetracycline and 4% another antibiotic. Compared to patients who did not receive coverage for atypical organisms, those receiving initial treatment with a macrolide, quinolone or tetracycline had a lower incidence of treatment failure (7.7% vs. 8.6%, p=0.03) with no difference in diarrhea. After adjusting for the propensity to receive atypical coverage, treatment failure was still reduced among patients receiving a macrolide, quinolone or tetracycline (OR=0.88, 95% CI 0.79–0.99). GT analysis accentuated this difference. Compared to patients treated with quinolones, those receiving macrolides had lower risk of treatment failure (6.8% vs. 8.1%, p<0.01) and of diarrhea (0.6% vs. 1.2%, p<0.001). After multivariable adjustment, including the propensity for a quinolone, the reduction in treatment failure was no longer significant (OR=0.89, 95% CI 0.78–1.01). In the GT analysis the difference completely disappeared (OR= 1.01, 95% CI 0.75, 1.35).
CONCLUSION: For hospitalized patients with AECOPD, macrolides and quinolones appear more effective than cephalosporins and other antibiotics; macrolides appear the safer of the two.

EFFECTIVENESS OF GROUP MEDICAL VISITS IN DIABETES AND HYPERTENSION: A TWO-SITE RANDOMIZED CONTROLLED TRIAL D. Edelman[1]; S. Fredrickson[2]; S.D. Melnyk[3]; C.J. Coffman[4]; A. Jeffreys[4]; G.L. Jackson[3]; A. Harris[4]; H. Stewart[5]; N. Hamilton[3]; M. Weinberger[6]. [1]Durham VA Medical Center, Durham, NC; [2]Veterans Affairs Medical Center, Richmond, VA; [3]Durham Veterans Affairs Medical Center, Durham, NC; [4]Duke University, Durham, NC; [5]Hunter Holmes McGuire VA Medical Center, Richmond, VA; [6]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205192)*

BACKGROUND: Group medical clinics (GMCs) are widely used but poorly tested in the management of diabetes and hypertension. Our objective was to test the effectiveness of group medical visits in the management of diabetes and hypertension.
METHODS: 239 patients receiving primary care at the Durham or Richmond VAMC with poorly controlled diabetes (Hemoglobin A1c (A1c) >= 7.5%) and blood pressure (BP) (systolic BP >=140 or diastolic BP >=90) were randomized within VAMC to receive either group medical visits (125 patients) or usual care (114 patients). Randomization was slightly unbalanced to account for statistical clustering of intervention patients into GMCs. Each session was always attended by the same patients, general internist, and pharmacist; however, there were different physicians and pharmacists across groups. Each session included group education and structured group interactions moderated by a registered nurse or certified diabetes educator. Additionally, individual medication adjustments were made by the pharmacist and physician to manage A1c and BP. Each group met every two months for a year. A1c and systolic BP (SBP) were measured at baseline, 6 and 12 months. Linear mixed modeling (LMM) was used to compare changes in A1c and systolic BP between the intervention and control arms, adjusting for clustering within GMCs.
RESULTS: 89% of patients had complete follow-up, and 93% of data points were obtained. Patients' mean age was 62, 59% were African-American, and 96% were male. Mean baseline SBP and A1c were 152.9 (SD 14.2) mmHg and 9.2 (SD 1.4) %. Both demographics and clinical measures were comparable between control and intervention arms. Intervention arm patients attended 77% of their scheduled GMC visits. Intervention patients had greater observed improvements in SBP than controls at both 6 months (14.5 vs. 7.2 mmHg) and 12 months (14.1 vs. 6.2 mmHg). After adjusting for baseline and clustering, the difference between arms in 12 month change in systolic BP was 7.2 mmHg (p= 0.02 by LMM). Intervention patients also had greater observed improvements in A1c than controls at both 6 months (0.6% vs. 0.4%) and 12 months (0.9% vs. 0.5%). However, after adjustment for baseline and clustering, the difference at 12 months was 0.3% (p=0.20 by LMM).
CONCLUSION: Group medical visits are a potent strategy for improving blood pressure in patients with diabetes. They are not significantly better than usual care in improving glycemic control, probably due to multi-factorial challenges in improving glycemic control among refractory patients in our population.

EFFECTIVENESS OF OUTREACH TO PATIENTS WITH DIABETES WHO HAVE FALLEN OUT OF REGULAR CARE V. Ramirez[1]; M. Jean-Jacques[2]; A. Valukas[3]; L. Muskovitz[3]; K. Sanserino[3]; A. Cesan[3]; D. Buchanan[3]; L. Francis[3]; N.K. Kandula[2]; D.W. Baker[2]. [1]Northwestern University, Chicago, IL; [2]Northwestern University Feinberg School of Medicine, Chicago, IL; [3]Erie Family Health Center, Chicago, IL. *(Tracking ID # 205414)*

BACKGROUND: Re-engaging patients who have fallen out of regular care is a challenge for all primary care practices, but especially for federally qualified health centers (FQHCs). We implemented a system of proactive outreach for patients with diabetes who had fallen out of care at an FQHC, determined the yield of that outreach, and assessed patients' perspectives on barriers to obtaining regular care.
METHODS: Administrative claims data were queried to identify patients with type 2 diabetes who had fallen out of care from an FQHC serving a predominately Latino, Spanish-speaking population in Chicago. Patients were considered out of care if they had at least one doctor's visit in a one year period (March 1, 2007 and February 29, 2008) and had not returned to the clinic for at least six months after their previous visit. Patients were called by an outreach coordinator. If a patient did not have a phone number on file, their number was disconnected, or no response was obtained after three call attempts, a letter was sent asking them to contact the coordinator. Those reached were offered assistance with scheduling an appointment and coordinating corresponding laboratory tests. Patients were also asked an open ended question to ascertain any barriers they encountered that kept them out of care.
RESULTS: Of the 208 patients initially eligible for outreach, three (1%) patients were reported to be deceased and 12 (6%) were out of the country according to surrogates. Of the remaining 193 eligible patients, 37 (19%) were re-engaged into care at the health center: 26 completed a provider visit and 11 had a provider visit scheduled but not yet completed. Overall, we were unable to directly contact 116 (60%) of the 193 patients eligible for outreach. Of the 207 patients with a phone number on file, 72 (35%) had a disconnected or incorrect phone number and 50 (24%) were not reachable within three call attempts. Letters were mailed to 90 of the 123 (73%) patients who were not reached by phone. Of these, 69 (77%) patients did not respond to the mailing, 14 (15%) letters were returned to sender, and seven (8%) patients responded to the mailing. Of the 77 patients who were directly contacted, the most commonly reported barriers to care were deeming a check-up unnecessary (14%), cost (13%), and difficulty getting an appointment (10%).
CONCLUSION: Given the relatively low yield of outreach, this particular outreach method to diabetic patients who have fallen out of care may not be economically feasible or sustainable for FQHCs facing limited resources and staff. High rates of disconnected/incorrect numbers and the poor response to mailed letters highlight the challenges of contacting patients who have fallen out of care. Patient barriers, such as cost or not perceiving the need for follow up care in the absence of acute symptoms, must also be addressed. Future studies should assess the clinical outcomes of those brought back into care as well as the effectiveness of these proactive outreach strategies in other settings.

EFFECTS OF MOTIVATIONAL INTERVIEWING ON SEXUAL RISK BEHAVIOR AND SAFER SEX SELF-EFFICACY AMONG HIV-INFECTED PATIENTS IN THE SOUTHEASTERN US Z. Chariyeva[1]; C. Golin[1]; C.A. Grodensky[1]; C.M. Suchindran[1]; D. Long[1]; A. Wong[1]; J. Groves[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 206013)*

BACKGROUND: Motivational Interviewing (MI), a nonjudgmental, client-centered counseling approach, has been shown to be effective in reducing substance and alcohol abuse and may be an effective means to enhance safer sex practices of people living with HIV/AIDS (PLWH). Few studies have examined whether time spent in Motivational Interviewing decreases sexual risk behavior and increases confidence to have safer sex among people living with HIV.
METHODS: We developed and tested SAFETALK, a theory-based, multi-component MI safer sex program for PLWH. The program consists of four structured MI sessions, a series of 4 CD-booklet pairs that prepare patients for each MI session and provide tailored safer sex information, and booster letters. We enrolled 490 sexually active HIV-infected patients at three North Carolina clinics into a randomized controlled trial evaluating SAFETALK against a heart-healthy control program. Using data from audio computer-assisted self interviews completed at baseline and 4-, 8-, and 12-month follow-up visits between 7/06 and 12/08, we assessed: 1) unprotected anal/vaginal intercourse with at-risk partners [transmission risk behavior (TRB)] in past 3 months, 2) confidence to practice safer sex, 3) HIV-related stigma, 4) emotional well-being, 5) history of discrimination in health-care settings, 6) attitudes and motivation to use condoms, and 7) age, gender, race/ethnicity, education, relationship status, and income. We also recorded the length of each MI counseling session delivered to participants randomized to the intervention arm and the number of sessions received. We ran a multivariate model to look at factors predicting TRB longitudinally including values at baseline, 4- and 8-month follow-up.
RESULTS: Our baseline sample was poor (54% <$10,000 annually), poorly educated (24% and predominantly African American (71%), with an average age of 43. Twelve percent reported engaging in TRB. Factors that were positively associated with decreased TRB over time were greater number of minutes spent in MI counseling (p<0.0001), increased confidence to practice safer sex (p<0.0001), increased emotional well-being (p<0.0001), improved attitudes towards condoms (p=0.0007), decreased stigma (p=0.0044), female gender (p<0.0001), and age (p= 0.0002). A comparable model was also run including number of MI sessions received rather than MI minutes, yielding comparable results.
CONCLUSION: Participants receiving greater dose of the SAFETALK MI intervention were less likely to engage in risky sexual behavior over time. MI techniques may be effective intervention tools in HIV prevention.

EFFICACY OF A CURRICULUM TO TEACH RESEARCH SKILLS TO RESIDENTS AND PREDICTORS OF INCREASING RESEARCH KNOWLEDGE A.M. Palacio[1]; D. Campbell[2]; S. Symes[2]; J. Sosnov[2]; L. Tamariz[2]. [1]University of Miami, Coral Gables, FL; [2]University of Miami, Miami, FL. *(Tracking ID # 205863)*

BACKGROUND: Previous work demonstrates that a structured research curriculum can substantially enhance scholarly success for physicians-in-training and their mentors. Completing a research

project is a mandatory requirement in many training programs in the US. Absence of a research curriculum has been identified as a barrier to a successful research scholarly experience. The purpose of this study is to report the efficacy of a newly developed curriculum on the research methods knowledge of internal medicine residents.

METHODS: This prospective study collected data from 59 consecutive first year residents at the University of Miami Internal Medicine training program. The curriculum consists of a 1 month rotation during the first year with subsequent follow up individualized meetings throughout the second and third years until the completion of the research project. The curriculum focuses on epidemiological and biostatistical knowledge, the development of a research question that can be translated into a feasible project, creation of adequate mentoring relationships, and training on specific research skills. We collected knowledge using a standardized and validated biostatistical knowledge test survey instrument. The test measures demographics, confidence and research methods knowledge. The test was given before and after the research rotation month. We defined success as increasing the post-test knowledge by 10 points.

RESULTS: Fifty nine first year residents participated in the research month . Fifty-two percent were female, 77% were between the ages of 26 and 30 years old, 83% were less than 3 years post graduation. The mean research pre-test knowledge score of internal medicine residents was 41.3±14.5 which increased to 57.9±16.1 in the post-test ($p<0.01$). Age, gender, years since graduation, prior training in research methods and training outside the United States were non-significant predictors of improving research knowledge ($p>0.05$).

CONCLUSION: A curriculum that aims at improving the research scholarly activity experience for internal medicine residents is an effective method of improving research methods knowledge and research interpreting skills. We will report the sustainability of this knowledge in future communications.

EFFICACY OF DICLOFENAC SODIUM TOPICAL GEL 1% IN KNEE OSTEOARTHRITIS OF KELLGREN-LAWRENCE GRADES 1, 2, OR 3 SEVERITY H.S. Baraf[1]; F. Gloth[2]; M.S. Gold[3]; M. Clark[4]. [1]George Washington University School of Medicine, Wheaton, MD; [2]Johns Hopkins University School of Medicine, Baltimore, MD; [3]Novartis Consumer Health, Parsippany, NJ; [4]Endo Pharmaceuticals, Chadds Ford, PA. *(Tracking ID # 204345)*

BACKGROUND: Topical diclofenac sodium gel 1% (DSG) is approved to manage osteoarthritis (OA) in superficial joints such as the knee or hands. Many OA patients have disease of mild to moderate severity (Kellgren-Lawrence [KL] grades 1–3). In this study the efficacy and safety of DSG vs placebo gel is compared between subjects with mild knee OA and subjects with moderate knee OA as defined by radiographic appearance.

METHODS: In a 12-week, prospective, randomized, double-blind, multicenter, parallel-group study, subjects 35 years old with KL grade 1–3 knee OA applied DSG 4 g or placebo 4 times daily to each painful knee. Rescue acetaminophen (4 g/d) had to be stopped 48 hours before efficacy assessments. Primary efficacy outcomes at Week 12 were the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale (0–20), the WOMAC physical function subscale (0–68), and the patient global rating of benefit (GRB; 0=very good; 100= very poor). Efficacy (difference of DSG vs placebo) in subjects with mild (KL grade 1–2) vs moderate (KL grade 3) OA was compared by analysis of covariance. All adverse events were recorded.

RESULTS: 252 subjects with mild knee OA and 167 subjects with moderate OA were randomized. The proportions of patients who completed the study were 81.7% and 81.1% of the DSG and placebo groups, respectively. Overall, mean±SD reductions in WOMAC pain from baseline to week 12 were greater for DSG vs placebo (–6.8±4.5 vs –5.4±4.5; P= 0.008). Reductions in WOMAC functional impairment were also greater with DSG (–21.5±15.3 vs –16.8±15.7; P=0.004). Efficacy (separation of DSG vs. placebo) did not differ significantly between patients with mild vs patients with moderate OA for WOMAC pain (P=0.60) or physical function (P=0.79) indices. GRB scores were not significantly superior (ie, lower) with DSG vs placebo in the entire study population (24.1±24.9 vs 28.8± 26.7; P=0.09). Overall, treatment-related adverse events were more frequent in the DSG group than in the placebo group (7.7% vs 4.2%). Application-site dermatitis was the most frequent treatment-related adverse event (DSG 4.8%, placebo 0%). No other treatment-related adverse event occurred in more than 1% of subjects in either group. The only treatment-related gastrointestinal adverse event was 1 case of diarrhea in the placebo group. No serious treatment-related adverse events or laboratory abnormalities were reported. Rates of treatment-related adverse events did not differ meaningfully between patients with mild knee OA (DSG 6.5%, placebo 3.1%) vs. patients with moderate knee OA (DSG 9.5%, placebo 6.0%). Rates of application-site dermatitis were 4.0% among DSG-treated patients with mild knee OA and 6.0% among DSG-treated patients with moderate knee OA.

CONCLUSION: DSG improved pain and physical function similarly in subjects with radiographically mild and moderate knee OA. These results suggest that DSG may be suitable for many patients who have knee OA within this range of severity.

EFFICIENCY OF BEDSIDE ROUNDS J.D. Gonzalo[1]; C. Smith[2]; G. Huang[2]. [1]Beth Israel Deaconess Medical Center, Brookline, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205294)*

BACKGROUND: Bedside teaching rounds became the primary method of teaching students and housestaff in the early 20th century. By the 1960s, 75% of attending rounds occurred at the bedside, with a decline to 16–20% by the late 70s-80s, and to <10% by 2005. Studies suggest bedside rounds have declined in part due to "patient preferences" and "inefficiency" of rounding at the bedside. However, studies suggest that patients prefer this means of rounds. No studies have evaluated the efficiency of bedside rounds compared to "walk rounds." This study aimed to determine the prevalence of bedside rounds, to compare the time required for bedside rounds in comparison to the conference room or hallway, and to determine if patients experiencing walk rounds would prefer bedside rounds.

METHODS: A before and after study design in two blocks over a total of four weeks was conducted at an academic medical center. During week 1, medicine teams rounded in their method of choosing, which included walk rounds (resident and intern discussing patient care outside of room but with patient interaction at the completion of discussion) and bedside rounds (resident and intern perform case presentations, physical exam, and discussion of the plan at the bedside). Prior to week 2, a bedside rounding tutorial was offered by the residency program to all medicine ward housestaff. During week 2, bedside rounds were conducted on new admissions for the first two days of his/her hospital stay. At the completion of each morning of rounds during both weeks, ward residents were surveyed to recall rounding times for each patient. A Likert-style survey was administered to patients experiencing walk rounds after hospital day 2 to assess preferences to bedside rounding.

RESULTS: Before intervention, 7/350 (2%) of patient encounters involved bedside rounds, while 186/350 (53%) involved any patient interaction. Patient encounters averaged 12.1 minutes and the average time required to perform a new patient "walk round" was 17.8 minutes. After intervention, 188/383 patient encounters (49%) involved rounds at the bedside, while 232/383 (61%) involved any patient interaction. Patient encounters averaged 10.6 minutes and an average of 15.3 minutes was required to perform bedside case presentations per new patient (p=0.08 vs walk rounds). Eighty-four percent (84%) of patients not experiencing bedside rounds reported they would "somewhat agree" or "strongly agree" that they would prefer bedside rounds.

CONCLUSION: Rounds occurring at the bedside have been waning on Internal Medicine services, as shown in this study that <2% of rounds were conducted at the bedside. One significant barrier identified by physicians has been "inefficiency" of bedside rounds, however, this study demonstrates that bedside rounds can be as efficient as "walk rounds" or conference room rounds. Those patients not experiencing bedside rounds overwhelmingly reported their preference to have medicine teams round at the bedside instead of an alternative location. In this study, residency administration encouragement of residents to perform bedside rounds increased time spent with patients by the housestaff, demonstrating residents' willingness to participate in this alternative means of rounding. Since the bedside offers an opportunity to develop management and professional skills, we must re-examine our current teaching methods on Internal Medicine services to make better use of this environment as an educational tool.

EIGHT YEARS OF THE MAYO INTERNATIONAL HEALTH PROGRAM: WHAT AN INTERNATIONAL EXPERIENCE ADDS TO RESIDENT EDUCATION A. Sawatsky[1]; D. Rosenman[1]; F.S. Mcdonald[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205154)*

BACKGROUND: International health experiences among resident physicians have become more prevalent in graduate medical education.

Previous survey research has assessed the impact of international experiences on resident attitudes and choices, as well as residency selection. The Mayo International Health Program (MIHP) is a donor-funded program that financially supports curricular elective time for international rotation. The purpose of this study is to examine the educational benefits of the MIHP.
METHODS: Through the MIHP, residents apply for elective experiences that are screened and competitively approved by a multi-disciplinary selection committee. Resident's have a choice between several pre-designated sites or can organize their own elective, usually through non-governmental organizations with experience in international health. Clinical care for the medically underserved is required for selection. On return from their elective, the residents must complete a report that includes rotation location, organization, mentor, case log, and a narrative description of the personal and professional impact of the experience. The data for this study includes: 1) quantitative data about locations, participants, and patients and 2) narrative data was reviewed using NVivo7 for qualitative analysis. Themes from the narrative responses were coded and analyzed for themes and trends.
RESULTS: From 2001-July 2008, 162 resident electives in 20 different specialties were sponsored in 43 different countries, serving over 40,000 patients. The narrative information raised multiple themes regarding the educational benefits, including a wide range of personal and professional benefits. The most cited professional/educational benefits included: the challenge of practicing medicine with limited resources (42%) and limited diagnostic capabilities (24%), and building confidence by relying on their own physical exam skills. Residents learned from seeing patients with more advanced illness (19%), and saw the need for public health education (6%). Many were motivated by serving the underserved (27%), and many had a desire to return to where they served or go into primary care (29%). On a personal level, many residents where moved by their interactions with the people and culture (37%).
CONCLUSION: The MIHP provides residents with the funding to undertake an international elective. The experience has many educational benefits, including personal and professional benefits, and is worthy of continued funding.

ELECTRONIC MEDICAL RECORDS-CATALYZED CLINICAL DECISION SUPPORT TO IMPROVE DIABETES CARE AND OUTCOMES: RESULTS OF A CLUSTER RANDOMIZED TRIAL R.D. Cebul[1]; T.E. Love[1]; D. Einstadter[1]; P.J. Greco[1]; N.V. Dawson[1]; M. Roach[1]; S.S. Husak[1]; M.E. Votruba[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205660)*

BACKGROUND: Commercially available EMR systems have the potential to provide replicable real-time clinical decision support (CDS) to improve the care and outcomes of patients with chronic conditions. We used the Epic® EMR to develop and compare the effectiveness of a CDS system for improving a comprehensive set of ADA-endorsed goals for patients with diabetes, including 5 provider-centered Process standards and 5 patient-centered Outcome standards, in a large cluster randomized trial.
METHODS: The trial was conducted in primary care practices of a large, urban, safety net health care system. Practice clusters were randomly assigned to CDS and Control study groups based on their balance of baseline clinical features (J Gen Intern Med. 2008; 23(4):383–91). All diabetic patients over age 18 who had two or more PCP visits were included in the trial, conducted between 4/17/05 and 10/17/07. CDS consisted of filtered Alerts and linked Order Sets, PCP-specific patient registries and diabetic profiles, availability of comparative performance feedback, updated weekly, and the availability of nurse case managers by referral. The 5 pre-specified Process standards included timely receipt of A1c tests, LDL tests, eye examinations, nephropathy monitoring, and receipt of a pneumococcal vaccine; the 5 Outcome standards included A1c<7%, BP<130/80, BMI< 30, LDL<100, and documented non-smoking status. Using logistic regression with robust standard errors to account for clustering and adjusted for baseline covariates, we examined the effect of CDS on the percentage of patients who improved or met all 5 Process standards, all 5 Outcome standards, and all 10 standards collectively. In stratified analyses, we also examined the CDS effect on sub-groups by race (white, black, Hispanic) and insurance (Medicare, Commercial, Medicaid, and uninsured).
RESULTS: Collectively, the 5984 patients were cared for in 4 CDS sites (60 PCPs, 4170 patients) and 5 Control sites (25 PCPs, 1814 patients). At baseline, study groups were similar in 3 of 5 Process standards (pneumovax, testing for A1c and LDL; p-values >0.40) and 3 of 5 Outcome standards (A1c<7, SBP<130, BMI<30; p-values >0.20), but differed on others. Control group patients were younger (55.5 vs. 57.8 years), more often white (61.8% vs. 37.7%), and less likely to have >2 co-morbid illnesses (19.1% vs. 26.6%) (all p-values<0.001). Control patients were more likely to be Commercially insured (36.3% vs. 28.4%), but also more likely to be uninsured (22.4% vs. 15.8%). After accounting for clustering and adjusting for all baseline covariates, CDS patients were more likely to have improved or met all Process standards (74.7% vs. 69.2%, OR=1.51, 95% CI: 1.23–1.85), but not more likely to have improved or met all Outcome standards (OR=1.03, 95% CI:0.79–1.34) or the 10 standards collectively (OR=1.19, 95% CI: 0.97–1.45). In stratified analyses on the Process standards, significant improvements were observed for Medicare and Commercially insured patients and for whites, but not for Medicaid, uninsured, or minority patients.
CONCLUSION: In this large cluster trial in a diverse population of diabetics, EMR-catalyzed CDS improved care processes but not outcomes. Improvement in patient-centered diabetic outcomes, and completion of recommended processes among the poorest and uninsured patients, may require additional resources and/or patient engagement.

END OF LIFE PREFERENCES AND PLANNING AMONG OLDER LATINOS A.S. Kelley[1]; N.S. Wenger[1]; C.A. Sarkisian[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles/VA Greater Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 203765)*

BACKGROUND: Latinos aged greater than 60 years are the fastest growing segment of the U.S. population, yet little is known about their preferences regarding care at the end of life (EOL), attitudes about how, when and with whom these preferences should be discussed, and ability to communicate and advocate for these preferences within the U.S. health care system. Culture-based attitudes relating to trust in medical providers, patient autonomy in medical care, and family-centered decision making, may be related to EOL care preferences and planning.
METHODS: We designed and conducted a single face-to-face interview with urban, Spanish-speaking Latinos aged 60 or older. The 40-item interview measured EOL care preferences and extent of EOL care planning, as well as pertinent culture-based attitudes: family-centered decision making, patient autonomy, and trust in health care providers. We selected previously tested valid instruments, when available, to measure each construct. The final interview was forward and back translated into Spanish and iteratively modified through a series of cognitive and pilot tests. Potential participants were randomly selected from among 572 participants in an ongoing randomized trial of a behavioral intervention to raise walking levels being conducted in 27 greater Los Angeles senior centers. Results were first examined with descriptive and bivariate statistics. Next, we constructed multivariate regression models, adjusting for clustering by senior center, to examine the relationship between the culture-based attitudes and EOL care planning.
RESULTS: 147 seniors (83% of those invited) enrolled; the mean participant age was 70.3 years. The majority of participants were female (77%), of Mexican nativity (68%), had an 8th grade education or less (69%), and reported an income below $15,000/year (66%). 47% had 3 or more medical conditions and 14% had been hospitalized within the past 6 months. If seriously ill, 84% of participants would prefer medical care focused on comfort, yet 47% had never discussed such preferences with their family or doctor, and 77% had no advance directive. The majority of participants favored family-centered decision making (64%) and limited patient autonomy (63%). In bivariate analyses, acculturation, higher income and education, desire for autonomy and experience with a family member dying in the hospital were associated with having an advanced directive (p values< 0.03). In a multivariate model including health and sociodemographic characteristics, education >8th grade (AOR 6.5, 95% CI 2.2, 18.4), living alone (AOR 2.6, CI 1.0, 6.7), and being born in the U.S. (AOR 2.9, CI 1.1, 7.7) were independently associated with having an advance directive.
CONCLUSION: Older urban Latinos report low rates of EOL care planning despite a preference for less aggressive, comfort-focused EOL care. The highly prevalent culture-based preferences for family-centered decision making and limited patient autonomy are at odds with fundamental principles of current U.S. EOL care policy, namely the primacy of patient autonomy and legal recognition of a single surrogate decision maker. This conflict may place older Latinos at risk of receiving aggressive and burdensome care that is inconsistent with their preferences. Culturally appropriate interventions should incorporate these findings in order to facilitate family-centered decision making and provide EOL care that is consistent with the values of older Latinos.

ENHANCED PRESCRIPTION DRUG WARNINGS TO PROMOTE PATIENT COMPREHENSION: A RANDOMIZED TRIAL M.S. Wolf[1]; S.C. Bailey[1]; J. Webb[1]; T.C. Davis[2]; R.M. Parker[3]. [1]Northwestern University, Chicago, IL; [2]Louisiana State University Medical Center at Shreveport, Shreveport, LA; [3]Emory University, Atlanta, GA. *(Tracking ID # 206034)*

BACKGROUND: Prior studies have shown that approximately half of adults misunderstood warnings and precautions supporting the safe and effective use of prescription drugs. Many patients, especially those with low literacy, had difficulty interpreting the text messages and icons commonly used on auxiliary label warnings. The 2008 IOM report, "Standardizing Medication Labels", concluded that drug labeling itself is not patient-friendly and a cause of patient errors in use. Our research team previously developed and pilot tested a set of 'enhanced' prescription drug warning labels that would be more easily understood by a diverse set of individuals, including those with limited literacy. This process involved patients in the writing of the text warning messages and design of complimentary graphic icons; we also sought feedback with regard to format and use of colors. The objective of the current study was to evaluate the effectiveness of these enhanced drug warnings to improve patient comprehension beyond a current practice standard.
METHODS: A three-arm, randomized trial testing the efficacy of enhanced auxiliary drug warning labels was conducted. Specifically, 500 patients from academic and community primary care clinics in Chicago (n=250) and Shreveport, LA (n=250) were randomly assigned to receive 1) a current standard set of drug warning labels currently in use among community pharmacies and placed on prescription containers (control), 2) 'enhanced' drug warnings with text rewritten in plain language, or 3) the enhanced language on drug warnings and also patient-developed icons to support the text messages.
RESULTS: Overall, the 500 patients gave a total of 3,328 responses out of a possible 4,500 (74.0%) across the nine prescription drug warnings they were given to review; a non-response represented patients not attending to and attempting to interpret a warning on the bottle. Overall rates of attendance to drug warnings on the prescription bottles significantly varied among standard, enhanced text, and enhanced text + icon warning labels (70.2%, 73.4%, and 78.3% respectively, $p<0.001$). Among the 3,328 responses that represent patients' attempts to interpret drug warnings, 403 (12.1%) were coded as incorrect (Table 3). Overall rates of correct interpretation also significantly varied by label type; with enhanced text + icon and enhanced text only warnings more likely to be properly understood compared to standard warnings (92.1%, 90.6%, and 80.3% respectively; $p<0.001$). In multivariate analyses, enhanced text + icon warnings were nearly three times more likely to be attended to by patients (Adjusted Relative Risk (ARR) Ratio 1.60, 95% Confidence Interval (CI) 1.38 – 1.84) and also correctly interpreted (ARR 2.98, 95% CI 2.28 – 3.88). Despite these practices, low literacy remained a significant independent predictor of correct interpretation (ARR 0.66, l95% CI .050 – 0.88).
CONCLUSION: Involving patients, particularly those with limited literacy, in the development of plain language (enhanced) prescription drug warning language and icons can improve comprehension among a broad audience. However, patients with limited literacy skills may face persistent learning barriers and require different responses for remediation.

ESTIMATING MAMMOGRAPHY USE AMONG BLACK WOMEN: THE ROLE OF ELECTRONIC MEDICAL RECORDS C. Clark[1]; N. Baril[2]; M. Kunicki[2]; N. Johnson[3]; J. Soukup[3]; S.R. Lipsitz[4]; J. Bigby[5]. [1]Division of General Medicine and Primary Care, Brigham and Women's-Faulkner Hospitalist Service, Center for Community Health & Health Equity, Brigham and Women's Hospital, Boston, MA; [2]Boston Public Health Commission, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]Division of General Medicine & Primary Care / Brigham and Women's Hospital, Boston, MA; [5]Executive Office of Health and Human Services, Commonwealth of Massachusetts, Boston, MA. *(Tracking ID # 204698)*

BACKGROUND: Primary care settings must accurately document mammography utilization to assess quality of care for early breast cancer detection. Obtaining accurate documentation of mammography use in underserved populations is challenging. Among Black women, patients' self-reports and medical record reports frequently result in different accounts of whether a mammogram was performed. It is not known whether paper versus electronic records affect the quality of documenting mammography use among Black women. We hypothesize that electronic medical records (EMRs) provide more accurate documentation of mammography use than paper records, as evidenced by the level of agreement between women's self-reported mammography use and mammography use documented in medical records.
METHODS: The study was conducted as a part of the Centers for Disease Control and Prevention Racial and Ethnic Approaches to Community Health (REACH) program in Boston, Massachusetts. Black women aged 40 – 75 were surveyed in six primary care sites in Boston (n=411). Survey data assessed the prevalence of self-reported mammography use within two years of study entry. Corresponding medical record data were collected for study participants at each site. Positive predictive value (PPV) of self-report, and Kappa statistics compared data agreement among sites with and without EMRs. Logistic regression estimated effects of EMR availability on agreement between data sources after adjusting for patient characteristics including age, insurance status, household income, and family history of breast cancer.
RESULTS: Forty-seven percent of women received care at sites with EMRs available during the entire study period. Medical records estimated a lower prevalence of mammography use (58%) than self-report (76%). However, self-report and medical record estimates of the prevalence of mammography use were more similar in sites with EMRs. The positive predictive value of self-report was 88% in sites with continuous access to EMRs, and 61% at sites without EMRs. Kappa statistics indicated greater data agreement at sites with EMRs (0.72, 95% CI 0.56 – 0.88) than without EMRs (0.46, 95% CI 0.29 – 0.64). Adjusted for covariates, odds of data agreement were greatest in sites where EMRs were available during the entire study period (OR 4.31, 95% CI 1.67 – 11.13).
CONCLUSION: Primary care sites with EMRs better document mammography use than those with paper records. Black women's self-report of mammography screening is more accurate at sites with EMRs. This study provides evidence for an important role of EMR infrastructure in assessing quality of care provided to underserved populations. Broader access to EMRs should be implemented to improve quality of documenting mammography use. At minimum, quality improvement efforts should confirm accuracy of paper records with supplemental data.

EVALUATION AND IMPROVEMENT OF COMMUNICATION WITH RADIOLOGIC BREAST BIOPSY PATIENTS C.A. Purnell[1]; R.M. Arnold[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204597)*

BACKGROUND: There is little data on how women feel about hearing breast biopsy results over the phone. This study explored this question in a group of women who received a breast biopsy at a large University hospital.
METHODS: A 24-item survey was developed concerning how the biopsy results were communicated, the communication skills of the person reporting the diagnosis (5 point Likert scale), and ways to improve the communication of results. The survey also asked about the relative importance of hearing the results quickly, from the most knowledgeable provider, from a primary care physician, or in person. This survey was modified after being piloted with patients with both cancerous and benign biopsies to determine questions' relevance and clarity. Participants were recruited at a large University cancer center between the months of June and July 2008. The cancer center policy was to have trained nurses contact patients by phone with the results as soon as they were available. Patients were asked to participate in the study immediately prior to their breast biopsy. Participants who consented were surveyed by phone approximately 2 weeks after they received their results. Student t-tests were used to determine significant survey differences between cancer and benign patients.
RESULTS: 59 patients were surveyed (total response rate 58.4%, cancer response rate 72.2%, benign response rate 36.1%). 86.4% were Caucasian; the average age was 55. 25 biopsies revealed cancer, the rest were benign or indeterminate diagnoses. Overall, patients from both cancer and benign groups were satisfied with the communication skills of the person who gave the results, including the amount of time until getting results (4.35±0.76), having sufficient time to ask questions (4.13±0.77), emotional support (4.26±0.81), and being given results over the phone (3.98±0.98). However, patients with cancer were more likely to say they needed additional materials to understand their results than patients with benign biopsies (3.42±1.02 vs. 2.65±1.12 $p=0.0073$). Additionally, patients undergoing their first breast biopsy were more likely to want

additional materials to help them understand their diagnosis (3.34± 1.04) than patients undergoing repeat biopsy (2.74±1.16, p=0.037) Both cancer and benign groups agreed that hearing the results quickly was the most important aspect of communication, and hearing the results in person was least important. However, cancer patients ranked "being told by a person who knows the most about what the results mean" significantly higher (p=0.013) than benign patients.
CONCLUSION: This study suggests that patients value hearing cancer diagnoses quickly more than in person. However, patients having their first biopsy and patients with a diagnosis of cancer would prefer to have additional written materials to help them understand their diagnosis.

EVALUATION OF TAILORED EDUCATION USING "TEACH TO GOAL" IN A MULTIMEDIA TYPE 2 DIABETES EDUCATION PROGRAM
T. Leung[1]; D. Baker[1]; C. Zei[1]; Q. Stephens[1]; S. Glass[1]; N. Kandula[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205925)*

BACKGROUND: When complicated health information is presented to patients, most cannot learn everything at once. Patients with low health literacy usually have lower baseline knowledge and, thus, more to learn. To address this, repeated assessments of knowledge gained and repetition of key learning goals that were not achieved has been recommended: the" teach-to-goal" (TTG) approach. We evaluated the effectiveness of TTG for improving knowledge gain and knowledge retention after patients viewed a multimedia diabetes educational program (MDEP).
METHODS: 100 patients, with and without diabetes, were recruited from primary care clinics at a federally qualified health center and an academic health center. Patients were interviewed using a pre-test, post-test design to measure diabetes knowledge before and after viewing the MDEP. Diabetes knowledge was measured using open-ended questions, administered by the interviewer. Patients were allowed to answer in their own words, and the interviewer then coded whether the response was correct. The TTG intervention was tailored to each patient; if a patient was unable to answer a post-test question, the interviewer presented the information again using a script and teaching aids, such as sections of the MDEP or print materials with pictures from the MDEP. This process was repeated until the individual exhibited learning mastery of the information or for a maximum of two times. Knowledge retention was measured by telephone 2 weeks later. Health literacy was measured using the Short Test of Functional Health Literacy in Adults (S-TOFHLA), and categorized as "inadequate" (0–16), "marginal" (17–22) and "adequate" (23–36). The primary endpoints compared changes in knowledge and knowledge retention. Differences in knowledge gained and retained were compared by paired t-tests. We compared the MDEP-TTG groups' results with a historical comparison group (n=190), recruited form the same clinics, who received the MDEP only.
RESULTS: Other than the MDEP-TTG group being slightly younger than the MDEP only group (p<0.01), there were no other significant differences in demographics or TOFHLA score between the two groups. The mean TOFHLA score in the MDEP-TTG group was 29.2, with 10% of individuals having inadequate literacy, 10% marginal, and 80% adequate. After viewing the MDEP, all individuals had significant increases in knowledge. In the MDEP-TTG group, individuals with inadequate health literacy gained 6.9 points (Standard Deviation (SD)=4.2), those with marginal literacy gained 5.3 points (SD=5.7), and adequate gained 6.1 points (SD=6.1). The MDEP only group had similar knowledge gains. Although 79% of individuals in the MDEP-TTG group achieved learning mastery of the 17 key ideas within 3 passes, learning mastery differed significantly by literacy. After three attempts, 57% of individuals in the inadequate and marginal groups had achieved learning mastery compared to 84% of individuals in the adequate group (p<0.01). At the 2 week follow-up, there were no significant differences in knowledge retention; the MDEP-TTG group had a knowledge decrease of 4.1 points (SD=3.7) compared to 3.1 (SD=2.5) in the MDEP only group (p=0.09).
CONCLUSION: TTG improved knowledge gain when used in conjunction with a MDEP; however, TTG alone is inadequate to achieve long-term retention. Additional research is needed to investigate the usefulness of TTG in effecting behavior change, improving health outcomes, and overcoming health literacy barriers.

EVERYDAY ETHICS IN INTERNAL MEDICINE RESIDENT CLINIC
J.A. Carrese[1]; E. Mcdonald[1]; M. Moon[1]; H. Taylor[1]; K. Khaira[1]; M.C. Beach[1]; M. Hughes[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 204725)*

BACKGROUND: Because competency in ethics is essential to being a good doctor, resident education in ethics is important. Yet the empirical basis for teaching about ethics is limited. It is therefore unclear whether current ethics education, often focusing on "high stakes" inpatient cases (e.g., withdrawal of life support), addresses the full range of issues faced by trainees. To better inform ethics education at Johns Hopkins, we sought to describe everyday ethics issues encountered by internal medicine residents in the outpatient setting.
METHODS: This was a multi-method qualitative research project involving direct observation of faculty preceptor-resident interactions in the outpatient clinics of two internal medicine training programs, followed by interviews with a subset of observed preceptors immediately after the clinic sessions. Observations occurred during 10 half-day sessions (5 at each site) for a total of 40 hours. Observer field notes and audiotaped faculty interviews were transcribed, then analyzed and coded. This process generated several themes and sub-themes of ethics issues encountered in the outpatient clinics.
RESULTS: 53 residents and 19 faculty preceptors were observed; 11 faculty preceptors were interviewed. 136 cases were observed; 110 cases (81%) were considered to have ethics content. Analysis of the transcripts from observer field notes and faculty interviews identified 3 major themes (and several associated sub-categories, examples of which are listed below after each major theme) related to everyday ethics issues encountered by trainees in outpatient practice. **1. Physician-Patient Themes**
-***Communication challenges***: communicating with patients about sensitive information or when there are cultural differences
-***Relationship challenges***: interacting with difficult patients; ending relationships with patients
-***Shared decision-making***: responding to patient preferences when they deviate from standard of care or when they cannot be supported by the facts; respecting patient autonomy when persuading patients to change behavior **2. Resident as Learner Themes**
-***Developmental issues***: recognizing personal limits of knowledge; acting on incomplete information
-***Challenges/conflicts associated with training***: tension between learner role and best care for the patient
-***Relationships with colleagues and mentors***: addressing issues of respect, differences, conflict, mistakes by others, helping each other **3. Physician-System Themes**
-***Financial***: attending to the needs of patients, especially those with limited resources, in a fragmented, expensive health care system
-***Provider-System Interactions***: time constraints for any particular patient given the realities of health care delivery
-***Societal factors***: external influences on provider behavior, such as relationships with industry representatives
CONCLUSION: Observation of faculty preceptor-resident interactions in the outpatient clinics of two internal medicine training programs revealed that trainees encounter many everyday ethics issues as they care for patients. Interviews with observed faculty supported these findings. Many of the ethics issues reported in this study may not be on the radar screen of medical educators, and therefore may not be explicitly taught to trainees. An ethics curriculum informed by empirical data may be more relevant to trainees and may better prepare them for their future responsibilities. Future studies could test this hypothesis.

EXPERIENCES OF INTERDISCIPLINARY QUALITY IMPROVEMENT TEAMS IN HOSPITALS WITH LOWER DOOR-TO-BALLOON TIMES FOR PATIENTS WITH ST ELEVATION MYOCARDIAL INFARCTION
C. Santana[1]; I. Nembhard[2]; D. Berg[2]; L. Curry[2]; E.H. Bradley[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Yale University, New Haven, CT. *(Tracking ID # 206042)*

BACKGROUND: Interdisciplinary teams or team-based approaches have been identified as key components of successful quality improvement (QI) efforts. Many hospitals are currently employing interdisciplinary teams to reduce the door-to-balloon (D2B) times for patients with ST elevation myocardial infarctions (STEMI) to ≤90 minutes, as recommended by evidence-based guidelines. Little is known about the strategies, behaviors and social norms of QI teams in hospitals with the greatest improvements in D2B times. The experiences of these teams will help QI leaders develop effective team-based approaches to implement evidence-based QI efforts in their settings.
METHODS: Study hospitals had median D2B times ≤90 minutes and showed the most improvement in D2B times from 2001–2003 among all

hospitals in a national STEMI database. We conducted a qualitative study using in-depth interviews with 122 participants in 11 hospitals. Interview participants included administrators, physicians, nurses, staff, and QI team members, with first-hand knowledge of D2B QI efforts. Participants were asked what their hospital had done to reduce D2B times. Transcripts were analyzed using the constant comparative method. The research team identified similarities and differences in the data and prepared code structures of salient concepts. Atlas.ti software was used to facilitate the analysis. We report here on the concepts that describe D2B QI teams.

RESULTS: QI teams demonstrated distinct strategies and behaviors for achieving both their fundamental goal of lowering D2B times and their instrumental goals (the operational processes or protocols used to achieve the larger D2B goal, e.g. cath lab activation). Key fundamental goal strategies and behaviors included: (1) expecting participation from all providers and staff, (2) expecting 100% success, (3) selecting interdisciplinary team members and not allowing disagreements within the team to derail the fundamental goal, (4) highlighting outside models of success, (5) emphasizing departmental rather than individual gains, and (6) including non-early adopters in their meetings. Key strategies/behaviors utilized for instrumental D2B goals included: (1) allowing departments to redesign their own processes, (2) discouraging individual adaptations of the D2B protocol, (3) highlighting the benefits of collaboration between clinical departments (patient benefit, a more efficient process, no additional management responsibilities for departments), and (4) avoiding adjudicating blame for D2B delays. Social norms of these QI teams included: (1) allowing participants to express their opinions about other clinical disciplines as sources of D2B delays during the initial stages of the process, (2) protecting the integrity of the instrumental goals by judging any proposed change against the ultimate criteria of 90 minutes, (3) recognizing the front-line staff for their part in the D2B success.

CONCLUSION: We found that successful teams emphasized strategies both for the fundamental goal of achieving D2B times below 90 minutes but also employed strategies for the operational or instrumental smaller goals that allowed hospitals to lower D2B times. Effective teams concentrated on encouraging widespread participation and interdisciplinary collaboration while simultaneously defending the integrity of the D2B protocol. The strategies, behaviors and social norms of successful teams can teach other hospitals how to organize team-based QI efforts to achieve their own fundamental goals.

EXPLAINING VARIATION IN END-OF-LIFE OPIATE PRESCRIBING AMONG PHYSICIANS: A QUALITATIVE STUDY J. Zerzan[1]; C. Lee[1]; L. Haverhals[1]; C. Nowels[1]. [1]University of Colorado Denver, Aurora, CO. *(Tracking ID # 205901)*

BACKGROUND: Opiates are effective and widely used for, but prescribing them can be a matter of debate, even at the end-of-life (EOL). Little is know about what factors providers take into account when deciding to prescribe opiates in EOL care and how their opiate practice patterns were formed.

METHODS: Semi-structured qualitative interviews of physicians were conducted between October 2008 and March 2009 to explore knowledge, attitudes, and experiences with opiate use at the EOL and identify what factors determine opiate use and choice. Purposive sampling was used to recruit physicians with EOL opiate prescribing experience in 5 areas of specialization: outpatient and inpatient general medicine, geriatrics, palliative care, and oncology. We used a semi-structured, depth-interview technique with a pre-determined interview guide. Interviews were analyzed using Atlas.ti qualitative analysis software and independently coded by two reviewers.

RESULTS: To date, 25 interviews have been conducted and themes are approaching saturation. Opiates were most often prescribed at EOL for managing pain and respiratory symptoms. All respondents felt that they were high prescribers of opiates although there was wide variation in specific decisions to prescribe. Respondents perceived oncology and palliative care to be most aggressive with opiate prescribing, and hospitalists as least aggressive. Barriers to prescribing opiates identified by respondents included high cost of certain opiates, insurance regulations restricting certain opiates or enforcing dose limits, formulary regulations, and stigma surrounding opiates. Although very few patients refused opiates, respondents related stories of many patients who resisted taking them or had concerns about opiates because they feared addiction, being over-sedated, or because it meant to admitting that death is near. Physicians had some fears and concerns about prescribing to EOL patients such as inadvertent misuse of medication (e.g. not taking the medication consistently), experience of side effects, over-dosing, family members using or selling the medications, or concern the opiates would be ineffective in managing the patients pain. Other patient factors that influenced prescribing rates included whether the patient had a history of substance abuse, if they had health insurance, whether the patient was opiate-experienced, and the patient's diagnosis. For diagnoses that had a reputation for being extremely painful (e.g. bone diseases or ovarian cancer), physicians felt less hesitant in prescribing opiates. Physicians interviewed expressed a range of experiences, both personal and professional, that influenced their opiate-prescribing habits. Negative experiences included treating patients who had committed suicide, working with patients who were dishonest about their opiate use, hearing about disciplinary action for suspected over-prescribing, experiencing family addictions to opiates in their personal lives, or having a family member die from a painful disease. All respondents expressed positive experiences with prescribing opiates in being able to ease patients' suffering at EOL and improve their functionality and quality of life.

CONCLUSION: Respondents had differences in prescribing habits, attitudes and experiences in use of opiates based on specialty and experiences. Barriers and fears about opiate prescribing at the EOL need to be addressed in order to ensure EOL patients are receiving appropriate symptom relief.

EXPLORING SMOKER AND NONSMOKER PERSPECTIVES TO DEVELOP A SMOKING CESSATION INTERVENTION BASED ON SECONDHAND SMOKE CONCERNS FOR CHINESE AMERICANS E.K. Tong[1]; D. Paterniti[1]; L. Fung[2]; J. Tsoh[3]; M.S. Chen[1]. [1]University of California, Davis, Sacramento, CA; [2]Chinatown Public Health Center, San Francisco, CA; [3]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205865)*

BACKGROUND: The belief that secondhand smoke harms others is associated with smokers wanting to quit, but has not yet been integrated into smoking cessation interventions for adults. Using the Health Belief model as a theoretical framework, we explored how concerns about secondhand smoke may relate to behavior promoting smoking cessation with Chinese Americans. Chinese Americans in California have high smoking prevalence rates among immigrant men and low utilization of smoking cessation assistance, but almost all (97%) agree their families do not want them to smoke. We explored 1) barriers and facilitators for smoking cessation as related to secondhand smoke concerns, 2) cultural acceptability of discussing secondhand smoke concerns, and 3) desired intervention components utilizing secondhand smoke concerns.

METHODS: This pilot study was conducted with Chinatown Public Health Center, a San Francisco county clinic. A total of 27 Cantonese-speaking passive (n=9), current (n=12), and former (n=6) smokers (ages 32–78) were recruited through community advertisements. An interview guide with open-ended questions and probes was developed and translated into Chinese for 3 audiotaped focus groups. The discussions were transcribed and translated into English, with backtranslation into Chinese to ensure accuracy. Two authors analyzed the transcripts independently for coding into conceptual categories. A list of redundant themes and thematic categories was developed and agreed upon by consensus, and adjudicated by other authors. The analysis team returned to the original transcribed data and compared it with the defined categories to ensure completeness of transcript coding and exhaustiveness in analytic representation of participant perspectives.

RESULTS: Four themes recurred across smoker and nonsmoker groups as both barriers and facilitators for smoking cessation as related to secondhand smoke concerns. 1) Health knowledge: understanding the health harms from secondhand smoke on others. 2) Psychological motivation of the smoker: empathic regard for the concerns of the nonsmoker. 3) Interpersonal communication: desire to reduce family or public conflict. 4) Social environment: acceptance and enforcement for private or public smoking restrictions. All participants considered it culturally acceptable to discuss how secondhand smoke causes harmful effects and promote its elimination. Subjects expressed no communication concerns based on gender (wives talking with husbands), cultural constraints (offering cigarettes as a social grace), or generational issues (children talking with parents). Communication strategies between smokers and nonsmokers, along with non-invasive laboratory data on levels of smoke exposure, were considered particu-

larly important for message content in a potential intervention. Health professionals were identified as being more effective sources in delivering a potential intervention than lay health workers, quitlines, and health departments.
CONCLUSION: A potential intervention for Chinese Americans utilizing secondhand smoke concerns might contain elements from the four general themes elucidated: increasing knowledge, building empathy for nonsmokers, promoting positive communication, and establishing and enforcing restrictions. Such message content, along with non-invasive laboratory data, would be culturally acceptable to both smokers and nonsmokers, with health professionals as the optimal delivering source.

EXPLORING THE DECISION MAKING OF PATIENTS USING VIDEO IMAGES OF ADVANCED DEMENTIA. K.S. Deep[1]; A.E. Volandes[2]; K. Murphy[1]; A. Hunter[1]. [1]University of Kentucky, Lexington, KY; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205742)*

BACKGROUND: Recent evidence suggests that video images of advanced dementia can change patients' preferences for care when imagining future health states. This study uses structured interviews to examine how video changes the rationale for patients' decisions.
METHODS: Patients over age 40 were recruited from primary care clinics at two study sites. They were first provided a verbal description of advanced dementia and asked their preferred level of care and the rationale for their choice. Choices were life-prolonging (CPR, ICU), limited (hospitalization, antibiotics but not CPR), and comfort care (only treatment of symptoms). After watching a brief video of a patient with advanced dementia (accessible at www.advancecareplanningvideos.com) they were again asked for their preferred level of care and rationale. Participants were asked to discuss how the video affected their understanding of the disease condition and how it impacted their decision. Three independent raters performed content analysis using an iterative process of the pre- and post-video reasoning and the open response questions. The code list was applied by all three raters with discrepancies resolved by consensus.
RESULTS: We interviewed 120 subjects with a mean age of 58+12 years; 69% were women. Sixty chose comfort care pre-and post-video so were excluded from further analysis. Table 1 includes pre- and post-video choices of care and the rationale. Subjects who initially chose life-prolonging care most often cited the belief that life should be as long as possible. Those who initially chose limited care commonly believed in an inherent good of medical treatment. Post-video, 47 of the 60 subjects changed to comfort care. Their rationale was most often based on the need to avoid suffering (16) and concerns about quality of life (21). Subjects' reflection on how the video affected their understanding revealed three main themes: inherent value in actually seeing the patient with the disease (23), acquiring new knowledge of the disease or patient experience (26), and triggering an emotional response which affected their decision.
CONCLUSION: Video may serve an important role in eliciting preferences for future care in advanced dementia. While pre-video reasons reflect general beliefs about extending life and the inherent good of treatment, the post-video reasoning reveals more focus on the experience of the actual patient and family.

Pre-video preference and rationale (number)	Post-video preference and rationale (number)
Life-prolonging (25)	Limited care (10)
Want longer life (18)	Treatment inherently good (5)
Treatment inherently good (3)	Avoid suffering (2)
Hope for cure (3)	Want longer life (1)
Limited (22)	Comfort care (47)
Treatment inherently good (12)	Avoid suffering (14)
No "machines" (4)	Inadequate QOL (21)
Hope for cure (3)	Not burden family (4)
Not burden family (2)	Treatment futile (1)
Want longer life (2)	
Undecided (13)	Undecided (3)

Table 1. Preferences for care and rationale.

EXTENDED-RELEASE NALTREXONE FOR TREATMENT OF ALCOHOL DEPENDENCE IN URBAN PRIMARY CARE J.D. Lee[1]; E. Grossman[1]; D. Dirocco[1]; K. Hanley[1]; J.P. Rotrosen[1]; D.L. Stevens[1]; M.N. Gourevitch[1]. [1]New York University, New York, NY. *(Tracking ID # 205265)*

BACKGROUND: The feasibility of extended-release naltrexone injectable suspension (XR-NTX) for treatment of alcohol dependence in primary care is uncertain. We investigated 3-month treatment retention, patient satisfaction, and alcohol use among alcohol-dependent patients treated with XR-NTX in two urban public hospital medical clinics.
METHODS: Eligible patients were alcohol-dependent adults seeking XR-NTX treatment and able to attend 3 monthly medical management (MM) sessions and one 4-month follow-up visit. MM emphasize eliminating drinking, accessing Alcoholics Anonymous (AA) and outside counseling, and treatment adherence. XR-NTX doses were monthly (380 mg IM). Drinking quantity/frequency, side effects, and AA and counseling participation were tracked. A 7 pt. scale of hedonic tone (perceived pleasure/taste) assessed enjoyment of alcohol, diet, and other activities at baseline then monthly. Visits and medication were free; patients received incentive ($20) at Month 4.
RESULTS: 72 patients were enrolled over 13 months from hospital inpatient (3), primary care (5), and alcohol outpatient programs (16), ads (39), and word-of-mouth (9). Patients were mean age 46 yrs.; 33% female; 18% black, 21% Hispanic; 31% uninsured. Monthly retention: 89% of eligible patients received 1st injection; 69%, 2nd injection; 56% completed 3 injections. Participants consistently reported reduced cravings and high satisfaction in-treatment. Percent of previous 30 days abstinent increased from 47% at baseline to 85% in-treatment. At Month 4, 60% of patients chose to remain on monthly naltrexone injections after study completion in a related 12-month extension study. Analysis of within-subject changes in hedonic tone indicated XR-NTX selectively diminished perceived enjoyment of alcohol while not altering that of food, exercise, or sex.
CONCLUSION: Extended-release naltrexone within a primary care monthly medical management alcohol treatment model appears feasible and acceptable.

FACILITY LEVEL VARIATION IN ADHERENCE TO ORAL DIABETES MEDICATIONS C.L. Bryson[1]; D.H. Au[1]; D.K. Blough[2]; S.D. Fihn[3]; G.L. Jackson[4]; J.D. Piette[5]; M.L. Maciejewski[4]; M.W. Perkins[1]; N.D. Sharp[1]; C. Liu[1]. [1]VA Puget Sound Health Care System, Seattle, WA; [2]University of Washington, Seattle, WA; [3]VA Office of Quality and Performance, Washington, DC; [4]Durham VA Medical Center, Durham, NC; [5]University of Michigan/Ann Arbor VA Medical Center, Ann Arbor, MI. *(Tracking ID # 205604)*

BACKGROUND: Daily, ongoing drug therapy is a principal treatment for patients with diabetes. While prior research has identified patient-level factors associated with poor medication adherence, these factors are either largely immutable or require enormous resources to change. Potential organizational barriers to adherence receive far less attention. Little research has focused on variation in adherence to medications among practices in a large health care system such as the VA. This study assessed the magnitude of variation in medication adherence across VA facilities for patients with diabetes who were actively managed in primary care clinics.
METHODS: All patients with diabetes in the VA nationwide were identified from electronic data sources using a validated algorithm of 2 diagnoses of diabetes in FY2005–2006 and at least one primary care visit per year in FY2006 and FY2007. Users of a specific oral hypoglycemic agents (OHA, including sulfonylureas, metformin, and glitazones) were identified by two or more non-partial fills of the drug in the baseline year (FY2006) recorded in central VA electronic pharmacy records. Subjects on insulin other than NPH were excluded to remove those who may have transitioned to insulin therapy. Facilities with fewer than 100 OHA users were excluded in order to assure stable facility-level estimates. Medication adherence for each patient was estimated for the first 3 months of FY2007. Adherence to each drug was assessed individually by a validated algorithm, and then the proportion of days adherent was averaged across drugs to produce an adherence score for the patient's overall regimen. Patients were considered adherent if they filled at least 80% of their OHA prescriptions during this period. Facility-level adherence measures were calculated based on the proportion of adherent patients.
RESULTS: This analysis included 552,455 patients from 692 VA medical centers and community-based outpatient clinics, with 100 to

7110 patients in each qualifying facility. Adherence to sulfonylureas was better overall than adherence to metformin (average adherence was 74.7% for sulfonylurea, 66.7% for metformin, 72.6% for glitazone). There was substantial variation in facility-level adherence to OHAs, with the top ranking facility having 85.5% of patients classified as adherent, and the bottom facility having 41.3% of patients classified as adherent. The 10th 25th, 50th, 75th, and 90th percentiles were 65.6%, 69.5%, 72.2%, 75.3%, and 77.9%, respectively. CBOCs had more variation than VA medical centers.
CONCLUSION: Overall adherence to OHAs is suboptimal. There is substantial variation among VA facilities in the proportion of patients who are adherent to their medications for diabetes. Examining organizational characteristics associated with this variation could identify modifiable factors to improve medication adherence.

FACTORS ASSOCIATED WITH OSTEOPOROSIS SCREENING AND RECOMMENDATIONS FOR OSTEOPOROSIS SCREENING IN OLDER ADULTS S. Nayak[1]; M.S. Roberts[1]; S.L. Greenspan[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205764)*

BACKGROUND: Osteoporosis screening rates are low, and it is unclear which patient factors are associated with screening and physician recommendations for screening. The purpose of our study was to identify patient characteristics associated with recommendations for osteoporosis screening and receipt of screening in older adults.
METHODS: In November 2007, we mailed a survey with questions about sociodemographics and osteoporosis-related data (including risk factors, physician recommendations for screening, and receipt of screening) to 1830 women and men aged 60 and older living in or near western Pennsylvania. We performed multivariable logistic regression analyses to determine odds ratios for receipt of screening and screening recommendations for individuals with particular osteoporosis risk factors, adjusting for sociodemographic and other risk factors.
RESULTS: Surveys were completed by 1268 of the 1830 adults to whom surveys were mailed (69.3%). Most respondents were white (92.9%), female (58.7%), and believed they were in good to excellent health (88.2%). Only 47.6% said their physician recommended osteoporosis screening, and 62.6% reported being screened. Screening recommendations were less likely for older respondents than younger ones (OR, 0.87 per 5-year increase in age; 95% CI, 0.77–0.97). Individuals with osteoporosis risk factors of a history of steroid use for longer than 1 month, height loss greater than 1 inch, or history of low-trauma fracture were no more likely to report screening recommendations than individuals without these characteristics. Receipt of screening was no more likely for more elderly respondents or respondents with a history of steroid use for longer than 1 month than for respondents without these characteristics.
CONCLUSION: Individuals with several known osteoporosis risk factors are not being sufficiently targeted for screening. Older individuals, individuals with a history of prolonged steroid use, individuals with a history of height loss, and individuals with a history of low-trauma fracture should be better targeted for osteoporosis screening.

FACTORS ASSOCIATED WITH REPEAT USE OF CRISIS SUBSTANCE-USE DETOXIFICATION SERVICES E.R. Carrier[1]; M. Raven[2]; J. Mcneely[2]; S. Tay[2]; I. Lobach[3]; M.N. Gourevitch[2]. [1]New York University, NY, NY; [2]New York University, New York, NY; [3]NYU School of Medicine, New York, NY. *(Tracking ID # 205949)*

BACKGROUND: In New York State, crisis detoxification services cost $319,883,637 in 2005 in Medicaid reimbursement alone. Increasingly, this cost has been concentrated among subjects who have multiple crisis admissions but do not participate in noncrisis care (for example, inpatient or outpatient rehabilitation). New York State Medicaid administrators plan to decrease reimbursement for crisis detoxification, giving providers and policymakers an incentive to identify subjects at risk for readmission so that they can be targeted for appropriate interventions. Proposed interventions include intensive case-management and a 'warm handoff' where subjects are escorted from crisis detoxification discharge directly to rehabilitation admission. Our study sought to use information currently being collected for crisis admissions to predict whether subjects were at risk for readmission.
METHODS: Our study was a retrospective database review evaluating 19,104 subjects with at least one admission for crisis chemical dependence detoxification to a certified New York State facility between January 1 and June 30, 2007. Crisis and noncrisis utilization was measured for all subjects in the six months following each initial detoxification admission.
RESULTS: Thirty percent of subjects were admitted to crisis detoxification services more than once during the study period. Seven percent were admitted to crisis services more than three times. The most prevalent substances used were alcohol (59%) and heroin (30%). The study population was predominantly male (77%), racially diverse (38% white, 34% African American and 26% Hispanic) and urban (71% were from New York City and Westchester County). 52% of the population was insured by Medicaid, of whom the majority (44%) were insured by fee-for-service Medicaid.Twenty-seven percent were homeless. Psychiatric comorbities were not measured, but only 2% of subjects were referred to psychiatric services upon discharge. Neither information collected at admission nor initiating non-crisis services within 30 days of discharge predicted repeat utilization of crisis services within 6 months. Initiating noncrisis services during the six-month period was associated with increased crisis utilization.
CONCLUSION: A significant proportion of subjects had more than one crisis admission during a six-month period of observation. Demographic information, patterns of substance use, insurance status and utilization of noncrisis services did not strongly predict readmission. We were not able to generate a predictive model using available information, suggesting that intake data collection procedures should be expanded to include other information including psychiatric comorbidities which are not currently assessed. Given the complexity of substance use and relapse, strategies to identify repeat users that do not require predictive modeling (such as a web-based intake system that can capture utilization in real time) may be appropriate targets for further study. We found that timely access to noncrisis services after crisis discharge was not associated with a decreased likelihood of readmission, suggesting that proposed 'warm-handoff' interventions may require further evaluation before they are implemented. Finally, we found a high rate of participation in fee-for-service Medicaid, suggesting that case management and care coordination interventions should be targeted at this population.

FACTORS ASSOCIATED WITH SELF-CARE BEHAVIORS AMONG HEART FAILURE PATIENTS AT A SAFETY NET HOSPITAL R.W. Durant[1]; J.S. Richman[1]; I.C. Scarinci[1]; S. Hullett[2]; J.J. Allison[1]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]Cooper Green Mercy Hospital, Birmingham, AL. *(Tracking ID # 205631)*

BACKGROUND: Chronic disease management programs designed to improve self-care behaviors among heart failure patients often require significant investments of health care system resources. This approach may be less feasible in resource-poor health care settings. To design self-care interventions in health care settings with limited resources, investigators must identify the patient characteristics and beliefs associated with the adoption of self-care behaviors. Therefore, we sought to identify those factors related to self-care among heart failure patients at a safety net hospital.
METHODS: We surveyed, in person, 150 heart failure patients receiving care at a safety net hospital in Birmingham, AL. Our primary outcome was the adoption of heart failure self-care behaviors as measured by the Riegel Self-Care of Heart Failure Index. We assessed total index scores (0–300) and the 3 component subscale scores (0–100 for each) measuring self-care acute management, self-care maintenance, and self-care confidence. Total index and scale scores were dichotomized ("high" and "low") around each median score. Perceived social support was measured by a continuous score on the Medical Outcomes Study Social Support Scale (0–76). A Knowledge of Heart Failure Scale (continuous) measured recognition of heart failure symptoms and knowledge of appropriate self-care. We also assessed severity of heart failure, functional status, medication adherence, trust in physicians, marital status, available family help, insurance status and other sociodemographics. Those factors significantly associated with total self-care or individual self-care subscale scores in unadjusted bivariable analyses were used to create multivariable logistic regression models to determine factors independently associated with total self-care as well as self-care acute management, self-care maintenance, and self-care confidence.
RESULTS: The study population was 87% African American and 13% white. The mean age was 56 (+/- 9), and 82% relied on public assistance to pay for health care. Median score on the Medical Outcomes Social Support Survey was 58. The median score for total self-care was 190.1. On the component subscales, respondents reported higher scores for

self-care acute management (median=70.9) than both self-care confidence (median=62.5) and self-care maintenance (median=55.0). In multivariable analyses, knowledge of heart failure was related to total self-care, self-care acute management, and self-care confidence (Table). Social support was more strongly related to self-care maintenance compared to total self-care or the other two subscales in multivariable analyses (Table).

CONCLUSION: Perceived social support may have an influence on heart failure patients' self-care maintenance. Knowledge of heart failure may also be essential to achieving adequate total self-care, self-care management of acute symptoms, and self-care confidence. Interventions in safety net health care settings should focus on both improving patient knowledge of heart failure and providing adequate social support for the successful adoption of self-care behaviors.

OR (95% CI) for High Self-Care for Heart Failure

Respondent Characteristics	High total self-care	High self-care acute anagement	High self-care maintenance	High self-care confidence
Social support	1.0 (0.98,1.02)	1.0 (0.98, 1.03)	1.02 (1.0,1.04)	1.01 (0.99,1.03)
Knowledge of heart failure	1.6 (1.3,2.0)	1.6 (1.3,1.9)	1.1 (0.9,1.3)	1.21 (1.02,1.42)

FACTORS SURROUNDING PHYSICIAN-PATIENT DISCUSSIONS ABOUT HIV AND THE IMPACT ON TESTING K.R. Crawford[1]; M. Stefan[2]; J. Martinez[3]; J.M. Blackwell[4]. [1]Moses H. Cone Memorial, Greensboro, NC; [2]Tufts University School of Medicine/Baystate Medical Center, Springfield, MA; [3]Cornell University, NY, NY; [4]Carolinas Medical Center, Charlotte, NC. *(Tracking ID # 205620)*

BACKGROUND: Prior to the 2006 CDC guidelines regarding universal HIV screening, surveys revealed that physicians did not consistently screen for HIV. It is not known how well screening correlates with physician initiated discussions concerning HIV testing. If we can understand how well the message of universal HIV screening is communicated to patients, we can improve HIV testing rates. The purpose of this report is to evaluate factors influencing patient reported discussions about HIV with their physicians.

METHODS: Patients were enrolled at 8 academic internal medicine clinics as part of a multi-site study examining HIV screening rates. Patients were eligible if they were age 18–64, fluent in English or Spanish, and in receipt of continuity care. Participants completed a 76-item questionnaire, which included demographic questions and knowledge assessment about HIV. Our primary outcome variable was patient-physician discussions about HIV. Bivariate and multivariate analyses were done examining the association between patient age, gender, race, income, perceptions of trust and physician accessibility, and rates of self-reported HIV testing with this outcome.

RESULTS: Of 443 respondents, 399 completed survey questions regarding physician discussions about HIV. Of these patients, 44.6% stated that their physician discussed how HIV is spread, how to avoid HIV, and who should be tested for HIV. Bivariate analyses revealed that factors associated with less physician-patient discussions about HIV included white race (34 vs 52%, P<.001), age greater than 40 years old (40% vs 51%, P=.02), and higher income strata (39% >$10K vs 52% < $10K , P=.01). After logistic regression analysis, white race (OR 0.47) and age greater than 40 years old (OR 0.54) remained significant after adjustment for education, marital status, access to care, and insurance status. Intuitively, physicians were more likely to recommend testing if they discussed HIV with their patients (OR 3.05, 95 percent CI 1.56–5.95), and those patients were more likely to be tested (OR 2.91, 95 percent CI 1.55–5.51).

CONCLUSION: Despite universal HIV screening guidelines, differences remain in patient populations with whom physicians discuss HIV. These discussions translate into more testing; therefore, interventions that improve communication regarding screening must be explored.

FACULTY EVALUATION OF MEDICAL STUDENT HISTORY AND PHYSICAL EXAM S. George[1]; J. La Rochelle[1]; P. Omalley[2]. [1]Uniformed Services University, Bethesda, MD; [2]Walter Reed Army Medical Center, Washington, DC. *(Tracking ID # 205470)*

BACKGROUND: The existing data regarding the reliability of faculty assessment of medical student history and examination skills focuses on overall reliability. Our purpose was twofold: 1) evaluate faculty reliability on specific subdomains of the history and physical 2) determine whether reliability changes with computer based evaluation.

METHODS: Fifty-seven videotaped 2nd year medical student history and physical examinations of standardized patients were rated independently and blindly in duplicate. One rating was by an onsite preceptor, the other offsite. Students were graded based on a 44 component history and a 113 item physical examination checklist, one year (class of 2009) using paper-pencil forms, the next year (class of 2010) with a computer based system. Ratings were part of a required rotation for medical students and were not collected for research purposes. Numerous (n=28) preceptors contributed data. Preceptor reliability was assessed using intraclass correlation coefficients.

RESULTS: There was no difference in reliability of the overall ratings of student performance between paper-pencil (r=0.53) and computer based evaluation systems (r=0.54). Combined 2009 and 2010 data showed a moderate degree of inter rater reliability for summative scores for history(r=0.60) and physical exam (r=0.46) scores. Reliability of the ratings of specific components of the history and physical examination varied, some components were moderately reliable, others had low reliability (Table).

CONCLUSION: Interrater reliability of preceptor grading of specific portions of history and physical exam skills in preclinical setting appears to be moderate. Certain aspects of the history and physical exam with lower correlation could be addressed with better faculty development for preceptors. Computer versus paper evaluation showed similar results, indicating an opportunity for improving efficiency of evaluation using off site faculty.

Subdomains of history and physical exam

Subdomain	Intraclass Correlation Coefficients
General Interviewing Skills	0.29
Chief Complaint/ HPI	0.48
PMH/PSH/Meds/Allergies	0.43
Review of Systems	0.54
Vital Signs/Misc.	0.43
Head/Neck Exam	0.24
Cardiac/Lung Exam	0.43
Abdominal Exam	0.24
Musculoskeletal Exam	0.30
Neurological Exam	0.49

FACULTY VALUES IN ACADEMIC MEDICINE: A FIVE-SCHOOL COLLABORATIVE STUDY L.H. Pololi[1]; D.E. Kern[2]; P. Carr[3]; P. Conrad[1]; S.M. Knight[4]. [1]Brandeis University, Waltham, MA; [2]Johns Hopkins University, Baltimore, MD; [3]Boston University School of Medicine, Boston, MA; [4]East Carolina University, Greenville, NC. *(Tracking ID # 205535)*

BACKGROUND: This study involved faculty from 5 United States medical schools engaged in a larger action research project: the National Initiative on Gender, Culture and Leadership in Medicine (C - Change) http://cchange.brandeis.edu. The Initiative is designed to promote an organizational culture in academic medicine that helps all faculty realize their potential and addresses the imperative of developing women, generalist, and under-represented minority (URM) faculty members' full potential and leadership in academic medicine. An important correlate of job satisfaction and optimal performance is the alignment of a person's values with one's work. We interviewed faculty to document their work experiences and through these interviews to identify deeply held values in work and to explore their relationship to perceived institutional values.

METHODS: The 5 schools were selected to provide balance in geographic distribution, and to be representative of different organizational characteristics of medical schools. The qualitative, hypothesis-generating study documented the experiences of faculty and organizational approach at the partnering schools. In-depth semi-structured interviews were conducted with male and female faculty (N=96) (research scientists, specialists and generalists) at various career stages (early-career, plateaued, in leadership and left academic medicine). Women (55%), generalists (20%) and URM (21%) faculty were over-sampled. We used an

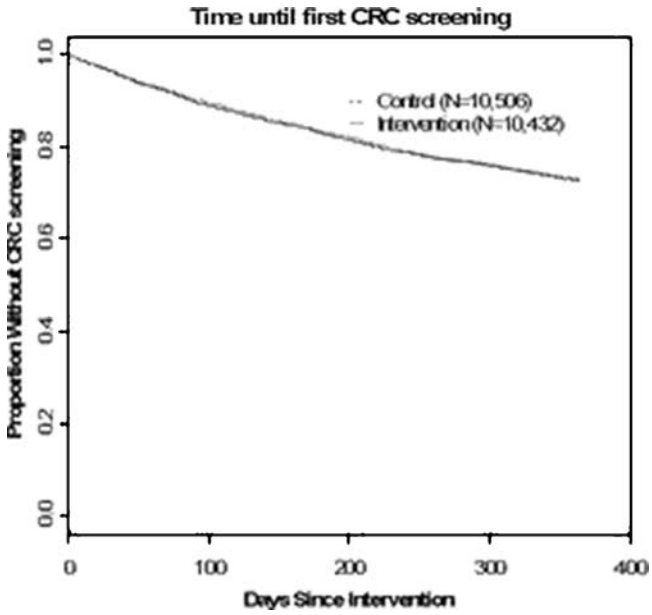
inductive, data-driven, grounded theory process of analysis. Data were analyzed in aggregate with rigorous protection of anonymity.
RESULTS: Values emerged as a predominant theme in the data. Valued and energizing aspects of work for faculty were: clinical care, including caring for the underserved and disadvantaged; involvement in medical education; pursuit of the advancement of knowledge and intellectual autonomy; and science in service of the social mission. Faculty often inferred the values of their institution from behaviors and actions that they observed being rewarded or sustained in the organization. Respondents reported a significant lack of alignment between their own and perceived institutional values. In particular, numerous faculty perceived a lack of attention to the social mission of medical schools to serve all people and the community; a lack of prioritization of excellence in clinical care; a devaluing of educational roles; at times questionable ethical behavior among leadership or management, and the need for self-promoting behavior as essential for success.
CONCLUSION: In-depth faculty interviews documented the values of medical faculty, and these align well with the espoused missions of academic medical centers. However, there is a lack of congruence between faculty-held values and faculty perceptions of institutional values. Such incongruence could lead to underperformance, faculty dissatisfaction, demoralization or intent to leave their institution or academic medicine.

FAILING TO ADDRESS CULTURAL HEALTH BELIEFS IN THE EMERGENCY DEPARTMENT E. Jacobs[1]; C.L. Cordero[2]; K.K. Lee[2]; A. Wilson-Stronks[2]. [1]Cook County Hospital & Rush University Medical Center, Chicago, IL; [2]The Joint Commission, Oakbrook Terrace, IL. *(Tracking ID # 205675)*

BACKGROUND: Cultural health beliefs and language barriers can have a profound impact the provision of health care. It is not clearly understood how well clinicians recognize when these issues need to be addressed or how to best to address them. The objective of this study was to examine how emergency department nurses and physicians are addressing the cultural health beliefs of the diverse patient populations they serve.
METHODS: Semi-structured interviews were conducted at 59 study hospitals between September 2005 and March 2006 as part of the larger Hospitals, Language, and Culture: A Snapshot of the Nation study. Emergency department nurses (ED RNs) and physicians (ED MDs) were presented with a hypothetical scenario of a limited English proficient (LEP) patient who believes that his abdominal pain is the result of a hex. Interview participants were asked how they would respond to the patient's cultural health beliefs and for any sources of additional information or assistance. All interviews were recorded and transcribed. Data collected from complete interviews (58 ED RN and 54 ED MD) were analyzed for common themes and trends across the responses. A set of codes was developed following an initial review of the interview transcripts and refined as the data analysis progressed. Two researchers coded each interview independently, and all discrepancies were resolved by both coders to reach agreement. Textual data were managed using QSR NVIVO 2.0 software.
RESULTS: Of the 58 ED RNs interviewed, four provided responses that reflected culturally competent behavior, which incorporates the cultural health belief into his care. Twenty eight ED RNs provided culturally sensitive responses, which acknowledged that the patient had a cultural health belief, but did not indicate any plan for addressing it. Six ED RNs responded in a way that was culturally insensitive, reflected by ignoring, denying or challenging the patient's belief. Three of the ED RNs provided responses that were culturally incompetent, which involved attempts to convince the patient that their beliefs were wrong. Among ED RNs, the five most frequently cited sources of information on or assistance with hex were the patient (25), an interpreter (15), a mental health evaluation (14), a family member (13), and a chaplain (12). Of the 54 ED MDs interviewed, although 22 provided culturally sensitive responses, none provided responses that reflected culturally competent behavior. Ten ED MDs provided responses that were culturally insensitive and three responded in a culturally incompetent way. Among ED MDs, the five most frequently cited sources of information on or assistance with the hex were attempting to communicate the need for tests or procedures (27), a family member (18), the patient (17), a mental health evaluation (16), and an interpreter.
CONCLUSION: The majority of emergency department nurses and physicians provided responses that reflected cultural sensitivity. However, only four interviewees, all of whom were nurses, expressed plans to incorporate the cultural health belief into the patient's care. Differences in responses by nurses and physicians may in part be attributable to differential training, job responsibilities, and average time spent with individual patients.

FAILURE OF AUTOMATED TELEPHONE OUTREACH WITH SPEECH RECOGNITION TO IMPROVE COLORECTAL CANCER SCREENING: A RANDOMIZED CONTROLLED TRIAL S.R. Simon[1]; F. Zhang[1]; S. Soumerai[1]; A. Ensroth[2]; L. Bernstein[2]; R.H. Fletcher[1]; D. Ross-Degnan[1]. [1]Department of Ambulatory Care and Prevention, Harvard Medical School and Harvard Pilgrim Health Care, Boston, MA; [2]Clinical Programs and Quality Measurement, Harvard Pilgrim Health Care, Wellesley, MA. *(Tracking ID # 204138)*

BACKGROUND: Many adults do not undergo screening for colorectal cancer (CRC), resulting in preventable mortality. Widely applicable, cost-effective interventions to improve screening rates are needed. We undertook this study to evaluate the effectiveness of an automated telephone outreach intervention with speech recognition (ATO-SR) on CRC screening rates.
METHODS: The study design was a randomized controlled trial of ATO-SR versus usual care in a large health plan in New England. The study randomly allocated 40,000 health plan members to intervention and 40,000 to usual care, of whom 10,432 and 10,506 in the intervention and usual care groups, respectively, had not been previously screened and were eligible for analysis. The ATO-SR intervention was a single interactive outreach call using speech recognition technology to engage participants in conversation about the importance of CRC screening, and options for and barriers to screening. The intervention directed participants to contact their primary care provider to schedule screening. The primary endpoint was any CRC screening in the year following intervention. Colonoscopy in the year following intervention was a secondary outcome. Analyses followed intention-to-treat principles.
RESULTS: The incidence of any CRC screening was 30.6% in the intervention group and 30.4% in the usual care group (P=0.76). After adjustment for available covariates, there remained no intervention effect (adjusted odds ratio [OR], 1.01; 95% confidence interval [CI], 0.94 to 1.07). A total of 21.4% of members in the intervention group and 20.3% in the usual care group underwent colonoscopy (P=0.04). In multivariate analysis, there was a small intervention effect on colonoscopy rate (OR, 1.08; 95% CI, 1.00 to 1.16). In survival analysis, there was no statistical difference between intervention and usual care groups in time to any CRC screening (See figure).



Kaplan-Meier curves showing time to completion of any colorectal cancer (CRC) screening. There was no effect of the intervention on CRC screening rates (p=0.61 by log-rank test).

CONCLUSION: In this large randomized controlled trial among more than 20,000 eligible health plan members, ATO-SR failed to improve CRC screening. Future studies should examine more intensive approaches, combining efforts to target patients and their health care providers, to improve CRC screening.

FOLLOW-UP OF ELECTRONIC CONSULTATION REQUESTS IN A MULTISPECIALTY OUTPATIENT CLINIC R. Schiesser[1]; D. Espadas[2]; L.A. Petersen[3]; H. Singh[3]. [1]Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX; [2]Patient Safety Center of Inquiry to Improve Outpatient Safety Through Effective Electronic Communication at the Houston HSR&D Center of Excellence, Michael E. DeBakey VAMC, Houston, TX; [3]Patient Safety Center of Inquiry to Improve Outpatient Safety Through Effective Electronic Communication at the Houston HSR&D Center of Excellence and Baylor College of Medicine, Houston, TX. *(Tracking ID # 205581)*

BACKGROUND: Transmission of consultations through computerized order entry in an integrated electronic health record (EHR) potentially overcomes previously described communication breakdowns in the outpatient referral process. We evaluated outcomes of consultations transmitted electronically to five subspecialties and described potential patient harm from delays in referral in a system that used an advanced EHR.
METHODS: We identified consultations to five subspecialties at a tertiary care VA facility (cardiology, gastroenterology, neurology, pulmonary and surgery) between October 15, 2006 and December 15, 2007. Services were chosen because they typically receive a high volume of time sensitive consultations. For all requested consultations, we used a software program to determine three possible outcomes at the end of the time period 1) completed consultation i.e. consultation was accepted and an appointment given, 2) discontinued consultation i.e. the receiving service cancelled the request for a specific reason (e.g. if prerequisite testing was not done or inadequate data was provided on the request) or 3) unresolved consultation i.e. the subspecialty service received but did not take any further action on the consultation. Based on sample size calculations, we then reviewed records of all unresolved consultations and randomly selected discontinued and completed consultations to determine appropriateness of request for consultations. Additionally, we reviewed records of discontinued and unresolved consultations to evaluate for 1) potential for harm due to delays using a rating scale of 0–6 (0=no potential to 6=most severe potential for patient harm) and 2) reasons for discontinuation or inaction.
RESULTS: Of 61,913 total consults transmitted to the five subspecialties in the study period, 38,922 were completed (of which 161 were randomly selected for review), 22,535 were discontinued by the receiving service (410 randomly selected for review) and 456 were unresolved. For discontinued consultations, reasons for discontinuation included situations where the consultant found the consultation inappropriate (35.9%), patient refused to see a specialist or requested cancellation (15.6%), a second consultation had already been requested and hence the first was redundant (15.6%) and where the patient did not show one or more times for clinic appointment (14.9%). Almost a third (128; 31.2%) of discontinued consultations had a potential delay in care (mean harm rating score=1.5). In unresolved consultations, we did not find any documented reasons for inaction. Majority of unresolved consultations (376; 82.5%) had a potential delay in care (mean harm rating score=2.6). Although appropriateness of consultation request was significantly different across the three groups, a large majority of discontinued and unresolved consultations were requested for appropriate reasons (94.4% vs. 91.2% vs. 84.0% for completed, discontinued and unresolved consultations respectively; p=0.0001).
CONCLUSION: Over a third of consultations transmitted through computerized order entry in an integrated EHR are discontinued or unresolved and hence not completed in a timely manner. Majority of discontinued or unresolved consultations are requested for appropriate reasons and a significant proportion are associated with potential delays and harm in care. Future interventions are needed to track and improve the referral process in EHR systems.

FOOD INSECURITY INCREASES RISK OF HYPOGLYCEMIA: A PILOT STUDY H.K. Seligman[1]; T.C. Davis[2]; M. Bocchini[2]; S. Bailey[3]; D. Kathryn[2]; A. Pandit[3]; D. Schillinger[1]; M.S. Wolf[3]. [1]University of California, San Francisco, San Francisco, CA; [2]Louisiana State University Medical Center at Shreveport, Shreveport, LA; [3]Northwestern University, Chicago, IL. *(Tracking ID # 203813)*

BACKGROUND: Food insecurity refers to the inability to reliably afford nutritionally adequate food. Eleven percent of households in the US are food insecure. We are aware of no studies which evaluate food insecurity as a risk factor for hypoglycemia.
METHODS: Our sample included 40 patients with diabetes who participated in the follow-up telephone survey of the Cherry Street Cardiovascular Literacy Study. All patients received care in community health clinics in Shreveport, Louisiana or Chicago, Illinois. We conducted exploratory analyses of food insecurity using the validated, 6-item version of the Food Security Survey Module, which assesses food insecurity over the prior 12 months. Outcome variables were each single items. In bivariate analysis, we compared food insecure and secure participants using Fisher's exact and t-tests. In multivariate analyses, we used logistic regression models adjusting for study site, race, and income (expressed as a percent of the federal poverty level).
RESULTS: Of the 40 participants, 15 (37.5%) reported being food insecure. Food insecure participants were more likely to report a hypoglycemic reaction in the last year because of an inability to afford food (unadjusted p=0.04; adjusted OR 11.63, p=0.04) and marginally more likely to have ever visited the Emergency Room due to a hypoglycemic reaction (unadjusted p=0.07; AOR 8.57, p=0.09). Increases in hypoglycemia may have been mediated by an inability to afford blood testing supplies. 69.3% of food insecure and 13.3% of food secure participants missed checking their blood sugar as prescribed in the previous week (unadjusted p=0.006; AOR 38.5, p=0.008). 44.4% of food insecure and 4.6% of food secure participants put off purchasing blood testing supplies so they would have enough money to buy food (unadjusted p=0.006; AOR=17.2, p=0.02).
CONCLUSION: Food insecurity is common in community health clinics and may be an important risk factor for hypoglycemia. Clinicians in these settings should consider screening for food insecurity when setting targets for glycemic control. Clinicians must also pay careful attention to patients' need to prioritize food purchases over buying glucose testing supplies. Medications with shorter half-lives, careful education, and/or collaborative planning may help patients avoid hypoglycemia when food is unavailable.

FOR PATIENTS WITH DIABETES AND CHRONIC PAIN, MOOD AND MEDICATION BELIEFS INFLUENCE CHOICES ABOUT MEDICATION UNDERUSE IN THE CONTEXT OF COST PRESSURES J.E. Kurlander[1]; E.A. Kerr[1]; S.L. Krein[2]; M. Heisler[1]; J.D. Piette[1]. [1]University of Michigan, Ann Arbor, MI; [2]Ann Arbor VA Center for Clinical Management Research, Ann Arbor, MI. *(Tracking ID # 203868)*

BACKGROUND: Patients shoulder a significant proportion of their medication costs, causing some to cut back on medication use with adverse effects on their health. Patients taking medications for more than one chronic condition may have to choose which treatments to forego and which to use as prescribed. For patients with diabetes and chronic pain, we sought to understand what factors help distinguish among those who cut back due to cost on both medication regimens, those who cut back on only one of those regimens, and those who continue taking all of their medications as prescribed.
METHODS: Using detailed in-person interviews, we surveyed 245 mostly poor and African-American patients using medications for both diabetes and chronic pain about whether they cut back due to cost on their diabetes medications only, chronic pain medications only, treatments for both diseases, or neither. The survey also collected data on patient characteristics, depressive symptoms, beliefs, and attitudes using questions from validated questionnaires, including the Patient Health Questionnaire, the Beliefs about Medications Questionnaire, and the Satisfaction with Information about Medication Scale. Multinomial logistic regression was used to model patients' adjusted odds-ratios (AORs) of falling into each of the three possible underuse categories relative to the category that did not cut back on either drug regimen.
RESULTS: A total of 31% of patients cut back on at least one of their diabetes or chronic pain medications due to cost, including 13% who cut back on diabetes medications alone, 9% who cut back on pain medications alone, and 9% who cut back on both medication types. Income greater than $20,000 per year (AOR=5.7, p=.008) and out-of-pocket medication costs greater than $50 per month (AOR=3.9, p=.016) increased patients' odds of CRUM for both conditions versus neither. Low-income patients also were more likely to forgo chronic pain

medications alone (AOR=9.1, p=.001) but not diabetes medications alone (AOR=2.1, p=.124). A clinically significant increase in depressive symptoms (AOR=1.6, p=.006) and negative attitudes about prescription drugs (AOR=1.7, p=.021) increased patients' odds of selectively cutting back only on their diabetes medications. Greater dissatisfaction with information about their medications increased patients' odds of cutting back only on their chronic pain treatments (AOR=3.4, p=.043).
CONCLUSION: Faced with cost-pressures, patients with diabetes and chronic pain do not cut back on their medications uniformly. Patients who cut back on both medication types are responding primarily to economic pressures, while patients who cut back selectively on their treatments are influenced more by their mood, beliefs about medications, and satisfaction with medication information. Our findings point toward more targeted strategies physicians might employ in identifying and helping patients who experience CRUM.

FQHCS PATIENTS' KNOWLEDGE, ATTITUDE AND BEHAVIOR ABOUT MAMMOGRAPHY AND COLORECTAL CANCER SCREENING
C.L. Arnold[1]; A.W. Rademaker[2]; D. Liu[2]; P.F. Bass[1]; M. Bocchini[1]; T.C. Davis[1]. [1]Louisiana State University Medical Center at Shreveport, Shreveport, LA; [2]Northwestern University, Chicago, IL. *(Tracking ID # 206031)*

BACKGROUND: Few patients in Louisiana Federally Qualified Health Centers (FQHCs) are receiving breast and colorectal cancer (CRC) screening within the recommended timeframe. The purpose of this research is to determine more effective strategies to increase initial and repeat breast and CRC screening, we are conducting a randomized control trial in 6 FQHCs in North Louisiana. This report presents baseline data on the knowledge, attitudes and behavior (KAB) of eligible patients in 6 rural FQHCs.
METHODS: Patients (women >40 who had not received a mammogram in the last 2 years; men and women >50 over who were not up-to-date with CRC screening or who had not had CRC) were given a structured interview that assessed literacy and cancer screening KAB.
RESULTS: Of the 478 patients interviewed to date: 85% are women; 62% are AA, 38% white; 33% have not completed high school and 37% are reading <8th grade level. With regard to breast cancer screening: 84% reported they had received a recommendation for mammography from a doctor. 77% had previously had a mammogram, yet 49% of these had not been rescreened in 4 or more years. The most common reasons women reported not getting a mammogram was because they put it off (56%) or they had not had any problems (10%). Attitudes about mammograms were positive: 93% believed if breast cancer is detected early their chances of survival are good to very good. The most common misconception about mammograms was the age of initial screening - 72% believed it was < age 40. With regard to colorectal cancer screening 21% of eligible patients reported they had completed a FOBT before, but 56% had not completed another FOBT >3 years. Only 35% reported their doctor recommended CRC screening. Of these 62% had received recommendation for colonoscopy and 45% for FOBT. Only 21% of patients reported their doctor had given them a FOBT. The most common reasons patients reported not being tested was they put it off (24%), did not know it was needed (29%). Awareness of CRC was high but knowledge was low: 95% said they had heard of CRC but 22% of these could not say what it was. Only 54% had heard of tests to find CRC. Of these, 89% had heard of a colonoscopy and 36% had heard of a FOBT. Attitudes about CRC screening were positive. 89% believed if CRC is found early that their chances of survival were good to very good. The most common misconception about CRC screening was the age a person should start getting screened – 73% believed it was <50 years old.
CONCLUSION: Lack of knowledge about breast cancer screening was not a barrier. The majority of women had had an initial mammogram and most had received a recommendation from their doctor. However, these women were not up-to-date with their screening. Patients cared for in these FQHCs had a high awareness of CRC but lacked adequate knowledge of screening. The majority of patients had neither been screened nor offered screening.

FRACTURES AMONG A COHORT OF BREAST CANCER PATIENTS
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BACKGROUND: Fractures were the most frequent adverse event among women in recent large randomized trials of aromatase inhibitors for hormone-sensitive breast cancers. However, there is conflicting data regarding the fracture risk of women treated with tamoxifen vs an aromatase inhibitor, and the trials have not compared aromatase inhibitors with placebo. We sought to examine the hip fracture risk among a population-based group of older breast cancer patients.
METHODS: Women who underwent breast cancer surgery in 2003 in four large states (IL, NY, FL, CA) were identified from Medicare administrative data. Three thousand eighty-three patients initially surveyed in 2005 were contacted three additional times through 2008 to obtain information including oral hormonal cancer treatment, fracture risk factors, and cancer recurrence. Patients who changed hormonal cancer treatments were categorized based on their treatment at the end of the first year after surgery. Cancer registry data was used to supplement information about the initial cancer stage. Information regarding fractures and comorbidity was obtained using a validated Medicare claims algorithm. Patients were excluded if they had metastatic breast cancer at diagnosis or continuous glucocorticoid use for 3 months or more. The incidence of hip fractures before distant breast cancer recurrence over the three-year period 2004–2006, and the association of fractures with hormonal breast cancer therapies were examined.
RESULTS: Among this 2003 breast cancer cohort, 29.5% received tamoxifen, 34% an aromatase inhibitor (letrozole, anastazole, or exemestane) and 36% no hormonal therapy (controls). Fracture risk factors among the cohort included BMI<20 (4.3%), personal history of fracture during the prior 2 years (4.1%) and family history of fracture (25%), which did not differ by therapy group. Hip fractures occurred during 2004–2006 among 0.7% of subjects on tamoxifen, 1.3% of subjects on aromatase inhibitors, and 2.3% of controls (p=.025). In a logistic regression model adjusted for fracture risk factors, tamoxifen users were less likely (OR 0.35, 95% CI 0.13, 0.95) than controls to have a fracture; all other comparisons between groups were not significantly different. Although 38% of the cohort reported taking a bisphosphonate, adjustment for bisphosphonate use or comorbidity in secondary analyses produced similar results.
CONCLUSION: Hip fracture incidence over a 3-year period among a population-based group of breast cancer survivors appears higher than in randomized controlled trials. In this comparative effectiveness study, patients taking tamoxifen had fewer hip fractures than controls, but there was no difference between AI users and the other groups. Although common, bisphosphonate use did not appear to explain the results.

FRAGMENTATION AND CONTINUITY OF CARE AMONG DIABETIC MEDICAID BENEFICIARIES SEEKING CARE AT SAFETY-NET HOSPITALS AND CLINICS
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BACKGROUND: Continuity of care is an important feature of many proposed innovations in care delivery, particularly the medical home. The objective of this project is to describe utilization patterns and measure continuity of care among diabetic Medicaid beneficiaries seeking care in a large safety-net health system. We compared groups with high and low continuity of care using multiple measures.
METHODS: Our study was a retrospective database review of records for 16,985 diabetic Medicaid beneficiaries with at least two primary care visits to one site in a large safety-net health system between January 1 2004 and December 31 2007 and at least one Hemoglobin A1c (A1c) level greater than 7%.
RESULTS: We followed subjects' visits across fifteen safety-net hospitals and ambulatory care centers. During the three-year study period, the typical (median) subject was seen at one facility and had 9 primary care visits during which they saw 3 primary care providers. 16,136 of subjects were seen by specialty as well as primary care providers (2,549 were seen by endocrinologists). Sixty-four percent were seen in an emergency department (ED); among subjects with ED visits, the typical subject had 3.67 visits. Forty percent had at least one inpatient admission, and the typical admitted subject was admitted twice. When Continuity of Care indices were calculated, the average CoC was .44. The typical subject had a mean A1c level of 8.6%. When subjects were divided by initial A1c measurement, those groups with poorer glycemic control (initial A1c values over 9%) showed a significant improvement

over time, although these improvements would not be sufficient to bring values to <7% for most. Among subjects with more than five A1c measurements during the study period, sixteen percent showed a decreasing slope on linear regression while sixteen percent tended to rise and the remainder had no significant change. We found no connection between decreases in A1c during the study period and continuity of care as measured by (1) the number of facilities visited; (2) visiting multiple facilities that share information (vs. multiple facilities that do not); (2) concentration of care in primary care clinic (vs. specialty clinics) and (3) Continuity of Care index.
CONCLUSION: We followed diabetic Medicaid beneficiaries seeking care in a large safety-net health system for three years and found that most subjects sought care in only one facility. However, they had high rates of specialist and ED utilization as well as high rates of inpatient admission during our study period. Continuity of care with an individual provider was low (particularly compared with published data from private health plans). For most subjects, A1c did not change significantly over time. Among those subjects for whom A1c tended to rise significantly or fall significantly during the study period, we found no association with any measure of continuity. Among this population, continuity did not appear to be associated with diabetes control. Safety-net providers may face a greater struggle to ensure continuity for their patients.

FREQUENCY OF REDUNDANT LAB ORDERS IN PRIMARY CARE SETTING J.P. Ungar[1]; T. Gandhi[1]; L.P. Newmark[2]; C. Franz[3]; E.G. Poon[1]; S. Maviglia[4]. [1]Brigham and Women's Hospital, Boston, MA; [2]Partners HealthCare System, Wellesley, MA; [3]Eastern Research Group, Inc., Lexington, MA; [4]Brigham and Women's Hospital, Medfield, MA. *(Tracking ID # 204251)*

BACKGROUND: Current literature contains guidelines for the minimum period that should be allowed to elapse before certain tests are re-ordered. A repeat test ordered during this period is unlikely to be clinically significant and is considered redundant. Identifying, and preemptively eliminating, such redundant tests could present a significant cost-saving opportunity.
METHODS: We examined resulted orders over a ten year period in one primary care clinic. We analyzed only labs where the redundancy could be determined solely by whether a repeat test occurred before a minimum time interval had elapsed or, after a previous positive result. The time intervals were provided by DiagnosisONE (http://www.diagnosisone.com). Frequency of redundant orders and potential cost-savings achieved by eliminating such redundant tests were calculated.
RESULTS: Eight of the thirteen labs examined have redundancy frequencies less than 5%. Of the other five labs, only Albumin labs have redundancy rates higher than 10%. Over this period, preventing 100% of these redundant tests would have eliminated tests costing approximately $29,000.

Redundant lab order frequencies

CONCLUSION: Although redundant tests are ordered, the frequency of such tests is low. Albumin may have relatively high redundancy rates because it is bundled with metabolic profile panels rather than being the focus of the order. Even if all redundant tests could have been prevented, the cost-savings would likely be exceeded by the cost of developing a decision support system to accomplish this. Additionally, implementing a decision support system to prevent redundant tests may result in alert fatigue. These findings indicate that eliminating redundancies in these labs presents little opportunity for significant cost-savings in the primary care setting.

GENDER AND HIP/KNEE TOTAL ARTHROPLASTY: MORTALITY, COMPLICATIONS AND REVISION RATES IN THE STATE OF PENNSYLVANIA. A.A. Majesko[1]; R. Boudreau[2]; M. Geng[3]; K. Kwoh[2]; J. Garvin[4]; S. Ibrahim[5]. [1]University of Pittsburgh/ VAPHS, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA; [3]VA Pittsburgh Health Care System and the University of Pittsburgh, Pittsburgh, PA; [4]VA HSR&D Center for Health Equity Research and Promotion (CHERP), Philadelphia, PA; [5]Veterans Affairs Healthcare System Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204306)*

BACKGROUND: Knee/hip osteoarthritis (OA), which is more prevalent in women than men, is a leading cause of disability in the US. Total joint arthroplasty is the primary surgical option when conservative treatment for knee/hip OA fails. Device manufacturers have introduced gender-specific prosthetics under the premise that women have worse surgical outcomes than men. Yet, there have been relatively few large-scale studies examining gender differences in surgical outcomes after total knee/hip arthroplasty (TKA/THA). We have utilized a large regional data set to examine gender differences in surgical outcomes such as all-cause-mortality, complications and revision rates after TKA/THA.

Analyte	Considered redundant if repeat test ordered...	Total Orders	Percent Redundant
Albumin	before 2 weeks	30336	17.9%
Anti ds DNA antibodies	before 6 weeks	323	7.1%
Antinuclear antibody	before 4 weeks	1563	8.1%
Gamma glutamyl transferase (GGT)	before 1 week	113	4.4%
Vitamin B 12	before 2 months	2090	5.4%
Rheumatoid Factor	before 4 weeks	980	1.6%
Thyroid Stimulating Hormone	before 4 weeks	18572	4.1%
Folate	before 2 months	1154	5.5%
Thyroxine	before 1 week	2588	0.9%
Thyroxine binding globulin	before 5 days	6	0.0%
Microalbumin	before 2 weeks	1009	0.5%
Anti-HAV total	after previous positive result	315	2.9%
Anti-HBc	after previous positive result	320	0.9%

METHODS: We used the Pennsylvania Health Care Cost Containment (PHC4) database to identify 19,418 TKAs and 10,189 THAs that were performed in 170 hospitals in the State of Pennsylvania during the fiscal year 2002. We excluded THA resulting from a hip fracture or hemi-arthroplasty and those performed in patients with rheumatoid arthritis. The PHC4 data set was then linked to the State of Pennsylvania death index file for information on 30-day and one year all-cause mortality. To assess complications, we used ICD-9 codes to identify five quality and patient-centered complications: acute myocardial infarction (MI), pulmonary embolism/deep venous thrombosus (PE/DVT), Catheter-associated urinary tract infection (UTI), Prosthetic device malfunction and/or surgical wound infection. Surgical revisions were assessed for the entire cohort for up to 4.5 years after the index surgery. We used random effect (hospitals) logistic regression models to examine associations between gender and all-cause mortality and complications (none vs $\geq$1) adjusting for patient characteristics, hospital teaching status, hospital surgical volume, insurance status, and risk of mortality using a previously validated risk model. We assessed gender-specific revision rates at one year and at 4.5 years after the index surgery using chi-square statistics.
RESULTS: For THA, the median age was 71 for women and 65 for men. For TKA, the median age was 69 for women and 69 for men. For THA and TKA combined, there were 105 deaths within 30 days of surgery and 525 deaths within one year of surgery. Adjusted women to men odds ratio for 30-day mortality was 0.68 (95% CI 0.45–1.03) while one year mortality after THA or TKA was 0.67(95% CI=0.56–0.80). Women had higher in-hospital complications after THA (OR=1.84; 95% CI=1.50–2.26) and TKA (OR=1.69; 95% CI=1.42–2.02). There were no statistically significant gender differences in THA revision rates. However, revision rates for TKA were 1.35% for women and 1.98% for men (p=0.001) at one year and 4.61% for women and 5.35% for men (p=0.02) at 4.5 years.
CONCLUSION: Compared to men, women have similar 30-day mortality and lower one year mortality following TKA or THA. Women have higher in-hospital UTI complication rates after both procedures; while men have higher rates of revisions after TKA.

GENDER AND RACE DISPARITIES IN ACHIEVING LDL-CHOLESTEROL GOALS B.J. Turner[1]; C. Hollenbeak[2]; M.G. Weiner[1]; S. Tang[3]. [1]University of Pennsylvania, Philadelphia, PA; [2]Pennsylvania State University, Hershey, PA; [3]Pfizer, Inc., New York, NY. *(Tracking ID # 205565)*

BACKGROUND: Women and black men have been reported to be less likely to reduce low-density lipoprotein cholesterol (LDL-C) to target goals than white men but studies have not taken into account the potency of prescribed medication (Rx) to lower LDL-C. In a cohort of hypertensive adults at increased risk of heart disease, we examined gender and racial disparities in reducing LDL-C to goal and the relative impact of LDL-C Rx potency as well as patient, provider, and health care factors on observed disparities.
METHODS: From a cohort of 16,910 hypertensive patients aged >17 who were seen at least 3 times from 01/2003 through 02/2005 at 6 urban primary care practices in one healthcare system, we identified 3,484 black and white patients aged >45 if male or >55 if female whose baseline LDL-C from 1/00 through 6/06 was high based on expert guidelines. For all prescribed statin and nonstatin LDL-C Rxes, relative potency (where atorvastatin 40 mg for a day=1) was determined from published literature and the overall potency calculated for all days covered by LDL-C Rxes and refills. After an index high LDL-C, all subsequent values were assessed for reaching goal until 1/1/07. Using chi-square, Kaplan-Meier analysis, and log rank tests, we compared four gender-race groups for LDL-C Rx potency, LDL-C at goal after one year followup (%), and time (days) to reach goal. Sequential Cox proportional hazard models adjust additively for the following variables: demographics, clinical, health care delivery, provider characteristics, and LDL-C Rx potency.
RESULTS: Reducing LDL-C to goal after one year differed by gender-race (P<0.001): 27.6% of black women (N=1,440), 32.2% of black men (N=666), 33.4% of white women (N=661); and 41.5% of white men (N=717). Higher LDL-C Rx potency was associated with shorter time to control (P<0.001). Mean LDL-C potency differed by gender-race (P<0.001) but was highest for black women. Baseline LDL-C and LDL-C Rx potency contributed most to explaining gender race disparities in time to LDL-C goal. Even after full adjustment, the hazard ratio (HR) for reaching LDL-C goal was: 0.66 [95%CI 0.57–0.79] for black women; 0.83 [95%CI 0.69–0.98] for black men; and 0.77 [95%CI 0.66–0.90] for white women versus white men.
CONCLUSION: Among older hypertensive patients, black men and all women were less likely to achieve LDL-C goals even after accounting for LDL-C Rx potency and a large set of demographic, provider, health care and clinical factors. Black women were prescribed the highest potency LDL-C Rxes but were least likely to reach goal. Future work must evaluate response to treatment and adherence in these groups.

GETTING TO "NO": A QUALITATIVE ANALYSIS OF HOW PRIMARY CARE PHYSICIANS DENY PATIENT REQUESTS T. Fancher[1]; D. Paterniti[1]; R.L. Kravitz[1]. [1]University of California, Davis, Sacramento, CA. *(Tracking ID # 204924)*

BACKGROUND: Patient requests for clinical care, including requests for medication, can impact physicians' decisions about treatment. Physicians need strategies for rejecting, or at least limiting, patient requests. Few studies have examined the communication processes physicians use to deal with patient requests they do not wish to fulfill.
METHODS: Data for this study come from a trial on the prescribing behavior of primary care (PC) physicians in response to standardized patient (SP) requests for anti-depressant medication. Data included transcripts of office visits in primary care practices and post-visit SP questionnaires. SPs were trained to portray two different clinical scenarios which included both a physical and psychological reason for visit (e.g. major depression with wrist pain or adjustment disorder with back pain) with three different request types (e.g brand-specific antidepressant medication request, general request for antidepressant medication, and no request). SPs were instructed to make their initial request within the first 10 minutes of the visit or before the physical examination. Using a hidden recorder, all visits were audio-taped and transcribed. We reviewed transcripts where SPs made a brand name or general request for antidepressant medication and where physicians did not provide a prescription. Transcripts were iteratively reviewed and analyzed using qualitative analysis for visit content and an outline of pathways by which physicians denied requests for medication. Post-visit SP questionnaires included 2 Likert-scaled items for physician satisfaction ("Thinking about the visit you just made, how would you rate the physician in terms of your overall satisfaction with care?"; 1=excellent, 5=poor) and ("Would you want this doctor for your own personal physician"; 1=yes, definitely, 5=no, definitely not). A dichotomous variable indicating high visit satisfaction was formed by summing SP responses to the questions. The relationship between pathways to "no" and high satisfaction was examined using Fisher's exact test.
RESULTS: Of the 199 office visits where SPs made explicit requests for antidepressant medication (101 portraying major depression and 98 portraying adjustment disorder), 88 (44%) did not result in a prescription. Four of the visits were only partially transcribed or unavailable for transcription, resulting in 84 transcripts. Physicians used a limited number of strategies for denying requests for antidepressant medication. Three strategies (63% of all office visits) were more patient-centered: educating about alternative diagnosis, exploring the context of the request and referral to counseling for further exploration. Three strategies (37% of all office visits) were more biomedically oriented: rejecting the request outright without explanation, prescribing an alternative sleep aid and investigating further with laboratory testing. SPs reported significantly higher visit satisfaction when the physician used a patient-centered strategy to deny the request (p=.004).
CONCLUSION: Physicians in our study used a limited number of strategies to deny SP's medication requests. Patient-centered approaches were associated with higher visit satisfaction than biomedically oriented approaches. These findings should be considered in light of increasing healthcare costs and might be used in the context of physician education and training, as they suggest strategies for saying "no" which may preserve the doctor-patient relationship.

GROUP MEDICAL VISITS IMPROVE LIPID PROFILES IN PATIENTS WITH DIABETES AND HYPERTENSION S.K. Fredrickson[1]; C.J. Coffman[2]; M. Weinberger[3]; A.S. Jeffreys[4]; G.L. Jackson[4]; S.D. Melnyk[4]; A. Harris[4]; H. Stewart[1]; K. Tisdel[1]; D. Edelman[4]. [1]McGuire Veterans Affairs Medical Center, Richmond, VA; [2]Duke University/Durham VA Medical Center, Durham, NC; [3]Durham Veterans Affairs Medical Center, Chapel Hill, NC; [4]Durham Veterans Affairs Medical Center, Durham, NC. *(Tracking ID # 205540)*

BACKGROUND: To determine the effect of group medical visits on lipid profiles in patients with uncontrolled diabetes and hypertension.

METHODS: The Diabetes Group Visit study was a 2-site randomized, controlled trial to evaluate the effectiveness of group medical visits in improving hemoglobin A1c and blood pressure in veterans with both poorly controlled diabetes (Hemoglobin A1c ≥7.5%) and hypertension (systolic BP≥140 or diastolic BP≥90). Patients were not selected for lipid control. 239 veterans were randomized to receive either group medical visits or usual care. For the group medical visits that met every two months for a year, the same patients met with the same pharmacist and general internist at each visit; however, there were different physicians and pharmacists across groups. Each session included group education and structured group interactions moderated by a registered nurse or certified diabetes educator. Additionally, individual medication adjustments were made by the pharmacist and physician. Fasting lipid profiles were measured at baseline, 6, and 12 months. Linear mixed modeling (LMM) was used to compare lipid values between the intervention and control arms, adjusting for clustering within group medical visits and baseline randomization stratification variables (site, BP strata (SBP≥150 or SBP<150), A1c strata (A1c≥9 or A1c<9)).
RESULTS: Mean, unadjusted baseline lipid values for the control versus intervention arms respectively were: total cholesterol 172.9 and 167.1 mg/dl, triglycerides (TG) 179.5 and 167.8 mg/dl, high-density lipoprotein cholesterol (HDL-C) 40.4 and 38.5 mg/dl, low-density lipoprotein cholesterol (LDL-C) 101.0 and 96.0 mg/dl, and non-HDL-C 131.6 and 128.4 mg/dl. 61% of the control subjects and 59% of the intervention subjects had LDL-C less than 100 mg/dl. Additionally, 56% of the control subjects and 55% of the intervention subjects had non-HDL-C less than 130 mg/dl. After adjusting for clustering and stratification variables, intervention patients had greater improvements in total cholesterol, LDL-C and non-HDL-C than controls at 12 months. There was no between group difference for triglycerides or HDL-C at 12 months (table).
CONCLUSION: Group medical visits are a potent strategy for improving lipid profiles in patients with diabetes.

Estimated mean differences in lipid values between control and intervention patients at 12 months from LMM

	Difference between groups (95% Confidence Interval)	p-value
Total Cholesterol (mg/dl)	-14.2 (-25.0 to -3.4)	0.01
Triglycerides (mg/dl)	9.4 (-29.4 to 48.2)	0.63
HDL-C (mg/dl)	-2.0 (-5.3 to 1.2)	0.22
LDL-C (mg/dl)	-9.2 (-17.1 to -1.2)	0.02
Non-HDL-C (mg/dl)	-11.8 (-21.2 to -2.4)	0.01

GROWTH AND DIFFUSION OF ANTIPSYCHOTIC MEDICINES FOR LABELED AND OFF-LABELED USES, 1994–2007 G.C. Alexander[1]; S.A. Gallagher[1]; A. Mascola[2]; R.M. Moloney[1]; R.S. Stafford[2]. [1]University of Chicago, Chicago, IL; [2]Stanford University, Stanford, CA. *(Tracking ID # 205749)*

BACKGROUND: Antipsychotic drugs are widely used and costly. Previous research has documented a dramatic increase in the use of antipsychotics during the past decade, including substantial off-label use. However, little is known about how this use has varied with respect to specific clinical applications or levels of supporting evidence. We sought to examine trends in antipsychotic use with a focus on how the application of these drugs has changed over time. Extending prior research, our efforts used greater diagnostic detail than previous investigators, examined whether usage was supported by evidence of efficacy for a given indication, and also explored possible physician and patient characteristics accounting for the observed prescribing patterns.
METHODS: We used the IMS Health National Disease and Therapeutic Index to describe typical and atypical antipsychotic use from 1994 through 2007. This data, which is nationally representative and prospectively collected cross-sectional data of outpatient office-based physicians, includes physician-reported diagnoses based on ICD-9 codes, which were then matched to indications provided by the FDA and the Drugdex® compendium to determine levels of evidence and labeled approval status. We also obtained promotional and prescription expenditures from IMS Health Integrated Promotional Services and the National Prescription Audit. Quarterly prescription expenditures for typical and atypical antipsychotics were reviewed and divided by the number of prescriptions to determine the average cost per typical or atypical antipsychotic drug.
RESULTS: Aggregate annual rates of antipsychotic use increased 262% from 6.1 million outpatient visits (1994) to 16 million visits (2006), then declined to 14 million visits (2007). The market share of typical antipsychotics decreased from 86% to 8% during this period. Among increases in antipsychotic use between 1994–2007, the majority occurred among individuals 18–64 years of age (234%) and less than 18 years of age (559%), while increases were more modest among those 65 years of age or older (131%). Antipsychotic use for schizophrenia declined from 76% to 31% as a share of all uses from 1994 to 2007, while substantial increases in use occurred for bipolar affective disorder (5% to 39%) and depression (8% to 15%). The fraction of atypical antipsychotic use for indications with insufficient evidence of efficacy increased from 32% in 1994 to 58% in 2007, representing 8.1 million prescriptions and $7.4 billion dollars in expenditures in 2007. During 2007, primary care physicians accounted for 21% of treatment visits where an antipsychotic was used, as compared with psychiatrists (77%) or physicians from other specialties (2%). The frequency of antipsychotic use in settings of insufficient evidence was similar among primary care physicians and psychiatrists.
CONCLUSION: Substantial changes have occurred in the clinical application of antipsychotic drugs during the past decade. The scope and costs of this expansion, due to both clinical innovation and overuse, demonstrate the importance of efforts to limit the clinical application of these commonly used drugs to settings of sufficient evidence.

GUARDARSE LAS COSAS ADENTRO (KEEPING THINGS INSIDE): LATINA PERCEPTIONS OF DEPRESSION AND DEPRESSION CARE C. Nicolaidis[1]; P. Marlen[2]; A. Alvarado[3]; R. Celaya-Alston[2]; A. Mejia[1]. [1]Oregon Health & Science University, Portland, OR; [2]Familias en Accion, Portland, OR; [3]Interconnections Project, Portland, OR. *(Tracking ID # 205860)*

BACKGROUND: Intimate partner violence (IPV) is strongly associated with depression. Latinos are less likely than non-Hispanic whites to be diagnosed and adequately treated for depression. Less is known about how Latina IPV survivors understand their depression or their treatment options. Our objective was to understand Latina women's beliefs, attitudes, and recommendations regarding depression and depression care, with a special focus on the impact of gender, ethnicity, violence, and social stressors.
METHODS: We formed a community-academic partnership (Interconexiones) and used a community-based participatory research (CBPR) approach to conduct a focus group study of Spanish-Speaking Latina women with a lifetime history of IPV and symptoms consistent with Major Depressive Disorder (PHQ9>=15). Community partners recruited potential participants by word of mouth. Eligible women were asked to participate in a focus group discussion in Spanish, facilitated by community partners. Academic and community partners jointly analyzed focus group transcripts using thematic analysis with an inductive approach (consistent with Grounded Theory), at a semantic level with an essentialist paradigm.
RESULTS: 31 women participated in 5 focus groups. 71% had an annual household income of less than $15,000. 57% were currently involved with an abusive partner. We identified a number of common themes. Women felt that depression is caused by "keeping things inside". They also felt that keeping things inside could lead to physical illness or an inability to function, or would cause them to "explode" with emotional outbursts that caused further embarrassment or pain. They talked extensively about the inability to talk about the many painful things that had happened to them in the past or that are still causing them stress. This inability to talk was fueled by issues such as stigma, fear, isolation, cultural norms, or simply "not having the words". It was also exacerbated by a cultural expectation to "endure". They felt that the key to treating depression was finding a way to talk about the things that they had kept inside, but also felt it was important to find ways to be useful. They had relatively negative attitudes toward antidepressants, primarily due to experiences with side effects. Negative experiences with health care providers were primarily attributed to lack of good healthcare insurance or, at times, lack of legal immigration status. They were less interested in the race or ethnicity of health care providers, as long as providers spoke Spanish fluently and understood their culture. They wanted depression care programs that ensured confidentiality, provided childcare, and helped them not only deal with their depression, but also addressed the violence in their lives and gave them practical skills.

CONCLUSION: The concept of "keeping things inside" was key to participants' understanding of the cause of depression, physcial health problems, and negative behaviors. They desired progams that would help them address their experiences in a confidential, culturally-appropriate manner. They also placed great value on feeling useful and on gaining practical skills. Clinicians and depression care programs can potentially use such information to provide culturally-appropriate depression care to Latina women.

HAVE RESIDENT VIEWS OF SUCCESSFUL ATTENDINGS CHANGED OVER 20 YEARS? R. Mallory[1]; J.L. Jackson[2]. [1]WRAMC, Washington, DC; [2]USUHS, Bethesda, MD. *(Tracking ID # 204921)*

BACKGROUND: Our study purpose was to assess whether internal medicine residents have changed in traits they value in inpatient attendings between 1988 and 2008.
METHODS: Internal medicine residents completed identical, anonymous surveys rating inpatient medicine ward attendings in 1988 (n=242) and again in 2008 (n=92, collection ongoing). Surveys included 26 Likert questions about specific attending characteristics as well as an overall 0–100 rating. The number and structure of internal medicine teams has not changed during this time period, though there are differences in call schedules and post-call leave times. We assessed the pattern of responses using factor analysis and linear regression and report our results using standardized coefficients.
RESULTS: Some characteristics were valued by residents from both time periods. Attendings received higher overall ratings if they had higher ratings on balance between bedside and didactic teaching, higher knowledge, better attitudes toward housestaff and greater teaching interest. Residents from 1988 also identified time management (starting and ending on time), and attending supervision (ability to call their attending and higher quality supervision) as important domains associated with higher attending ratings. A greater proportion of the variance in overall ratings was explained in the 1988 surveys (0.82 vs. 0.65)
CONCLUSION: Over the past two decades, housestaff continue to favor attendings who have a balanced teaching style, show interest in teaching, demonstrate a positive attitude and have good knowledge. Residents from 20 years ago also identified time management, availability and supervision as important components of attending ratings. This could reflect heightened awareness of time issues among modern attendings, increased attending supervision requirements and potential benefits of recent residency changes.

Characterisctics of Successful Attendings (Standardized Coefficients)

	1988	2008
Teaching Interest	0.27	0.22
Knowledge	0.19	0.25
Balance	0.22	0.12
Attitude	0.16	0.15
Time Management	0.11	—
Supervision	0.10	—

HCV PATIENTS' KNOWLEDGE ABOUT HOW HEPATITIS C IS SPREAD. A.T. Perzynski[1]; N.V. Dawson[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205931)*

BACKGROUND: According to the CDC, hepatitis C (HCV) is transmitted primarily through infected blood. This exploratory study examines what patients with HCV know about how HCV is spread and how patient knowledge is manifested in interactions with others. We examine whether patients receiving regular medical care for chronic HCV infection are aware of how the disease is transmitted.
METHODS: In-depth, face to face interviews were conducted in English with 42 HCV patients at an urban safety net clinic. Patients were recruited in person at the time of their clinic appointment. Interviews lasted 30–90 minutes. The interview guide included 12 main questions pertaining to people's knowledge, experience, and self management of HCV infection. Several probes were noted under each question, and some basic disease and socio-demographic data (age, education, insurance type, hospital rating, year of diagnosis, year of transmission) were collected at the end of the interview. Interviews were tape-recorded and transcribed verbatim. Transcripts were managed and coded using qualitative data analysis software. Coding of transcripts for this study was directed at identifying passages of text where patients discussed how HCV is spread.
RESULTS: Respondent characteristics: 38% female, 38% African American, 26% Hispanic, and 36% White. The mean time since diagnosis with HCV was 8.0 years (SD=6.5). The respondents had a mean level of education of 12 years (SD=2.3). The age range of those interviewed was 36–74 (mean=49.5, SD=8.1). The depth and range of patients' ideas about how HCV is spread varied drastically from scientific consensus. Hepatitis C patients compartmentalized their knowledge according to 1) How they themselves were infected, 2) How they could spread HCV to others and 3) How others think HCV can be spread. A total of 20 unique modes of transmitting HCV (8 types of blood transmission and 12 other vectors) were mentioned by respondents. Types of transmission by infected blood were: injection drug use, blood transfusion, tattoos, cocaine straws, occupational hazards, bitten by an infected person, blood from accidents, and tasting/drinking someone's blood. Non-blood based transmission vectors were: unprotected sex, contaminated food or beverages, kissing, dirty hands/bathrooms, coughing/sneezing, alcohol, liver trauma, dishes and eating utensils, saliva, casual contact, swimming with someone, and "anything under the sun."
CONCLUSION: Some HCV patients and individuals in their social networks are confused about how HCV is transmitted. Some of those interviewed described situations where their friends or family members bleached dishes, made them use plastic cups or sprayed disinfectant on their cars to avoid contamination. Patient knowledge and beliefs about the spread of disease, even if not scientifically supported, can have important consequences for people's lives. Patient knowledge is negotiated and so are the actions associated with knowledge. Awareness of the variation in patient HCV knowledge can enable health care providers and policy makers to refine initiatives to educate people about how HCV is spread, how HCV is not spread, and specifically how to avoid spreading HCV to others.

HEALTH BELIEFS ABOUT OSTEOPOROSIS AND OSTEOPOROSIS SCREENING IN OLDER WOMEN AND MEN S. Nayak[1]; M.S. Roberts[1]; C.H. Chang[1]; S.L. Greenspan[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205746)*

BACKGROUND: Although osteoporosis screening is recommended for older adults, screening rates are low. Our objective was to examine beliefs about osteoporosis and osteoporosis screening to identify barriers to screening.
METHODS: In November 2007, we mailed a survey to 1830 women and men aged 60 years and older living in or near western Pennsylvania. The survey assessed sociodemographic characteristics, osteoporosis and general health-related characteristics, and an osteoporosis-specific version of the Risk Behavior Diagnosis Scale. We used the osteoporosis-specific Risk Behavior Diagnosis Scale to assess beliefs about osteoporosis severity, susceptibility, screening self-efficacy, and screening response efficacy. Analyses included Wilcoxon rank-sum tests to compare belief dimension scores, and multivariable ordinal logistic regression analyses to evaluate association between osteoporosis beliefs and potential explanatory variables.
RESULTS: Surveys were completed by 1268 of 1830 individuals (69.3%). Mean age of respondents was 73.3 years, and most respondents were female (58.7%). Individuals demonstrated greatest belief in the severity of osteoporosis and least belief in personal susceptibility ($P<.001$). Older individuals believed less strongly than younger individuals in osteoporosis severity (OR, 0.95 per 1-year increase in age; 95%CI, 0.92–0.97) and response efficacy (OR, 0.97 per 1-year increase in age; 95%CI, 0.95–0.99). Women believed more strongly than men in osteoporosis susceptibility (OR, 1.87; 95%CI, 1.38–2.53) and screening self-efficacy (OR, 2.87; 95%CI, 1.17–7.07). Individuals with high self-rated health status had greater belief than those with low self-rated health status in screening self-efficacy (OR, 3.59; 95% CI, 1.89–6.83).
CONCLUSION: Older adults demonstrate several beliefs that may be barriers to osteoporosis screening, including low belief in susceptibility to osteoporosis. These beliefs should be targeted with patient education to improve screening rates.

HEALTH INFORMATION SOURCES AND RISK REDUCTION BEHAVIORS: A PERSPECTIVE FROM THE 2005 HEALTH INFORMATION NATIONAL TRENDS SURVEY (HINTS 2005)
N. Redmond[1]; H.J. Baer[1]; C. Clark[1]; L.S. Hicks[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204589)*

BACKGROUND: Differences in health communication may influence racial/ethnic disparities in health status. It is unclear whether sources of health information are associated with behaviors such as diet, exercise, and cancer screening and if such associations vary by race/ethnicity.
METHODS: We utilized the 2005 Health Information National Trends Survey (HINTS), a cross-sectional, nationally representative survey of non-institutionalized U.S. adults, to assess the relationship of general health information sources (e.g., print media (newspaper/magazine), television (TV), and internet) and social networks (e.g., friends/family, community organizations) to cancer screening and other health behaviors (five daily fruit/vegetable servings, exercise 30 min/day five days weekly, and non-smoking). We then assessed whether these associations varied by participant race/ethnicity. We utilized nationally published recommendations to classify respondents as meeting/not meeting guidelines for each health behavior and as users/non-users for each information source. Multivariable logistic regression models for each behavior were adjusted for other information sources as well as age, race/ethnicity, gender, education, income, cancer history, and general health status, using weights to account for the complex sampling design. Interaction terms were used to evaluate racial/ethnic variation in the observed associations.
RESULTS: The 2005 HINTS had 5586 respondents (representing approximately 216 million adults) who were 52% female, 66% Non-Hispanic White, 12% Hispanic, and 10% Non-Hispanic Black. Friends and family were the most frequent sources of health information (76%) compared to TV (70%), print media (60%), internet (39%), and community organizations (23%). Only 6% met recommendations for diet, 24% for exercise, and 78% were non-smokers. The majority of eligible respondents received age-appropriate mammography (84%) and pap tests (93%); however, only 49% of eligible respondents received age-appropriate colonoscopy. Participants who used the internet for health information were less likely to meet recommendations for exercise (OR 0.71, [0.57–0.90]). The odds of being a non-smoker was increased if health information was obtained from print media (OR 1.22, [1.02–1.45]), community organizations (OR 1.92, [1.41–2.63]), or friends and family (OR 1.39, [1.04–1.84]). TV for health information was associated with increased odds of receiving mammography (OR 1.63, [1.11–2.39]). Increased odds of colonoscopy occurred among users of print media (OR 1.41, [1.20- 1.67]), TV (OR 1.52, [1.22- 1.90]), community organizations (OR 1.49, [1.20- 1.85]), or friends/family (OR 1.57, [1.15- 2.14]. There were no significant interaction terms.
CONCLUSION: Print media and social networks are most consistently associated with adoption of healthy behaviors nationally. Most of the observed associations between health information sources and behavioral outcomes did not vary by race/ethnicity. Additional research in clinical settings should explore the relations of health information sources with clinical outcomes and should develop social network interventions to promote adoption of healthy behaviors. Policy makers should focus efforts on better utilizing social networks to disseminate health recommendations.

HEALTH LITERACY, COMMUNICATION, AND COST-CUTTING STRATEGIES IN MEDICARE PART D: THE TRANSLATING RESEARCH INTO ACTION FOR DIABETES (TRIAD) STUDY
O.K. Duru[1]; C.M. Mangione[1]; W.N. Steers[1]; E. Quiter[1]; M.F. Shapiro[1]; A.F. Brown[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205663)*

BACKGROUND: Under Part D, most Medicare patients lose some or all of their prescription drug benefits after exceeding a spending threshold (the "coverage gap" or "doughnut hole"). Patients with low health literacy may skip scheduled medications or engage in other potentially harmful cost-cutting strategies, particularly in the absence of provider communication about the coverage gap. We examine whether health literacy is associated with cost-cutting strategies or communication with providers, among Medicare Part D patients.
METHODS: We analyzed a 2007 computer-assisted telephone survey that asked 2011 diabetes patients about their experiences with Medicare Part D in 2006. All had exceeded their $2250 spending threshold for total drug costs. Patients were part of the Translating Research into Action for Diabetes (TRIAD) Study, a multicenter study of diabetes care in managed care. Low-income qualifiers, who did not have a coverage gap, were excluded. Patients who reported that they were somewhat, a little, or not at all confident filling out medical forms by themselves were considered to have low health literacy. This single-item question has been previously validated against the Rapid Estimate of Adult Literacy in Medicine (REALM) and Test of Functional Health Literacy in Adults (TOFHLA) measures. To examine the associations of health literacy with 1) patient-provider communication and 2) potentially harmful cost-cutting strategies, we constructed multivariate logistic regression models adjusting for age, gender, race/ethnicity, income, education, comorbidities, and number of medications. Results were expressed as predicted percentages.
RESULTS: Twenty-three percent of patients had low health literacy, and 70% had no drug coverage in the doughnut hole. Compared to patients with adequate health literacy, patients with low health literacy were more often Spanish-speaking (40% vs. 16%, $p<0.001$), more likely to report annual incomes <$25,000 (50% vs. 35%, $p<0.001$), less likely to have graduated high school (61% vs. 88%, $p<0.001$), and less aware of the coverage gap prior to 2006 (77% vs. 85%, $p<0.001$). Patients with low health literacy were also more likely to report that their provider switched medications to cheaper/less expensive options (55% vs. 46%, $p=0.03$). The percent reporting discussions about the amount paid for medications (44% vs. 43%, $p=0.64$), medications not to skip (51% vs. 52%, $p=0.69$), information on where to get less expensive medications (18% vs. 19%, $p=0.66$) or reducing the number of medications due to cost (8% vs. 8%, $p=0.81$) were the same. Nor were differences seen in cost-cutting strategies like using fewer medications due to cost (20% vs. 19%, $p=0.74$), going without necessities (12% vs. 10%, $p=0.32$), or substituting over-the-counter medications (9% vs. 8%, $p=0.57$).
CONCLUSION: Despite being less aware of the coverage gap at the start of 2006, Medicare Part D patients with low health literacy did not report either communicating less with their providers about the cost of medications or increased use of cost-cutting strategies during 2006. Factors other than health literacy that have been previously linked to patient cost-related behaviors, such as income, may be more important determinants of cost-containment discussions and the strategies used to reduce costs.

HEALTH MODIFIERS OF HIV HIGH RISK BEHAVIORS IN A COHORT OF HOMELESS WOMEN.
M. Vijayaraghavan[1]; A. Zanger[2]; E. Hsu[2]; A. Montero[1]; C. Caton[2]. [1]Columbia University Medical Center, New York, NY; [2]Columbia Center for Homelessness Prevention Studies, New York, NY. *(Tracking ID # 203947)*

BACKGROUND: The burden of HIV falls disproportionately on minority women who are homeless or in unstable housing. Homeless women face numerous challenges and often engage in high risk behaviors to sustain competing needs of finding food, shelter and caring for their children. There are no studies to date exploring the association between health modifiers and their impact on high risk behaviors. We sought to determine if homeless women with frequent health care utilization had decreased HIV risk behavior profiles in comparison to those who infrequently accessed medical care.
METHODS: We conducted bivariate and multivariate logistic regression analyses on data from a cohort of 329, randomly selected, shelter-dwelling women to determine the association between health care utilization and HIV high risk behaviors.The independent variable was health care utilization defined as a primary care physician (PCP), obstetrician/gynecologist (Ob/Gyn) or emergency department (ED) encounter within one year. The dependent variable was any high risk behavior over the last 3 months, subdivided into three categories: sexual risk, partner risk, and drug risk behaviors. High sexual risk behavior was defined as unprotected sex, high partner risk behavior as sexual activity with a partner who was high risk, and high drug risk behavior as sexual activity under the influence of alcohol or drugs.
RESULTS: The health care utilization patterns over a period of one year demonstrated that 48.9% reported visiting a PCP, 51.1% visited an Ob/Gyn, and 55.4% had an ED encounter. HIV high risk behaviors were highly prevalent in this population with 66.1% of the respondents reporting engaging in unprotected sexual intercourse, 45.3% engaging in sexual intercourse with a partner who carried a high risk profile, and 35.7% having concurrent drug and/or alcohol use with sexual activity. Of those who visited their PCP, 64.5% reported high sexual risk

behavior, 43% engaged in high partner risk behavior, and 36.6% exhibited high drug risk behavior. In bivariate and multivariate analyses, no significant associations were found between high sexual risk (p=0.44), partner risk (p=0.53) and drug risk behaviors (p=0.82) and frequent health care utilization with a PCP.
CONCLUSION: Our results demonstrate that despite reporting frequent health care utilization, homeless women continue to engage in high risk behaviors. This suggests potential missed opportunities by health care providers for screening and counseling against HIV high risk behaviors. These results highlight the need for identifying the ideal method and medium of counseling against HIV high risk behaviors by primary care providers caring for women who are homeless or in unstable housing.

General Characteristics	N=329 (%)
Mean Age	38
Single Shelter	59
Family Shelter	41
African American	45
Hispanic	21.6
Health Insurance	73.5
Graduated High School or GED	24.2
HIV Prevalence	1.8

HEALTH RISKS, CHRONIC DISEASES, AND ACCESS TO CARE AMONG US PACIFIC ISLANDERS A. Bitton[1]; A.M. Zaslavsky[2]; J.Z. Ayanian[2]. [1]Division of General Medicine and Primary Care; Brigham and Women's Hospital, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 205199)*

BACKGROUND: Asian Americans (AA) and Pacific Islanders (PI) have typically been aggregated in federal health surveys. Although the PI population in the US includes nearly 1 million individuals, their health outcomes and needs have been rarely reported and may be masked by the greater numbers and relative good health of Asian Americans. Therefore, we analyzed the self-reported health risks, chronic diseases, and access to health care for Pacific Islanders using recently disaggregated US health survey data.
METHODS: We analyzed the 2007 Behavioral Risk Factor Surveillance Survey (BRFSS), a nationally representative state-based telephone survey of adults across 54 US states, districts, and territories. The BRFSS is one of the first nationally representative surveys with sufficient samples to distinguish AA from PI. Dependent variables included self-reports of health risks (current smoking, BMI>25, high alcohol intake, inadequate physical activity, low fruit/vegetable intake), chronic diseases (diabetes, hypertension, cardiovascular disease (CVD), asthma, high cholesterol), and access to care (insurance status, cost barriers to health care, primary care physician, influenza and pneumonia vaccination). We compared these outcomes for PI relative to AA and whites with unadjusted chi square analyses and odds ratios, and with logistic regression models adjusted for age, sex, education, income, fixed effects of states and territories with large PI populations, smoking, and body mass index. The analysis adjusted for the complex survey design using SUDAAN software.
RESULTS: The study cohort included 1063 PI, 6420 AA, and 338611 whites. In bivariate analyses, PI were significantly more likely than AA to be younger, current smokers, not have a college degree, meet physical activity recommendations, have a higher BMI, and have asthma. In multivariate logistic regression models, PI were significantly more likely than AA to report a BMI>25 (Adjusted Odds Ratio (AOR) 2.11; 95% CI 1.44, 3.10), current smoking (AOR 2.51; 95% CI 1.45, 4.36), high alcohol intake (AOR 9.68; 95% CI 3.42, 27.44), hypertension (AOR: 1.86; 95% CI: 1.14, 3.04), CVD (AOR: 5.79; 95% CI: 1.61, 20.84), diabetes (AOR: 1.95; 95% CI 1.01, 3.79), asthma (AOR: 2.37; 95% CI: 1.37, 4.10), and access to a primary care physician (AOR: 1.91; 95% CI: 1.21, 2.97). Relative to whites, PI were more likely to report diagnoses of hypertension (AOR: 1.67; 95% CI: 1.05, 2.65) and diabetes (AOR: 2.43; 95% CI: 1.39, 4.28). No significant differences were detected for the other risk factors, chronic diseases, or access to care measures.
CONCLUSION: PI are significantly more likely than AA to report important health risks, including elevated BMI, current smoking, and high alcohol intake, as well as related chronic diseases including diabetes, hypertension, asthma, and CVD. Compared to whites, PI have higher odds of hypertension and diabetes. Access to care appears to be similar or better among PI compared to AA and whites. Future surveys and health priority setting should disaggregate data for PI and AA given the large sociodemographic differences between these groups, and significantly increased rates of key health risks and chronic diseases among Pacific Islanders.

HEPARIN-INDUCED THROMBOCYTOPENIA AMONG PATIENTS TREATED WITH PROPHYLACTIC DOSES OF LOW-MOLECULAR-WEIGHT HEPARIN IN A COMMUNITY-BASED HOSPITAL SETTING M. Pongruangporn[1]; J. Sagum[1]; D. Vattanakul[1]; H. Friedman[1]; A. Kinnealey[2]; E. Lambiase[1]. [1]Saint Francis Hospital, Evanston, IL; [2]St. Francis Hospital, Evanston, IL. *(Tracking ID # 205349)*

BACKGROUND: Low-molecular-weight heparin (LMWH) is increasingly being used as a substitute for unfractionated heparin for prophylaxis of venous thromboembolism (VTE) in medical hospitalized patients. Incidence of Heparin-induced thrombocytopenia (HIT) in patients who received LMWH is about 0.8%. This study analyzes the incidence, risk factors and complications associated with patients who developed HIT after receiving LMWH as the standard prophylaxis for VTE in a community-based hospital.
METHODS: We retrospectively reviewed data from April 1, 2004 - April 30, 2008. A total of 3,587 adult medical patients admitted received LMWH to prevent VTE. Patients with immune-mediated HIT were identified and served as case patients, and 5 matched randomly selected control patients were identified for each case patient. Forty controls that were matched based on age and hospital services. HIT is defined as a decrease in platelet 50 percents in baseline platelet count after exposure to LMWH correlated with positive serologic test for Heparin induced platelet antibody. We excluded patients with thrombocytopenia related to other factors.
RESULTS: The incidence of HIT in our study is 0.2%. There were a total of eight patients who were diagnosed to have HIT. Majority of them were male (62.5%). Patients in HIT group had non-statistically significant longer length of stay than the control group (p=0.12). All HIT patients had history of exposure to heparin products; seven of the eight patients were exposed to LMWH within the previous 3 months. In the HIT group, the mean duration of LMWH administration before the HIT was 4.75 days, mean of platelet count on admission was 257.88 and the mean of the nadir platelet count was 99.13. After about 5.29 days of discontinuation of LMWH; platelets have increased to the baseline level. Diabetes mellitus and serum creatinine more than 1.3 were associated with statistically significant increased risk of HIT (DM: OR, 24.11; 95% CI, 2.61–222.63; p=0.001 and Cr>1.3: OR, 5.74; 95% CI, 1.14–28.78; p=0.036). The thromboembolic complications in patients who developed HIT were 12.5%.
CONCLUSION: The incidence of HIT in our study is 0.2%. This is the first study that reports the patients treated with prophylactic dose of LMWH with underlying Diabetes mellitus and baseline creatinine level more than 1.3 are at higher risk of developing HIT. We recommend close observation and monitoring of platelet count among patients in this group. However, due to the small sample size in this study multicenter study to better identify the risks and outcomes among patients who received LMWH for VTE prophylaxis is encouraged.

HEPATITIS C VIRUS KNOWLEDGE AMONG PARTICIPANTS IN AN INTEGRATED CARE CLINIC AND RESEARCH COHORT R. Chasan[1]; D. Tider[1]; A. Stivala[1]; J. Weiss[1]; D. Fishbein[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 203764)*

BACKGROUND: Hepatitis C is a significant cause of morbidity and mortality in the United States, where an estimated 3.2 million people are chronically infected. Chronic hepatitis C (CHC) is highly prevalent in the HIV positive population, particularly among injection drug users; an estimated 50–90% of HIV positive injection drug users are co-infected with HCV. Despite advances in treatment, end-stage liver disease causes substantial morbidity and has become the leading non-AIDS related cause of mortality in the co-infected population. Significant barriers exist to engaging co-infected patients in medical care, including low health literacy. The purpose of our study was to investigate whether participation in an integrated care HIV-hepatitis clinic leads to improved knowledge of CHC – including disease progression, transmission and treatment.

METHODS: Patients seen at the HIV-hepatitis co-infection clinic at Mount Sinai Hospital, NYC were enrolled as participants in a longitudinal research cohort starting in October 2005. This clinic was established to improve engagement in and access to hepatitis care for this marginalized population. Integrated care services include nursing, mental health, nutrition, education, support groups, HIV specialists and a hepatologist. Initial and annual surveys are conducted to assess knowledge of hepatitis, including modes of transmission, factors involved in liver disease progression, and methods of treatment. A total knowledge score constructed of 43 questions was used as the primary continuous outcome in paired t-tests to assess change in knowledge over time. Independent t-tests and correlation coefficients were used to assess the relationship between knowledge and selected independent variables, including demographics, medical co-morbidities and participation in the health care system (methadone maintenance, CHC support groups, mental health care).
RESULTS: 145 participants completed a baseline survey and 57 completed an annual follow up. Of the 145, 65.5% were male; mean age was 50.2 +/- 7.57; 50.3% were Hispanic, 37.9% black; 96.6% had CHC, the median CD4 was 388 cells/ mm3 (range 11–1676), 59.3% had an undetectable HIV viral load. Sixty-six percent reported a history of heroin use and 44.8% reported a co-morbid psychiatric disorder. Demographic data did not differ significantly in the follow up group. Of the 43 total questions, patients answered on average 15.5 (36%) correctly. Overall HCV knowledge improved significantly from baseline to follow up: mean total knowledge increased from 15.5 +/- 6.2 to 17.3 +/- 6.1, p=0.016. Increased knowledge was demonstrated in several areas including HCV transmission, 3.9 to 4.5 (total possible 7, p= 0.025), and familiarity with HCV treatment modalities, 1.4 to 1.7 (total possible 5, p=0.045). Knowledge regarding liver disease progression and treatment eligibility did not increase. Increased knowledge was not associated with exposure to the health care system, age, sex, or medical co-morbidities.
CONCLUSION: Baseline knowledge regarding CHC is poor among co-infected participants. Although scores improved statistically, they remain quite low. Findings support the role of an integrated primary and mental health care center in the treatment of CHC, and demonstrate the importance of targeted education to enhance knowledge of disease and treatment. Improvement in health education is essential in the prevention of disease transmission and empowering patients to seek and remain engaged in care.

HERPES ZOSTER VACCINE: WHAT IS INTERFERING WITH UPTAKE?
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BACKGROUND: The zoster vaccine, licensed in 5/2006, is the first vaccine to be reimbursed through Medicare Part D. The reasons for low uptake of this vaccine (2% nationally) are unclear. The objectives of this study were to assess among general internists (GIM) and family (FM) physicians 1) current vaccination practices, 2) barriers to vaccination, and 3) knowledge and practice regarding reimbursement for zoster vaccine.
METHODS: A national survey of 417 GIM and 411 FM physicians was conducted between July-September 2008.
RESULTS: Response rates were 72% in both specialties. Physicians reported multiple methods for delivering vaccine including stocking and administering in their office (49% GIM, 54% FM , p=0.21); referring patients to a pharmacy to purchase vaccine and bring it back to the office for administration (37% GIM, 41% FM, p=0.30); referring to a pharmacy for administration there (31% GIM, 34% FM, p=0.44); and referring to a Public Health Department (22% GIM, 23% FM, p=0.80). Forty-five percent of GIM and 38% of FM reported strongly recommending zoster vaccination compared to >90% strongly recommending influenza and pneumococcal vaccinations. For both specialties, the most frequently reported barriers to vaccination were financial, including inadequate reimbursement, cost concerns for patients and "upfront" vaccine costs. Only 42% of GIM and 48% of FM (p=0.12) knew the vaccine is reimbursed through Medicare Part D. Among both specialties, asking the patient to call his/her Medicare Part D or private insurance plan was the most common strategy to identify coverage. Among providers who reported not stocking or administering, 46% reported they would be much more likely to provide vaccine in their office if it were covered by Medicare Part B.
CONCLUSION: Barriers to optimal adoption of the zoster vaccine include lack of uniform support from physicians, lack of knowledge regarding reimbursement, reliance on patients to determine coverage and physicians' concerns regarding upfront costs and reimbursement.

HIGH COST INPATIENTS: THEIR PATIENT AND HOSPITAL CHARACTERISTICS
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BACKGROUND: High and rising Medicare expenditures are a major health policy challenge and pose a serious threat to the federal budget. Although prior studies have shown that costs are concentrated among a small fraction of patients, we know little about these patients or where they receive their care. Therefore, we sought to determine: 1) the concentration of inpatient costs 2) how expensive patients generate their expenditures, 3) the characteristics of these expensive patients and, 4) the characteristics of hospitals that care for such patients.
METHODS: We conducted an observational, cross-sectional study of fee-for-service Medicare beneficiaries discharged from U.S. hospitals in 2006. We categorized patients into two groups: the 5% with the highest inpatient expenditures (high cost patients), and all others (low cost patients). We compared annual admissions, average lengths of stay, daily inpatient charges, and patient-level characteristics of high and low cost patients. We also examined the structural characteristics, the quality of care (using summary scores from the Hospital Quality Alliance measures), and the efficiency (using previously developed risk-adjusted cost measures) of hospitals that care for more versus fewer of these high cost patients.
RESULTS: The 5% of Medicare patients with the greatest inpatient expenditures (high cost patients) made up 26% of all Medicare inpatient expenditures. These high cost patients had higher yearly admissions (3.7 vs. 1.5, p<0.0001) and longer lengths of stay (40 days versus 8 days, p<0.0001). High and low cost patients had comparable mean costs per inpatient day ($2,954 versus $2,483, p<0.0001). High cost patients were less likely to be the oldest old (≥80 years of age, 31% vs. 41%), and more likely to be men (51% versus 41%), and black (12% versus 8%). High cost patients were more likely to be treated in large (37% vs. 29%), urban (90% vs. 84%), and teaching (26% vs. 16%) hospitals (all p-values<0.0001). High cost patients were 1.5 times more likely to be cared for by high quality compared to low quality hospitals (proportion in highest vs. lowest hospital quality quartile: 30% vs. 19%, p<0.0001). They were also more than four times as likely to be cared for by high cost hospitals (proportion in highest vs. lowest hospital cost quartiles: 42% vs. 9%, p<0.0001).
CONCLUSION: High cost Medicare inpatients generated their higher costs through more frequent and longer hospital admissions, and less so through more intense daily resource use. Certain types of hospitals, such as large, urban and teaching hospitals care for a disproportionate share of these patients. Prior efforts to reduce Medicare spending have focused on care management for high cost patients, but evidence in support of the cost-effectiveness of such programs is limited and mixed. Our data suggest that a second approach – which assists hospitals which are more likely to care for high cost patients – may also be effective.

HIGH RATE OF CLINICAL FACTORS ASSOCIATED WITH ADVANCED LIVER DISEASE AMONG PATIENTS WITH CHRONIC HEPATITIS C AT AN URBAN METHADONE MAINTENANCE PROGRAM
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BACKGROUND: Chronic hepatitis C (CHC) is a significant cause of morbidity and mortality among injection drug users. While prior studies have demonstrated a high prevalence of CHC among participants of

methadone maintenance programs (MMPs), little data exist regarding the clinical factors that impact CHC morbidity and mortality in this population. Mount Sinai Medical Center's Narcotics Rehabilitation Center (NRC) served approximately 650 patients before closing in 2007. The center offered methadone maintenance, on-site primary care and psychiatric services, and institutional linkages to CHC specialty care. The goals of this study were to elucidate: 1) the CHC-specific healthcare practices at the NRC; 2) the presence of clinical factors associated with advanced liver disease in those with CHC; 3) the presence of psychiatric and medical co-morbidities complicating or precluding CHC treatment; and 4) the number of patients who accessed CHC specialty services and were treated.

METHODS: A chart review of a random sample of active patients was conducted between December 2005 and January 2006. Laboratory data collected included hepatitis C virus (HCV) antibody, HCV viral load, hepatitis A virus (HAV) and hepatitis B virus (HBV) serologies, and HIV status. The CHC-specific healthcare practices reviewed included screening for CHC and vaccinating for HAV and HBV. Clinical factors associated with advanced liver disease included co-infection with HIV or chronic HBV (defined by a positive HBV surface antigen), alcohol abuse/dependence, and duration of infection >/=20 years. Psychiatric co-morbidity was defined by presence of an axis I diagnosis or a psychiatric medication. Medical co-morbidities complicating or precluding CHC treatment included: malignancy, autoimmune disease, decompensated liver disease, renal disease, active alcohol abuse, and other unstable medical conditions. Access of CHC services included being seen by a specialist, undergoing liver biopsy, or having a history of CHC treatment.

RESULTS: 207 charts were reviewed. 98.1% had an HCV antibody test and 99.3% of those that were positive had a confirmatory viral load. Overall, 54.6% (n=113) of participants had CHC. Of those with CHC who were non-immune to HAV, 56.6% were vaccinated for HAV; and 3.1% of those non-immune to HBV were vaccinated for HBV. Of the patients with CHC: 15.0% had HIV, 1.8% had HBV, 41.6% had a history of alcohol abuse, and 75.2% were infected for >/=20 years. 54.9% of those with CHC had a psychiatric co-morbidity, and 25.7% had a medical co-morbidity that impacts CHC treatment. 25.7% of those with CHC accessed specialty services and 12.4% received CHC treatment.

CONCLUSION: While screening for CHC was successfully integrated into routine care, patients at this MMT would have benefited from a comprehensive vaccination program. Over half of the patients at this MMP were infected with CHC and many of them had clinical factors associated with the development of advanced liver disease, making timely evaluation and treatment even more urgent in this population. Few patients were evaluated for CHC and even fewer received treatment. Targeting on-site psychiatric treatment for those with CHC and strengthening the institutional affiliations with CHC specialty services may have increased the number of patients being treated. As an urban, academically-affiliated MMP, the NRC may be representative of similar MMPs which are well situated to address the current CHC epidemic within their patient population.

HIGH-RISK ALCOHOL USE AND SUBSTANCE MISUSE AMONG IRAQ AND AFGHANISTAN VETERANS: HIGH PREVALENCE AND ASSOCIATED MENTAL DISORDERS K.H. Seal[1]; B. Cohen[2]; L. Ren[1]; G. Tarasovsky[1]; M. Burt[1]; N. Redden[1]; L. Abadjian[1]. [1]San Francisco VA Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205408)*

BACKGROUND: High rates of alcohol misuse have been reported among veterans of Iraq and Afghanistan, yet to date, there are no published studies of illicit substance use in this population. We investigated the prevalence of high-risk alcohol use and substance misuse among Iraq and Afghanistan veterans and evaluated their association with posttraumatic stress disorder (PTSD), depression, and traumatic brain injury (TBI).

METHODS: From 8/2007 to 1/ 2009, potential study participants were identified from a roster of Northern California-based Iraq and Afghanistan veterans enrolled in VA healthcare. Veterans were invited by mail to participate in a telephone survey, and all participants were granted a certificate of confidentiality. Validated instruments were used to assess PTSD (PCL-M), depression (PHQ-9), TBI (national VA TBI screen), and high-risk alcohol use (AUDIT). Participants were also asked about type and frequency of substance misuse. Substance misuse was defined as using one or more illegal substance(s) or misusing prescription medication(s), one or more days in the past month. Multivariate logistic regression was used to examine the association of mental disorders with high-risk alcohol use and substance misuse.

RESULTS: To date, 161 Iraq and Afghanistan veterans have participated in the ongoing survey. Participants had a mean age of 32 (SD +/- 9), 24% were women, 32% were ethnic minorities, 40% were unemployed, 16% were not stably housed and 43% had been deployed to the warzone multiple times. Of 161 participants, 89 (55%) of veterans screened positive for any mental disorder: depression (44%), followed by PTSD (35%) and TBI (26%); 37% screened positive for co-morbid mental disorders. Of 161 veterans, 57 (35%) endorsed high-risk alcohol use and 32 (20%) reported substance misuse; 16% endorsed both. Of 32 veterans reporting substance misuse, 11 reported using marijuana only, 7 reported misusing substances other than marijuana including cocaine, amphetamines, sedative/hypnotics and prescribed narcotic pain medication and 14 reported misusing marijuana as well as other substances. Among veterans with any mental disorder, nearly half, 49% reported either high-risk alcohol use, substance misuse, or both. Mental disorders were significantly associated with any high-risk alcohol use or substance misuse after adjusting for age and sex (OR= 2.60, 95% confidence interval (CI)=1.29–5.23). More specifically, after adjusting for age and sex, depression was strongly associated with substance misuse (OR=5.30, 95% CI=1.8–15.5), whereas depression had a borderline association with high-risk alcohol use (OR=2.02, 95% CI=1.00–4.08). Of note, PTSD and TBI were not significantly associated with high-risk alcohol use or substance misuse.

CONCLUSION: Mental disorders and substance misuse were highly prevalent among this group of Iraq and Afghanistan veterans. Depression was strongly associated with substance misuse and weakly associated with high-risk alcohol use. Though larger studies are needed, these results suggest that returning veterans should be queried about substance misuse, as well as high-risk alcohol use, particularly in the context of mental disorders in order to better target substance abuse prevention and treatment services for our newest generation of veterans.

HIV TESTING OF PATIENTS WITH CHRONIC HCV INFECTION: A MULTICENTER COMPARISON OF VA VS. NON-VA SETTINGS C.T. Tenner[1]; S. Dhalla[2]; A. Aytaman[3]; G. Punla[4]; J. Comas[3]; E.J. Bini[2]. [1]VA New York Harbor Healthcare System, New York, NY; [2]New York University, New York, NY; [3]VA Medical Center, Brooklyn, NY; [4]VA Medical Center, New York, NY. *(Tracking ID # 205800)*

BACKGROUND: It has been estimated that 25% of Americans with HIV are unaware that they are infected. Numerous organizations recommend HIV testing in all patients with hepatitis C virus (HCV) infection. Although the VA system has outperformed most other organizations in many preventive health care measures, it is unknown whether this extends to HIV testing in high-risk populations. The aim of this study was to evaluate the proportion of patients with chronic HCV infection who have been tested for HIV in clinical practice and to compare performance in VA and non-VA settings.

METHODS: Patients with chronic HCV infection (HCV RNA[+]), HCV uninfected controls (HCV antibody[-]), and those who were never tested for HCV completed a detailed questionnaire at the time of their visit to the outpatient clinics at 3 study sites. Data collected included patient demographics and information regarding prior HIV testing.

RESULTS: A total of 6,556 subjects (mean age 55.3±11.2 years; 79.0% male) were enrolled, including 3,086 HCV[+] patients, 2,836 HCV[-] patients, and 634 subjects who were never tested for HCV. Of the 6,556 subjects, 52.2% were tested for HIV at least once during their lifetime, 43.7% were never tested, and 4.1% did not know if they were tested. At least one HIV test was performed in 63.9% of HCV[+] patients, 43.5% of HCV[-] patients, and 33.3% of those who never had HCV testing ($p< 0.001$). Of the 3,419 patients who had at least one prior HIV test, 19.5% were [+], 78.6% were [-], and 1.8% did not know their test results. HIV testing was [+] in 25.0% of HCV[+] patients, 13.1% of HCV[-] patients, and 5.7% of those who never had HCV testing ($p<0.001$). Among all 6,556 individuals, subjects seen at a VA hospital were significantly more likely to have HIV testing done than those seen in a non-VA setting (54.4% vs. 43.3%, $p<0.001$). Of the 3,086 HCV[+] subjects, HIV testing was more common in those seen at a VA than those seen in a non-VA setting (69.1% vs. 48.7%, $p<0.001$) but VA patients were significantly less likely to be coinfected with HIV (22.2% vs. 36.7%, $p<0.001$).

CONCLUSION: Patients with chronic HCV infection seen in the VA healthcare system are more likely to be tested for HIV than those seen in a non-VA setting. However, a substantial proportion of HCV[+] patients were never tested for HIV, resulting in missed opportunities for early diagnosis. The suboptimal HIV testing rates and the high prevalence of HIV seropositivity in patients with HCV highlight the need for additional public health programs to increase HIV testing of patients with chronic HCV infection.

HIV TRANSMISSION RISK BEHAVIORS AMONG OPIOID-DEPENDENT HIV-INFECTED INDIVIDUALS ENTERING INTEGRATED BUPRENORPHINE AND HIV CARE A.A. Chaudhry[1]; M. Botsko[2]; L. Weiss[2]; J.E. Egan[2]; J. Mitty[3]; B. Estrada[4]; G.M. Lucas[1]; T. Woodson[1]; T. Flanigan[5]; D.A. Fiellin[6]. [1]Johns Hopkins University, Baltimore, MD; [2]New York Academy of Medicine, New York, NY; [3]Beth Israel Deaconess Medical Center, Boston, MA; [4]Impact Consultants, Inc, Tuscon, AZ; [5]Brown University, Providence, RI; [6]Yale University, New Haven, CT. *(Tracking ID # 204029)*

BACKGROUND: We sought to describe factors associated with sexual and injection-related risk behaviors among individuals entering a nationwide demonstration program integrating buprenorphine treatment into HIV care.
METHODS: We analyzed self-report data on 447 HIV-infected opioid-dependent persons. We conducted bivariate analyses to identify relationships by creating partial least squared or logistic regression models. Odds ratios were calculated to determine demographic, clinical and substance use factors associated with 1)needle sharing and 2)unprotected anal or vaginal sex within the previous 90 days.
RESULTS: 42 (9%) participants reported needle sharing. In a multivariable analysis, factors significantly associated with needle sharing included homelessness (OR 4.80; 95%CI: 2.07, 11.10) heroin (OR 4.31; 95%CI: 1.10, 16.87) amphetamine (OR 4.27; 95%CI: 1.26, 14.47) and marijuana (OR 3.19; 95%CI: 1.36, 7.47) use, and Brief Symptom Inventory anxiety trait (OR 2.46; 95%CI: 1.44,4.20). 106 (24%) participants reported unprotected vaginal or anal sex. Women (OR 1.82; 95%CI: 1.08, 3.05) those reporting living with a partner (OR 3.13; 95%CI: 1.88, 5.21) any alcohol use (OR 1.78; 95%CI: 1.09, 2.93) and amphetamine use (OR 2.98; 95%CI: 1.08, 8.19) were more likely to report unprotected sex. Whites were less likely to report unprotected sex compared to blacks (OR 0.44; 95%CI: 0.20, 0.93). Those completing high school were less likely to report unprotected sex compared with those who had not (OR 0.53; 95%CI: 0.30, 0.94).
CONCLUSION: Recent HIV transmission risk behaviors are prevalent among HIV-infected persons entering opioid agonist treatment. In addition to buprenorphine, targeted counseling addressing comorbid substance use, social and mental health issues could have important implications for reducing HIV transmission.

HIV WOMEN'S HEALTH: BARRIERS TO RECOMMENDED GYNECOLOGIC CARE IN AN URBAN HIV CLINIC M.A. Tello[1]; M.W. Jenckes[2]; J. Gaver[2]; J. Anderson[2]; R.D. Moore[2]; G. Chander[2]. [1]Massachusetts General Hospital, Boston, MA; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 204937)*

BACKGROUND: Despite an increased risk for cervical cytological abnormalities, HIV-infected women frequently miss their gynecologic (GYN) appointments. We previously found that the proportion of missed GYN visits (64%) was significantly higher than missed primary care visits (45%) among HIV-infected women. Using quantitative and qualitative methods we examined barriers to adherence with GYN care in our urban HIV clinic.
METHODS: We surveyed 200 women who received GYN services in the Johns Hopkins HIV Clinic between February and June 2008. Primary outcomes were 1) missed GYN appointments, and 2) receipt of a pap smear in the previous year. Independent variables collected by survey included age, race/ethnicity, education, employment, childcare responsibilities, drug/alcohol use, depressive symptoms (CES-D), social support (MOS Social Support Survey), interpersonal violence (IPV) and HIV GYN Knowledge (7 items on knowledge and perceptions of GYN problems associated with HIV infection). CD4 count and HIV-RNA were abstracted from laboratory data. Missed GYN appointments were obtained from clinic registration data; receipt of a pap smear was abstracted from the medical record. We performed bivariate and multivariate logistic regression to determine factors associated with the outcomes. All variables were examined and the most parsimonious models chosen. After reviewing survey results, we performed two focus groups of 4–8 women to further elucidate barriers to GYN care adherence. The transcribed discussions were analyzed by three investigators using an "edited analysis" approach.
RESULTS: Mean age was 46 (SD 8.5); 85% were African-American, 11% Caucasian and 4% Hispanic. 49% had < high school education, 80% were unemployed. 45% had no childcare responsibilities; 23.5% cared for one child and 32% cared for >one child. 19% used heroin and/or cocaine in the past month. 20% had CD4<200 cells/mm^3; 53% had an HIV-RNA >50 copies/ml. 50% had moderate and 26% had severe depressive symptoms. Of the 200 women, 69% missed at least one GYN appointment and 22% had no pap smear in the past year. Results of multivariate analysis showed that moderate (OR 3.4, CI 1.6–7.4) and severe (OR 3.4, CI 0.2- 0.9) depressive symptoms were associated with missing at least one GYN appointment, and heroin and/or cocaine use in the past month (OR 0.4, CI 0.2–0.9) was associated with not having had a pap smear in the past year. No other independent variable was associated. Qualitative analysis of the focus group data suggested that fear of diagnosis and/or discomfort of the exam, inclement weather, and forgetting appointments may contribute to missed appointments.
CONCLUSION: GYN health care is underutilized among HIV-infected women. Moderate and severe depressive symptoms are associated with missing GYN visits, suggesting that screening for and treating depression may improve GYN clinic appointment attendance. Providers should be cognizant of womens' fears that may contribute to lower appointment adherence; appointment reminders should also be considered.

HMONG AMERICANS AND DEPRESSION: A QUALITATIVE STUDY EXPLORING BELIEFS T. Fancher[1]; J. Cheng[2]; M. Yang[1]; J. Xiong[2]; T. Lei[2]; D. Paterniti[1]. [1]University of California, Davis, Sacramento, CA; [2]university of California, Davis, Davis, CA. *(Tracking ID # 205776)*

BACKGROUND: Depression is one of the most prevalent mental health problems in Hmong immigrants, but little is known about Hmong concepts of this condition. We used a qualitative approach to explore Hmong perspectives of depression and their coping strategies.
METHODS: Data for this study come from a NIMH-funded study on medication adherence to antidepressants among Hmong and Vietnamese outpatients. Three focus groups and eight face-to-face interviews were conducted with health professionals and Hmong immigrants. A total of 44 individuals (35 women, 9 men), aged 37–66, participated in the study. Guiding questions for all interviews were developed. Interviews were conducted in Hmong by a native speaker trained by an internist and a medical sociologist. Encounters were audio-taped, then transcribed, translated and back translated for systematic analysis. The grounded theory approach was employed. Data analysis consisted of: iterative review and development of themes, computer-assisted coding with ATLAS.ti 5.2 and retrieval of common themes and patterns in the data. Excerpts were abstracted from transcripts by matching codes and examined by the research team that included two native speakers. Themes and subcategories were characterized and applied to all transcripts.
RESULTS: Hmong patients defined depression as a chronic, prolonged condition due to life circumstances or multiple stressors. None of the Hmong patients viewed depression as a biological illness. Most participants believed that their depression was incurable or untreatable and part of life's lot ("written in the [life] papers"); providers agreed, stating that their Hmong patients mostly viewed depression as related to stress. Four major themes related to depression narratives emerged: depression as located in bodily signs, inability to fulfill familial roles, inadequate or diminished social support, and need for developing self-coping strategies. While they did not see depression as having biological roots, many Hmong patients and physician respondents discussed depression as part of an ill-functioning body (a "broken liver" or "thick blood")which limited their ability to fulfill their perceived familial and social roles (e.g. cooking or caring for family). Nearly all described having experienced a loss of social network through war, dissolution of community, or lack of transportation, which lessened the availability and positive impact of social support. Because Hmong patients believed depression was incurable and part of their lot in life, they emphasized self-coping strategies, which included normalizing their experience by comparing themselves to similarly disadvantaged groups.

CONCLUSION: Physical complaints are central to the experiences of depression among Hmong patients who attribute their depression to daily stressors and social disadvantages and who conceptualize depressive symptoms in terms of lack of familial role fulfillment and social support. There is almost no use of a biomedical model among Hmong patients—which may explain why Hmong patients prefer to adopt strategies for self-coping and management. When assessing Hmong patients for depression, providers should (1) take patients' explanatory model of depression into consideration; (2) attend to salient losses of social network by considering stressors such as wars, traumas, and loss of family; and (3) consider ways to create coping strategies that do not place blame on the patient (self) in attempting to work through depression/isolation.

HOMELESS MEDICAL OUTREACH: A SYSTEMATIC NARRATIVE REVIEW AND CLIENT AND STAKEHOLDER PERCEPTIONS FOR IMPLEMENTATION IN ANCHORAGE ALASKA W. Bemben[1]; A.J. Gordon[2]. [1]University of Pittsburgh School of Medicine, Pittsburgh, PA; [2]University of Pittsburgh School of Medicine, VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 205853)*

BACKGROUND: Homelessness is a significant social morbidity that negatively impacts the access to and efficacy of the provision of medical care. Over the past twenty years, numerous cities in both the United States and Europe have developed homeless medical outreach programs (HMOPs), or non-clinic-based medical care, as a means of reducing the barriers to access faced by the homeless population, yet evaluation of evidence regarding improved access to care, patient/provider satisfaction, and outcomes of care is lacking. Some cities, such as Anchorage, Alaska, are contemplating an HMOP. We sought to 1) describe, compare, and examine the effectiveness of existing models of HMOP care in the peer reviewed literature and 2) assess provider and homeless persons perceptions of the facilitators and barriers to the provision of medical care through a potential HMOP in Anchorage, Alaska.
METHODS: PART I: We searched an online MEDLINE database from its inception through December 2008 for articles with the terms: homeless/street/mobile outreach, mobile homeless, or homeless van. Then, we identified studies that promoted HMOP use of a medical intervention targeting a primarily homeless population in non-clinic/non-shelter based mobile care. We then evaluated the quality of the studies and compared the described HMOPs based on study outcomes. PART II: In the summer of 2008, we conducted semi-structured in-person interviews of stakeholders, medical personnel, and homeless clients in Anchorage, Alaska. Interviews were recorded through field notes and coded by content based on perceived facilitators and barriers. The authors evaluated and compared the data - defining facilitators and barriers to both the provision of medical care to homeless persons in Anchorage, Alaska as well as to the establishment of an HMOP.
RESULTS: In PART I, we identified 741 abstracts that met potential inclusion. 58 articles underwent full review and 48 studies met inclusion criteria. Of included studies, few included patient-level outcome assessments of HMOPs. The quality of studies describing HMOPs were considered poor and outcome comparisons between HMOPs were not possible. In PART II, 62 interviews were conducted among homeless persons (n=44, 71%) and key stakeholders (n=18, 29%, including 11% physicians/healthcare providers, 8% social service providers, 4% funding administrators, and 6% governmental stakeholders). The major perceived unaddressed barriers to access to effective medical care for the homeless were 1) lack of financial resources, 2) inadequate access to non-emergency care, 3) transportation difficulties, 4) lack of need for non-emergent care, and 5) difficulty scheduling and keeping appointments. Significant differences in perceived barriers existed between homeless persons and stakeholders/providers. Barriers to establishing a local HMOP included 1) funding difficulties, 2) need for a medical director, 3) liability and safety issues, and 4) efficacy of the service provision. Facilitators included 1) available local funding support, 2) participation of the family medicine residency program, and 3) broad support from existing service providers.
CONCLUSION: Studies regarding the effectiveness and efficiency of HMOPs are lacking and additional research is needed. We found numerous barriers to effective medical care for homeless persons are perceived among homeless persons and key stakeholders in Anchorage Alaska, however, study participants generally supported the development of a local HMOP.

HOSPICE AND PALLIATIVE CARE SERVICES FOR PATIENTS WITH DEMENTIA: A NATIONAL SURVEY A.M. Torke[1]; L.R. Holtz[1]; S.L. Hui[1]; P. Castelluccio[1]; G.A. Sachs[1]. [1]Regenstrief Institute, Indianapolis, IN. *(Tracking ID # 204344)*

BACKGROUND: Although dementia is a progressive terminal disease, prior research has found that few hospices provide care to patients with a primary diagnosis of dementia— 21% in a 1995 survey.1 The barrier to greater utilization cited by 80% of hospices was difficulty estimating a six-month prognosis in patients with dementia. Over the past decade, there has been continued growth in numbers of hospices and patients served and the emergence of palliative programs that care for patients outside of the traditional hospice insurance benefit. We sought to determine the extent to which non-hospice palliative care programs provide services for patients with dementia and whether there has been a change over time in the proportion of hospices that provide such care.
METHODS: We conducted a cross-sectional telephone survey of a stratified random sample of 900 programs that were members of the National Hospice and Palliative Care Organization. We surveyed the executive director or appointed designee at each program. We oversampled programs that provided palliative care in order to ensure adequate representation of this group of programs. Proportions were weighted to account for oversampling. The primary outcome variable was whether or not each program had provided palliative care or hospice within the past year to a patient with a primary diagnosis of dementia.
RESULTS: Of 831 eligible programs, we surveyed the executive director (95%) or other administrator (5%) of 291 programs (response rate 35% to date). Using weighted proportions, 99% of programs provided care funded by the traditional hospice insurance benefit. Of these, 92% had provided care in the past year to at least one patient with a primary diagnosis of dementia. In univariate analysis, hospice programs that cared for patients with dementia were more likely to be large (census 51 or more, 40% v. 3%, $p<0.0001$) to be affiliated with a nursing home (28% v. 0%, $p<0.0001$) and to be for profit (32% v. 23%, $p=0.005$). Of the 31% of programs that provided palliative care outside of hospice, 60% had provided care to at least one patient with dementia. These programs were more likely to have large outpatient programs (daily census 10 or more, 62% v. 29%, $p<0.0001$), but smaller inpatient programs (daily census 6 or more, 41% v. 48%, $p=0.02$), to be affiliated with a hospital (46% v. 35%, $p=0.0007$) or home health agency (45% v. 34% $p=0.0005$) and less likely to be for profit (23% v. 51% $p<0.0001$).
CONCLUSION: The proportion of hospices that serve patients with dementia has grown substantially in the past decade. Although non-hospice palliative care programs provide another option for dementia care, only 60% have recently provided such care. There may be barriers in addition to prognostication challenges that limit the provision of palliative care to patients with dementia. Program characteristics, such as size and not-for-profit status, are significantly associated with whether or not palliative care is provided to patients with dementia. 1. Hanrahan P, Luchins DJ. Access to hospice programs in end-stage dementia: a national survey of hospice programs. J Am Geriatr Soc 1995;43(1):56–9.

HOSPITAL DISCHARGE AGAINST MEDICAL ADVICE AMONG ADULTS WITH SICKLE CELL DISEASE: PREVALENCE AND CORRELATES C. Haywood[1]; M.C. Beach[1]; S. Lanzkron[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205068)*

BACKGROUND: Approximately 1% of all adult hospitalizations in the U.S. end with the patient leaving against medical advice (AMA). AMA discharges have been associated with an increased rate of hospital readmission, longer lengths of stay upon subsequent readmission, and increased risk of morbidity and mortality among patients with certain conditions. It has been suggested that AMA discharges among adults with Sickle Cell Disease (SCD) are an indicator of inadequate hospital pain management received by these patients. Despite this, no published estimates of the rate of AMA discharge among this patient population have been identified. Our aim was to estimate the rate of AMA discharge within this patient population, and to examine the contribution of patient and hospital characteristics to the AMA discharge rate.
METHODS: We used the 2004 Healthcare Cost and Utilization Project Nationwide Inpatient Sample to identify adult (18 to 100yrs) SCD-

related hospital discharges which were non-elective, did not end in the patient's death, did not contain an ICD9 code for sickle cell trait, and were not maternal or neonatal related. We used multiple logistic regression to examine a multivariate model of discharge disposition (AMA vs. discharge with medical approval). Independent variables included patient age, sex, insurance status, median household income of the patient's zip-code, comorbid conditions, hospital bed-size, hospital region, hospital location/teaching status, and length of stay.
RESULTS: Out of 14519 SCD discharges which met our inclusion criteria, 517 (3.56%) were AMA discharges. Independent predictors ($p<0.01$), Adjusted Odds Ratios (AORs) and 95% CIs of an AMA discharge among the SCD population were male sex (AOR=1.32 [1.11, 1.59]), younger age (AOR=1.02[1.01, 1.03]), public vs. private insurance (AOR=4.4[2.94, 6.69]), having a substance-related mental diagnosis (AOR=1.62[1.28, 2.02]), being hospitalized in an urban hospital setting (AOR=2.0[1.08, 3.75]), being hospitalized in the Northeast region of the country vs. the Midwest, South, or West (respective AORs=2.3[1.82, 3.03], 3.2[2.63, 4.17], and 1.7[1.2, 2.38]), and having a shorter length of stay (AOR=0.84[0.81, 0.87] per 1 day increase in length of stay). There was no association between AMA discharge and median household income of the patient's zip-code, comorbid conditions, or hospital bed-size.
CONCLUSION: Adults with SCD experience a 3-fold greater rate of AMA discharge than the general population. SCD patients who are younger, males, have public forms of medical insurance, have a substance related mental disorder, are hospitalized in the Northeast region of the country, or are hospitalized in urban settings are at increased risk of an AMA discharge. The specific reasons that SCD patients leave AMA, and the clinical outcomes of these discharges in this patient population, are worthy of future study.

HOSPITAL QUALITY DATA: UNDERSTANDING DECISION MAKING IN VULNERABLE POPULATIONS M. Raven[1]; C. Gillespie[1]; B. Elbel[1]. [1]New York University, New York, NY. *(Tracking ID # 205892)*

BACKGROUND: Increasingly, health systems—particularly hospitals—are releasing quality information in order to help patients make more informed decision, and improve health system quality. However, very little is known about how patients respond to quality information, particularly vulnerable populations. Recently, the public hospital system in New York City, serving primarily the uninsured and publicly insured, was one of the first public systems to release hospital quality data. We undertake one of the first studies to understand how vulnerable patients respond to hospital quality measures.
METHODS: A series of focus groups were conducted and supplemented by survey data. The sample consisted of English-speaking patients ages 18 and older drawn from outpatient clinics of an urban, public, safety net hospital. All referenced quality data are based on indicators from the Centers for Medicare and Medicaid Services (CMS) or from the Agency for Healthcare Research and Quality (AHRQ), and encompass areas of acute and chronic disease treatment and prevention. Focus groups were designed to explore patients' decision making processes when choosing a hospital and their attitudes toward and perceptions of the actual hospital quality data made publicly available. Qualitative data are coded and analyzed via an iterative grounded theory approach.
RESULTS: Research is ongoing. Based on the first 3 focus groups (14 patients; 64% female; mean age=44; approximately 2/3 racial/ethnic minority), we have identified emergent themes in two categories. Relating to vulnerable patient choice of hospitals: a) Vulnerable patients highly value quality of care and report that they actively choose where they seek care; b) Patients value both the level of clinical care and interpersonal interactions with physicians and staff. Relating to perceptions of quality data and its use: a) Patients were universally unaware of the existent of the quality data, but generally were interested in it once it was presented to them; b) There is much heterogeneity in how well patients were able to understand the data; c) While some measures had resonance with patients, many aspects of how patients view quality data were not present in the standard ratings; d) Some patients were clearly distrustful of the data, its presentation and sources.
CONCLUSION: While no patients were previously aware of the hospital quality data, the focus groups suggest that vulnerable patients are interested in hospital quality measures. A focus on purely clinical measures, while important to patients, does not convey the breadth of information this patient population seeks. Preliminary data are providing much needed insight into a vulnerable population's perceptions about hospital quality data and the ways it might be optimized to better serve their needs.

HOSPITAL READMISSIONS WITHIN 30 DAYS AFTER DISCHARGE: COMPARISON BETWEEN PERCEPTIONS OF HEALTH CARE PROVIDERS AND REVIEW OF ALL READMISSIONS IN ONE YEAR V. Jeevanantham[1]; G. Jao[2]; R. Vadlamudi[1]; B. Gadi[1]; M. Eapen[1]; S. Stefanescu[1]; P. Agborbesong[1]. [1]Wake Forest University, Winston Salem, NC; [2]Wake Forest University Health Sciences, Winston Salem, NC. *(Tracking ID # 204881)*

BACKGROUND: Readmission to hospital soon after discharge is a significant burden to patients and our health care system. Centers for Medicaid and Medicare services are proposing to add hospital readmissions as a quality measure by the year 2010. We aimed to study the characteristics of all readmissions within 30 days of discharge from our hospitalist service in one year and perceptions of health care providers about readmissions within 30 days of discharge.
METHODS: We conducted a retrospective chart review of all readmissions to our hospital within 30 days after discharge from the hospitalist service during the year 2007. Readmitted patients were identified from the University Health Consortium database. The review was done by seven physicians. We defined the factors for readmission as: patient factor (for example, non compliance with treatment), physician factor (for example, inadequate treatment), disease factor (for example, end stage COPD disease), and system issue (for example, lack of primary care physician). We also designed an online survey with no identifiable information and distributed it through our internal e-mail system to all General Internists, Emergency Medicine physicians, and Hospitalists.
RESULTS: Findings of chart review: The total number of readmissions in year 2007 was 239. Fifty five percent were men, 54.4% were Caucasians, 43.9% were African Americans and 1.7% were Hispanics. Seventy one percent of readmissions were for the same diagnosis as the original admission and 37.1% of readmissions were thought to be preventable by the reviewing physicians. A new medication was introduced in 15.9% of patients before discharge. The most common reasons for readmission were acute exacerbation of chronic illness (32.3%), medical non compliance (19.5%), new diagnosis or problem (18.2%), end stage illness (8.2%), failure of outpatient regimen (7.7%), substance abuse (6.4%), medication overdose or side effect (3.6%), and patient leaving against medical advice (2.7%). Patient factor caused 18.8% of readmissions, physician factor caused 2.9% of readmissions, disease factor caused 36.4% of readmissions, and a combination of more than one factor caused 33.8% of readmissions. Findings of survey: Forty two physicians participated in the survey. The most common perceived reasons for readmissions within 30 days after discharge were acute exacerbation of illness (17.1%), non compliance (14.1%), end stage illness (13.1%), poor understanding of discharge plan by patient (10.1%), lack of primary care physician (10.1%), substance abuse (10.1%) and others (25.4%). Surveyed physicians thought that disease factor caused 37.2% of readmissions and system issues caused 37.2% of readmissions, patient factor caused 23.2% of readmissions and physician factor caused 2.3% of readmissions. About 60% of readmissions were thought to be preventable by the surveyed physicians. The most common perceived effective interventions for preventing readmissions were a post discharge phone call by a nurse or a visit by a nurse (35.6%), arrangement of medications before discharge (32.6%), and electronic notification of high risk readmissions (12.8%).
CONCLUSION: Significant differences exist between the perceptions and reality about hospital readmissions. Interventions targeting at multiple levels in the discharge process are necessary to reduce this readmission burden to our patients and health care system.

HOSPITAL-ACQUIRED VENOUS THROMBOEMBOLISM DESPITE PROPHYLAXIS S.L. Cohn[1]; R. Khillan[2]. [1]Society of General Internal Medicine, Brooklyn, NY; [2]SUNY Downstate, Brooklyn, NY. *(Tracking ID # 205289)*

BACKGROUND: Venous thromboembolism (VTE) is felt to be the #1 preventable cause of hospital deaths, yet prophylaxis is under-pre-

scribed. The American College of Chest Physicians (ACCP) recently updated their guidelines for prophylaxis; however, even appropriate prophylaxis is effective only 70% of the time. We sought to evaluate patients who developed VTE despite prophylaxis, looking for possible markers or reasons for failure.

METHODS: The New York State Public Occurrence Reporting and Tracking System (NYPORTS) requires reporting of all hospital-acquired VTE. For this retrospective observational study, we reviewed medical records of all NYPORTS VTE cases (n=60) at an inner city university hospital from 2002–2008 who failed prophylaxis. Data collection included demographics, risk factors, type and appropriateness of prophylaxis, day of occurrence of VTE, treatment, and outcome. Based on the prophylaxis used in each case, we evaluated whether or not the VTE was potentially preventable.

RESULTS: Mean age was 59 years and 60% were women. The admitting services were general surgery (47%), medicine (33%), orthopedics (13%), and obstetrics (7%). The majority of patients (75%) had at least 3 risk factors; the most common were surgery, advanced age, immobility, acute medical illness, and cancer. Prior hospitalization within 45 days for a medical or surgical problem was noted in 27%. All patients received some form of VTE prophylaxis, 82% as per ACCP guidelines. Unfractionated heparin was the most frequently prescribed method of prophylaxis (q12 h 38%, q8 h 27%). LMWH prophylaxis was used in 13%, warfarin 17%, IPC 47%, and a combination in 32%. Two-thirds of the events occurred within 10 days of hospitalization. The most frequent events were proximal DVT (48%) and pulmonary embolism (30%). Despite guideline recommendations preferring treatment with LMWH over UFH, these modalities were used almost equally (45 vs 50%). IVC filters were inserted in 23%. In-hospital mortality was 22%, approximately half of which was directly related to pulmonary emboli. Our results are similar to those of the DVT Free registry where the most common risk factors included previous surgery, cancer, and immobility. They also found prophylaxis with UFH to be more common than with LMWH. We thought sixteen of our cases (27%) were potentially preventable. Possible explanations for prophylaxis failure may include a high baseline risk from multiple risk factors, having surgery, and deviations from guideline recommendations. Despite having many more medical admissions than surgical, the majority of our prophylaxis failures occurred in surgical patients. Although the ACCP guidelines do not specify the dose/frequency of UFH for medical patients, the IUA guidelines recommend q8 h over q12 h for higher risk patients. LMWH is also preferred over UFH for cancer patients. Prophylaxis should be continued for the duration of hospitalization and even extended for 28–35 days in patients undergoing hip or knee surgery or abdominal surgery for cancer. In our study, prophylaxis was stopped in 3 cases, q12 vs q 8 h was used in 6 cases, UFH instead of LMWH in 5 cancer cases, prophylaxis not extended in 4 cases, IPC instead of pharmacologic prophylaxis in 1, and a subtherapeutic INR in 1.

CONCLUSION: Multiple risk factors and inappropriate prophylaxis may increase risk of developing a VTE. Using a lower dose of UFH, having periods where prophylaxis is discontinued, and failure to use extended prophylaxis are reasons for possible failure.

HOW ACCURATE IS THE PRESENT ON ADMISSION INDICATOR?
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BACKGROUND: Medicare now requires a present on admission (POA) indicator for all secondary diagnosis (SDx) codes submitted on claims forms for reimbursement. This makes it possible to identify possible complications of care from among SDx that were not POA (NPOA), and serves as the basis for identifying hospital acquired conditions that will no longer be allowed to generate additional payment. The accuracy of POA coding could affect the determination of hospital complication rates. The purpose of this study was to examine the accuracy of POA coding in the state of California, which has required POA coding on all hospital discharges for over a decade.

METHODS: We examined data from 345 California acute care hospitals for the years 2004–2005, after eliminating hospitals with fewer than 1,000 admissions per year, a morality rate over 7%, or an average length of stay of over 8 days. We calculated the percent of SDx coded as POA for all hospitals (POA rate). We identified probable "false negative" POA codes – hospital-acquired SDx incorrectly coded as POA – among elective surgery patients by counting how often conditions that would have been unlikely to be present before surgery were coded POA. These included post-operative complications (such as post-op hemorrhage or post-op wound infection) and acute medical problems (pneumonia, acute MI) that were coded POA. We also examined "false positives" – SDx that should be coded POA but are incorrectly coded NPOA – for all medical and surgical patients by identifying the proportion of all SDx coded as NPOA that belonged to a list of chronic conditions that should always be considered POA (e.g. hypertension, CHF, diabetes).

RESULTS: The percent of SDx coded as POA ranged widely, from 80.6 to 100 percent, with a median of 94.1, and inter-quartile range of 92 to 96.2. For 10 percent of hospitals the POA rate was over 98% and 5% of hospitals had a POA rate over 99.1%. Hospitals with the highest POA rates had much higher rates of probable false negatives: all of the hospitals with overall POA rates over 99% coded more than 60% of post-operative surgical complications as POA, and over 70% of post-op medical complications as POA. False positives: Hospital rates of SDX coded as NPOA that were actually chronic preexisting conditions ranged from 0% to 73.3%, with a median of 9.6% and an inter-quartile range of 6.3–15.0%. Ten percent (35 hospitals) had a rate over 26%, and 5 percent had a rate of 40% or more. Determining the number of hospitals that should be considered to have performed inadequate POA coding varies depending on the cut-off values for false positives and false negatives considered acceptable. As an example, requiring a false positive rate (chronic conditions coded NPOA) of less than 40%, and for false negatives for elective surgery, requiring less than 60% of post-operative surgical complications and less than 70% of probable post-op medical complications to be coded as POA would eliminate 60 hospitals (17.4% of eligible hospitals).

CONCLUSION: There were wide variations in POA coding among California hospitals, which could substantially affect the determination of hospital complication rates. For example, hospitals that tend to code post-admission complications as POA will appear to have lower complication rates than they deserve, and gain an unfair advantage in comparisons with other hospitals. The methods used to monitor hospitals will need to be scrutinized as closely as the hospitals themselves.

HOW BAD IS IT? UNMET MEDICAL NEED AMONG VULNERABLE ADULTS
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BACKGROUND: Having a usual source of care (USC) has been shown to reduce utilization of the emergency department (ED) and unmet medical need. Differential access to a USC or insurance can results in disparities in unmet medical need. What is unknown is the degree of unmet medical need that Medicaid-enrolled and uninsured adults report in light of their USC, and changes over time.

METHODS: Retrospective secondary data analysis of adults aged 18–64 years, using multiple years (2002–2006) of the National Health Interview Survey (NHIS). The NHIS is an annual nationally representative in-person survey of approximately 40,000 households. Questions evaluating unmet need for prescription medicines, mental health, dental and eye care were used to create a composite variable. Odds ratios (OR) were calculated to determine the odds of reporting an unmet medical need stratified by insurance and USC.

RESULTS: In 2006, 28.8% (95% CI: 25.8–32.0) of Medicaid-enrolled and 38.7% (95% CI: 36.8–40.7) of uninsured adults reported unmet medical need, compared with 10.9% (95% CI: 10.2–11.6) of privately insured adults. Compared with the reference group (privately insured adults with a USC), privately insured adults without a USC and Medicaid-enrolled adults with a USC had 2 to 3 times the odds or reporting unmet medical need. Medicaid-enrolled adults with no USC and uninsured adults with or without a USC had over 5 times the odds or reporting unmet medical need (Table).

CONCLUSION: Medicaid-enrolled and uninsured adults with or without a USC continue to have the highest odds of unmet medical need. There is a continued disparity within the insured and those with a USC that should receive attention when considering initiatives to reduce unmet medical need.

Relative Odds of Reporting an Unmet Medical Need by Insurance Status and Usual Source of Care, NHIS 1998–2006

Year	1998	2000	2002	2004	2006
Insurance/ USC +/-	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)	Odds Ratio (95% CI)
Private + (Ref)	1.0	1.0	1.0	1.0	1.0
Private -	1.4 (1.1–-1.8)	1.6 (1.3–-2.0)	1.3 (1.1–-1.6)	1.6 (1.3–-1.9)	1.7 (1.3–-2.2)
Medicaid +	3.4 (2.9–-4.0)	3.0 (2.5–-3.5)	3.9 (3.3–-4.6)	3.0 (2.5–-3.3)	3.3 (2.8–-3.9)
Medicaid -	5.5 (3.2–-9.5)	6.2 (3.4–-11.3)	4.2 (2.7–-6.6)	4.6 (3.0–-7.2)	4.6 (3.0–-7.2)
Uninsured +	4.9 (4.4–-5.5)	4.9 (4.3–-5.5)	6.0 (5.3–-6.7)	5.2 (4.7–-5.8)	5.3 (4.6–-6.0)
Uninsured -	6.0 (5.2–-7.0)	5.5 (4.7–-6.4)	6.5 (5.7–-7.5)	6.3 (5.6–-7.1)	5.8 (5.0–-6.6)

"HOW DO INTERNAL MEDICINE RESIDENTS FEEL ABOUT THE NEW INCREASED CLINIC REQUIREMENTS?" H. Baumert[1]; E. Koliopoulos[1]; M. Huisingh-Scheetz[1]; M. Prochaska[2]; J.L. Oyler[2]; J.N. Woodruff[2]; V. Arora[2]. [1]University of Chicago Internal Medicine Residency Program, Chicago, IL; [2]University of Chicago General Internal Medicine, Chicago, IL. *(Tracking ID # 205768)*

BACKGROUND: One third of internal medicine residency training is reserved for "ambulatory" education, which includes the weekly continuity clinic. In 2009, internal medicine residents will be required to participate in 130 clinics, an increase from 109 previously. Our aim was to assess resident's perceptions of these increased clinic requirements, as part of a larger clinic survey.

METHODS: We performed a cross-sectional survey of all categorical internal medicine residents at a single academic medical center. Domains included resident satisfaction with continuity clinic, resident career choice (primary care, hospitalist, subspecialty, etc.). In addition, we ascertained residents' perceptions of the increased clinic requirements by stating that the "ACGME is proposing an increase in the required number of clinics from 109 to 150 (previous proposal) for internal medicine residents. This will likely mean that you will have more than one clinic per week during several months of the year." Residents were asked to rate how this increase would affect their preparedness to treat common ambulatory conditions, their ability to care for their clinic patients, their ability to care for their inpatients, and their likelihood of entering primary care. All answers were recorded using a 5 point Likert scale, from a 1 (disagree) to 5 (agree). In addition, free text field was provided for additional comments. The survey was administered electronically using Perseus software (Vovici Corp, Dulles, VA) with 3 reminders. Descriptive statistics were used to summarize the data.

RESULTS: A total of 92% (95/103) of categorical internal medicine residents completed the survey in June 2008. Overall satisfaction with clinic was high with 72% reporting somewhat or very satisfied. A majority of residents (65%) agreed that more clinics would enhance preparedness to treat common ambulatory conditions. Furthermore, 64% of residents felt that more time in clinic would make it easier to care for patients in their ambulatory clinic. However, many residents (76%) agreed that increasing the clinic requirement would make it harder to care for their inpatients, with comments such as "the constraints on time-management of inpatient services will be extremely difficult." While only 8% (8/95) of residents were planning on a career in primary care, 64% (61/95) had considered a career in primary care in the past. However, few residents (13.5%) felt that increasing number of clinics would increase their likelihood of entering a career in general medicine. Residents stated that "Our goal should absolutely NOT be to increase the likelihood of our graduates entering general medicine. We should aim to maximize each resident's potential and support their aspirations," and "This will make people hate primary care even more." Perceptions of increased clinics did not vary by training year or by overall satisfaction with clinic.

CONCLUSION: Internal medicine residents seem to agree that more clinics will enhance their education in the ambulatory setting. However, residents raised concerns regarding time constraints while concurrently caring for their inpatients. In these times of declining interest in general medicine careers, it does not appear that increasing exposure to the ambulatory setting will change this trend.

HOW DO THIRD-YEAR MEDICAL STUDENTS IDENTIFY CLINICAL SKILLS DEFICIENCIES? A. Ekpenyong[1]; J.M. Riddle[2]; T. Uchida[3]; E.A. Baker[1]; K. Boyd[1]. [1]Rush University Medical Center, Chicago, IL; [2]University of Illinois at Chicago, Chicago, IL; [3]Northwestern University Feinberg School of Medicine, Oak Park, IL. *(Tracking ID # 205591)*

BACKGROUND: Clinical skills remediation programs vary widely in approach. Self-assessment is an important first step in the remediation process yet little is reported on how students identify problem areas. In May 2008, 125 M3 students from Rush Medical College participated in a 6-station Clinical Skills Assessment (CSA) intended to provide formative feedback on clinical skills development during clinical clerkships. At each station, students performed a focused history and physical exam of a standardized patient with a common chief complaint and wrote a focused note. Performance was evaluated in the clinical skills domains of history taking, physical exam, note-writing, diagnostic reasoning, and communication/interpersonal skills. Scores were averaged across cases for each domain. Students who scored less than 2 standard deviations below the mean for any domain were required to participate in remediation. As part of this process, students completed a self-assessment worksheet which they reviewed with a CSA faculty member, who helped "diagnose" the student's learning needs and create an individualized action plan prior to retaking the exam.

METHODS: Four CSA faculty and a medical educator analyzed student responses to the self-assessment question, "Based on your video review of your performance, what behaviors (done/not done) do you think explain your score?" Using the constant comparative method of qualitative analysis, themes were identified describing student perceptions of difficulties encountered during the CSA.

RESULTS: Thirteen students required remediation. Eight major themes were identified: 1) Lack of thoroughness in history taking and/or physical exam (7 students). Students described failing to perform a "complete" history or physical. 2) Missing pertinent history and/or physical exam items related to lack of a working differential diagnosis (8 students). 3) Using poor technique in communication or physical exam (6 students). 4) Failure to follow a logical order (2 students). 5) A "ripple effect" of poor performance in data gathering causing problems in diagnostic reasoning (5 students). 6) Premature closure (4 students). 7) Contextual factors, e.g. nervousness, time constraints and test taking (7 students). 8) Student-specific problems, e.g. lack of confidence or assertiveness (4 students). Of note, only 1 student felt his/her low score was due to a knowledge deficit.

CONCLUSION: CSA faculty and students share similar perspectives on students' poor performance on the CSA. Some students' comments about "lack of thoroughness" fail to reflect the importance of starting with a differential diagnosis then eliciting specific pertinent data. Many of the students identified deficits related to the "ripple effect" of missing pertinent history or physical exam items and the effect on diagnostic reasoning. Contextual factors related to performance were identified by a majority of students. Most students did not explicitly cite lack of knowledge as a deficiency. Results will be used to assist faculty in developing remediation plans and improving the remediation process.

HOW DOES NON-PHYSICIAN SCREENING FOR UNHEALTHY ALCOHOL AND DRUG USE AFFECT PRIMARY CARE CLINICIAN PRACTICE? T. Kim[1]; N. Kretsch[2]; R. Saitz[1]; M. Winter[3]; J.H. Samet[1]; C.W. Shanahan[1]; A. Almeida[2]; M. Botticelli[4]; D.P. Alford[1]. [1]Boston University School of Medicine, Boston, MA; [2]Boston Medical Center, Boston, MA; [3]Boston University School of Public Health, Boston, MA; [4]Massachusetts Department of Public Health, Boston, MA. *(Tracking ID # 205224)*

BACKGROUND: Alcohol and drug use are often not identified or addressed in primary care settings despite their potential impact on

many common health problems. Team-based care in which staff other than the primary care clinician (PCC) screen and counsel patients with unhealthy alcohol and drug use may lessen the burden of multiple preventive care practices, and improve rates of screening and intervention. Whether this division of labor will facilitate the PCC's ability to address alcohol and/or drug use is unclear. Therefore, the objective of this study was to evaluate the effect of screening and counseling by non-PCC team members on PCC practices.

METHODS: The MAssachusetts Screening, Brief Intervention, Referral and Treatment (MASBIRT) program employed health promotion advocates (HPAs) to perform universal screening for substance use (alcohol or drug). Immediately prior to the visit with the PCC, HPAs used validated screening instruments to identify those with unhealthy alcohol or drug use and then conducted brief intervention counseling for all those who screened positive. All PCCs were informed of screening results and counseling efforts by a paper "provider communication form" prior to their visit with the patient (no other record of MASBIRT screening was entered into the medical record). The study sample included primary care patients with MASBIRT- identified unhealthy alcohol/drug use. A research associate retrospectively reviewed the electronic medical record of the PCC visit for mention of: 1) any unhealthy alcohol use (risky alcohol consumption as defined by NIAAA or alcohol abuse /dependence) or drug use (non-medical prescription or illicit drug use) and 2) any counseling, which was defined as documentation of feedback linking alcohol/drug use to health problems, advice to cut down or abstain, or referrals for further treatment. We compared results of the electronic medical record review with MASBIRT screening results.

RESULTS: Primary care visit notes of 499 patients with MASBIRT-identified unhealthy alcohol or drug use were reviewed. Of these visit notes, 42% (212/499) correctly documented unhealthy alcohol or drug use; 25% (124/499) documented alcohol or drug use but described it as "rare", "occasional", "social" or did not make reference to any assessment of quantity and frequency; and 33% (164/499) did not contain any mention alcohol or drug use. Of these 164 medical records without any mention of alcohol or drug use, 67% (110/164) had MASBIRT-identified risky alcohol use and 40% (65/164) had MASBIRT-identified drug use. Only one quarter of PCC visit notes (127/499) mentioned alcohol/drug use counseling.

CONCLUSION: Identification of unhealthy alcohol/drug use and subsequent counseling efforts by non-PCC team members often were not acknowledged by PCCs. Most of the unhealthy alcohol/drug use not acknowledged by PCCs was risky alcohol use which is more likely than dependence to be improved by PCC brief counseling. Future study is needed about how best to integrate non-PCC team members' screening and counseling efforts with PCC management of unhealthy alcohol and drug use.

HOW OFTEN DO MICROBIOLOGY RESULTS RETURNING AFTER DISCHARGE POTENTIALLY REQUIRE CHANGE IN THERAPY?
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BACKGROUND: Failure to follow-up microbiology results that return after patients are discharged from the hospital can lead to delays in appropriate treatment and can increase the risk of patient harm and litigation. There are limited data to describe how frequently post-discharge microbiology results return and how often they may require a change in treatment.

METHODS: We created an algorithm to evaluate the 126,496 blood, urine, sputum and cerebral spinal fluid (CSF) culture results reported in 2007 at a large academic hospital in Boston. We excluded the cultures drawn in the outpatient setting and those inpatient cultures that had results reported prior to patient discharge. For each of the four culture types, we then identified those results likely to be clinically relevant using a validated prediction model by Wang and Bates for blood cultures and CDC definitions of nosocomial infections for urine, sputum and CSF cultures. We then further excluded microbiology results that had been treated by an antibiotic to which they were susceptible. Two internal medicine-trained members of the study team independently reviewed a random subset of 100 of these cases to determine the proportion of positive culture results that actually may have required a change of treatment. We analyzed these results by admitting service and culture types to determine if there were significant differences based on these variables.

RESULTS: In 2007, there were 55,340 admissions at our hospital and 77,801 associated culture results, 4873 (6.3%) of which returned after patients were discharged from the hospital. Of these results, 622 were found likely to be clinically relevant and 372 were untreated or under-treated at the time of discharge. Based on our manual review of a random subset of 100 of the untreated or under-treated post-discharge results, we found that 57% of the results potentially required a change in therapy (kappa=0.76). This proportion varied by culture type and admitting service. The reviewers felt that a change in therapy was potentially needed in 76% of urine cultures, 44% of blood cultures and 53% of sputum cultures. None of the 5 CSF cultures we reviewed required follow-up. Urine cultures were more likely to potentially require change in therapy than non-urine cultures (OR 4.2, 95% CI 1.7–9.9). By admitting service, reviewers identified a potential need for antibiotic change in 85% of results from surgical services, 50% from oncology, 60% from general medicine and 33% from medical subspecialties. Results from surgical services were more likely to potentially require a change in therapy than those from general medicine (OR 3.7, 95% CI 1.0–13.3). Overall, we estimate that 4.4% of the post-discharge cultures potentially necessitated a change in antibiotic regimen.

CONCLUSION: A substantial number of microbiology results return after patients are discharged from the hospital and some of these necessitate a change in antibiotic treatment. We found that post-discharge microbiology results from certain culture types and admitting services may require a change in treatment more commonly. These cultures are obtained from patients admitted to a range of specialties, suggesting the need for a hospital-wide system to ensure effective communication of these results.

HOW WELL DO MEDICAL STUDENTS ASSESS LIFESTYLE RISKS? A COMMUNICATION NEEDS ASSESSMENT
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BACKGROUND: Healthcare providers must assess patients' behavioral risks to perform appropriate counseling and healthcare screening. We completed a needs assessment to determine medical students' perceptions of and self-confidence in their ability to perform comprehensive behavioral histories.

METHODS: Cross-sectional survey of all medical students enrolled at the University of Colorado Denver School of Medicine in 2007–08. Surveys assessed perceived importance of and self-confidence in performing alcohol, tobacco, and sexual histories, plus self-reported frequencies of asking specific questions, using a 4-point Likert-scale. Frequency and descriptive data were recorded; differences by academic year were analyzed by logistic regression.

RESULTS: Among the 584 students enrolled, 367 (63%) completed the survey. Fifty-one percent of the respondents were female, and the percentage of first through fourth years were 32%, 34%, 17% and 17%, respectively. Overall, 93% of students felt it was important to perform a comprehensive alcohol history; 80% were confident in their ability to do so. Sixty-seven percent reported sometimes or routinely asking an alcohol use history. Ninety-seven percent felt taking a comprehensive tobacco use history was important; 86% felt confident in their ability to do so. Eighty percent reported sometimes or routinely asking a tobacco history; most (90%) asked if their patients smoked. Fewer students felt taking a comprehensive sexual history was important (87%). Only 70% felt confident in their ability to take a sexual history with 50% sometimes or routinely asking one. Comprehensive alcohol, tobacco and sexual histories were reported less often (Table). The perceived importance of taking a sexual history significantly varied according to academic year; 38% of first year medical students strongly agreed versus 23%, 20% and 27% among second, third, and fourth years, respectively (p=0.003; OR and 95% CIs for first years, 1.80 (1.09–2.97); 2.16 (1.16,-4.04); and 2.30 (1.24–4.27)). The importance of taking alcohol and tobacco histories did not vary according to academic year.

COMPREHENSIVE HISTORY QUESTIONS	PERCENT
Alcohol History	
No. drinks per day	78
No. drinks per week	83
No. drinks per episode	56
DUIs	20
Alcohol-related problems	28
Tobacco History	
No. cigarettes per day	89
Duration of smoking	90
Readiness to quit	83
No. previous attempts to quit	56
Duration of attempts to quit	47
Methods of attempts to quit	61
Sexual History	
Sexually active	78
Type of birth control used	74
Barrier protection used	64
Concerns about STIs	63
Previous history of STIs	64
Current number of sexual partners	47
Gender of current sexual partners	38
Sexual functioning	34

Table. Percent of respondents who 'sometimes' or 'routinely' asked comprehensive history questions, N=367.

CONCLUSION: Medical students agree that taking comprehensive alcohol and tobacco histories is important, less so with sexual history taking. However, comprehensive histories are not commonly performed, possibly because students lack confidence. Attitudes about the importance of taking a sexual history decreased after the first year of medical school. Educators should focus on developing effective interventions to address these gaps and issues in the hidden curriculum that may affect attitudes towards provider-patient communication.

HOW WELL DO PRIMARY CARE PHYSICIANS UNDERSTAND THEIR PATIENTS' PERSPECTIVES? P. Haidet[1]; R.L. Street[2]. [1]DeBakey VAMC / Baylor College of Medicine, Houston, TX; [2]Texas A&M University, College Station, TX. *(Tracking ID # 206079)*

BACKGROUND: Communications researchers and educators have stressed the importance of physicians exploring and understanding patients' perspectives, or explanatory models of illness. In previous work (Project CONNECT: Pt Educ Couns 2008; Aug 28 Epub ahead of print), we found important differences between physicians' and patients' perspectives about a number of domains related to the patient's health problem. In this study, we explored the extent to which these physicians understood their patients' perspectives.
METHODS: We used data from Project CONNECT, a cross-sectional study of 29 primary care physicians and 272 patients (6–10 patients per physician) in 10 private and public practice sites in Houston Texas. Physicians and patients were audiotaped during a routine visit, and completed pre- and post-visit surveys. On the post-visit survey, physicians and patients completed 29 previously validated items about six different domains of illness perspectives: 1) cause of illness, 2) how much the patient is at fault for the illness, 3) the meaning of the illness, 4) the effectiveness of complementary treatments for the illness, 5) how much control the patient has over the illness, and 6) expectations for partnership in healthcare. For each of these domains, patients and physicians answered items about their own perspectives, and items about their understanding of the other's perspective. For example, the patient-survey item "I have control over my illness" would have parallel-worded items on the physician survey measuring: a) the physician's own perspective ("The patient has control over their illness"), and b) the physician's understanding of the patient's perspective ("The patient thinks they have control over their illness"). All items were scored with a six-point likert scale, and summary scores were calculated for each domain. Using hierarchical models accounting for nesting of patients within physicians, we compared domain scores between patients' own perspectives, and physicians' understanding of patients' perspectives. We also examined the effects of demographic factors (race, age, gender, education), concordance factors (race and gender), number of prior visits, and communication behaviors on physician understanding.
RESULTS: The mean age of patients was 56 (SD 15), 60% were female, and 11% were Hispanic, 39% Caucasian, 50% AA. The mean age of physicians was 43 (SD 9), 58% were female, and 3% were Hispanic, 26% AA, 32% Caucasian, 39% Asian. Physicians perceived patients to think of the cause of illness as more biomedical, feel less fault for their illness, contribute less meaning to the illness, see complementary treatments as less effective, feel less control over illness, and prefer less of a partnership than patients actually did ($p<0.001$ for all comparisons). In four of the six domains, active patient participation (defined as the sum total of questions asked and specific concerns, preferences, or opinions stated) was significantly ($p<0.05$) associated with greater physician understanding. In two domains, patient African American race or race discordance was associated ($p<0.03$) with less physician understanding.
CONCLUSION: We found significant gaps in physician understanding of patient perspectives in primary care settings. Race or ethnicity discordance may worsen these gaps. Active patient participation can foster better physician understanding, and may be a remedy for disparities in physician understanding.

"I AM HERE FOR A PHYSICAL EXAM – I NEED A FULL TUNE UP" THE HARD CHOICES RESIDENTS MAKE J.G. Adams[1]; C. Gillespie[1]; M. Lipkin[1]; K. Hanley[1]; A.L. Kalet[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 205634)*

BACKGROUND: Physicians must provide evidence-based preventive medical care but given the numerous recommendations and the time pressures they are forced to make choices on what to prioritize. As part of our residency's annual comprehensive performance-based assessment we sought to assess how residents allocate time and prioritize goals during a well visit.
METHODS: We developed, piloted, and implemented a standardized patient (SP) case as part of an annual 10-station objective structured clinical examination (OSCE). The 10-minute station presented a healthy 45 year old female with no significant medical history (except a hysterectomy for benign disease), no complaints and who the residents were told had a normal physical exam. Residents were instructed to obtain a medical history and complete an assessment and plan with the patient. Residents skills were assessed in four areas based on USPTF recommendations: obtaining a past medical and surgical history (social history, domestic violence, depression, family history), recommending and educating patients about needed tests (HIV and mammogram), not offering unnecessary tests (i.e. a Pap smear) and making health maintenance recommendations (diet, exercise, safe sex,) and formulating a plan. The Standardized Patient (SP) rated residents' performance for each of these items as not done, partly done, or well done using a behaviorally anchored checklist; scores represent % of items done well in a particular area or the % residents who performed a task well for single items. Residents also completed a survey (n=16/23) assessing their perceptions of their performance and the main point of each case.
RESULTS: 23 medical residents (8 PGY1, 8 PGY2, 7PGY3) participated in the OSCE . Overall, residents performed best in obtaining medical history (mean=67%, SD=32%). Only 40% (9/23) of the residents offered and explained the need for both of the recommended tests and close to half (48%, 11/23) offered an unnecessary Pap smear. Only 5 (of 23) residents discussed any of the health recommendations (22%) and the residents received, on average, only a score of 26% for management and treatment plan (SD=24%). More PGY3 s (57%, 4/7) made health maintenance recommendations than either PGY1s (13%, 1/8) or 2s (0%, 0/8) (Chi Sq= 7.78, p=.02). Residents generally felt that they performed adequately (2nd highest average of all 10 cases) and fell into 4 groups when asked to indicate the main "point" of this case: communicating effectively with a patient (13%, 2/16); discussing health maintenance (25%, 4/16); managing time/prioritizing (25%, 4/16); or conducting a history on a new patient (38%, 6/16). Residents' performance varied by their perceptions of the encounter's goal: Those who thought the case was about doing an history on a new patient did a more comprehensive assessment; those who thought the point was to discuss health maintenance were more likely to actually make health maintenance recommendations.
CONCLUSION: In a time limited,well-visit patient assessment, residents' preventive care performance varied by their perception of the goal of the encounter. These findings illuminate the impact of patient-centered care residents deliver and suggest the need for additional

curriculum to see that the choices residents make in a well visit ensure patients receive evidence based care.

I NEED MORE TIME: A NEW WAY TO CAPTURE SELF-ASSESSMENT ABILITY IN MEDICAL STUDENTS. T.K. Ark[1]; C. Gillespie[1]; J. Hyland Bruno[1]; D. King[1]; A.L. Kalet[1]; L.R. Tewksbury[1]. [1]New York University, New York, NY. *(Tracking ID # 204097)*

BACKGROUND: Self-assessment is a vital component of medical professionalism. However, the literature concludes that physicians and medical students are poor self-assessors. Previous measures of self-assessment have been hampered with methodological and theoretical issues; as a result, a new way to measure self-assessment ability needs to be developed. Studies suggest 'time spent on task' may be a good indicator of knowledge and skill deficits and, therefore, a useful self-evaluation tool. In this study, using a reflection-on- action framework, we asked students to identify the skills and cases for which they felt the need for more time in order to compare self-assessment with actual performance data.
METHODS: 3rd year medical students (N=161) underwent a high-stakes 8-station Objective Structured Clinical Examination (OSCE). Students had 15 minutes to interview and counsel a standardized patient (SP). Five cases also required students to perform a physical exam. For each case, SPs completed a behaviourally anchored checklist that rated students' specific communication (COM), history gathering (HX) and physical exam (PEX) skills as not done, partially done or well done. Immediately following the OSCE, students (N=101) completed a voluntary self-assessment survey regarding their performance. Students were asked to identify a) which skill set (COM, HX and PEX) they would have done better on if they had had more time, by case, and b) which cases they found to be the most challenging and why. All students were also asked to indicate which case they needed more time on overall.
RESULTS: The accuracy of the two forms of self-assessment were compared using paired t-tests for each separate skill set. Asking students to rate the skill set for which they needed more time by case, versus asking them to identify which case they found the most challenging, led to significantly higher self-assessment accuracy (64% vs. 11% for PEX, 56% vs. 16% for HX and 48% vs. 19% for COM; all $p < 0.05$). When asked to identify which cases they needed more time on regardless of skill set, only 10% of students correctly identified their worst case as the case for which they needed more time.
CONCLUSION: Students' self-assessment ability on an OSCE is improved when they identify those skills for which they need more time. When using 'time on task', students are most accurate at identifying PEX as their domain of poorest performance, followed by HX and COM. These findings suggest that teaching trainees to be mindful of indicators, such as "I need more time," may lead to greater self-awareness of clinical insufficiencies than standard, global self-assessment measures (i.e. "am I above average," "do I feel competent"). Self-assessment is the main source of feedback once physicians leave the training environment. Therefore, equipping trainees with more accurate self-assessment cues is needed to maintain clinical competence, life-long learning and ensure patient safety.

IDENTIFICATION OF DIAGNOSIS ERRORS FROM A HOSPITAL RISK MANAGEMENT DATABASE O. Hasan[1]; L.H. Rodman[1]; R. El-Kareh[1]; C. Keohane[1]; J.N. Barnes[1]; T.K. Gandhi[1]; G.D. Schiff[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204794)*

BACKGROUND: Diagnosis errors represent the largest category of alleged malpractice cases in the published literature but remain largely unstudied because they are exceedingly difficult to detect and analyze. Although recent reviews of spontaneously reported cases and closed malpractice claims have improved our understanding of their causation, the prevalence and features of such errors in the larger pool of hospitals' risk management databases has not been previously described.
METHODS: We retrospectively analyzed a large urban teaching hospital's risk management database to harvest cases of missed or delayed diagnoses for the purpose of improving case identification, studying causative factors, and feeding back findings to involved clinicians in an effort to prevent future errors. Cases were selected for review by querying the hospital's proprietary TrakEnterprise® case tracking and reporting system, a structured query language based relational database, with the following search terms: "delay (ed)", "diagnosis", "error", "misread", and "miss(ed)". Screened inpatient and outpatient cases were manually reviewed by a trained research assistant to remove cases obviously unrelated to diagnosis error, e.g., billing errors, personal complaints, exclusively medication errors. The electronic medical records of remaining cases were reviewed by experienced general internists to determine whether they included a missed or delayed diagnosis. Confirmed cases of diagnosis error were classified using the DEER (Diagnosis Error Evaluation and Research) taxonomy tool, based on where the errors occurred in the diagnostic process.
RESULTS: Out of 1,417 new cases reported to risk management over a 20 month interval, 345 were selected by our text query. Manual review excluded 150 cases, and detailed physician review of the remaining 195 cases identified 53 definitive missed or delayed diagnoses. Among these 53 cases, cancer was the most common final diagnosis (18 cases [34.0% of total]), followed by fracture (6 [11.3%]), and bowel perforation, ectopic pregnancy, renal cyst, subdural hematoma, and urinary tract infection (2 each [3.8% each]). Lung cancer was the most common cancer, comprising 5 of the 18 cancer cases. The majority of errors were related to laboratory or radiology test ordering, performance, or clinician processing (32 [60.4%]), followed by shortcomings in hypothesis generation, suboptimal weighing, or recognition of urgency (10 [18.9%]), history taking (5 [9.4%]), access and presentation (2 [3.8%]), follow-up (2 [3.8%])), and referral for consultation (1 [1.9%]). Noteworthy was the finding that although the commercial risk management database included categories for various events, such as falls or medication errors, it lacked a separate category for diagnosis errors. We added this new category, based on our study findings, resulting in the subsequent prospective identification of 27 diagnosis errors over a 10 month interval.
CONCLUSION: Systematic analysis of a risk management database identified numerous cases of diagnosis error, yielded useful insights into their causation, and led to modification of the case reporting and tracking system. This likely represents an improvement over random case finding, and, coupled with timely analysis and upstream feedback to involved clinicians, has the potential to improve detection, understanding, and prevention of future diagnosis errors.

IDENTIFYING PATIENT BARRIERS TO RECURRENT STROKE PREVENTION IN HARLEM E.J. Plumb[1]; P.S. Chan[1]; F.J. Villa[1]; V. Robinson[2]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]ECHO Community Advisory Board, Renaissance Healthcare Network, New York, NY. *(Tracking ID # 205482)*

BACKGROUND: Recurrent stroke disproportionately affects minority populations. While there is clear evidence for the benefit of controlling blood pressure, lipids, and risk for thrombosis in reducing recurrent stroke risk, all indications are that these lifelong medication-based interventions are underused. Our objective was to identify patient barriers to preventing recurrent strokes and to generate strategies to address these barriers in Harlem.
METHODS: We conducted a qualitative study of four focus groups, 2 in English and 2 in Spanish. Our community-based participatory research team recruited participants from local senior centers, churches, and social service organizations through fliers, community networks and healthcare provider referrals. Experienced moderators facilitated focus groups, and they were audio-taped and transcribed. Using Atlas software version 4.1, two researchers independently coded the transcripts, identified major themes, compared findings, and resolved differences through discussion and consensus. Through regular meetings, community partners and several focus group participants worked with researchers to identify and refine themes.
RESULTS: Patients (n=39) had a mean age of 70 years and were 55% Latino, 33% African-American, and 11% Caucasian. Two predominant and related themes that emerged in the focus groups were vulnerability and social isolation following stroke. Efforts to prevent recurrent stroke were focused on addressing these themes and included the following lifestyle changes: 1) becoming active in the community; 2) prioritization of self in one's personal life; 3) improving diet; and 4) stress reduction. Although most participants recognized a role for taking anti-hypertensive, lipid lowering, and anti-thrombotic pills to prevent stroke, lifestyle changes were seen as more important. Common barriers to taking pills included: 1) a lack of trust and comfort in communicating with clinicians; 2) misunderstandings about how these drugs affect the body; and 3) questioning the need and benefit of treating asymptomatic conditions like hyperlipidemia. While initially hesitant to join focus group discussions, most participants concluded that group education and support were important in recurrent stroke prevention and suggested that peers would be the best facilitators of a stroke prevention program.
CONCLUSION: Through a community-based qualitative research approach, we were able to elicit the emotional and physical experiences of stroke survivors in Harlem and identify important barriers to medication-based stroke recurrence prevention. The findings of the focus group revealed the importance of addressing the emotional impact of stroke and are being used by a local Community Action Board to guide capacity

building outreach efforts among community participants based on the concept of self-renewal after stroke. These findings are also being used to inform a community-based, peer-led educational initiative that both addresses specific patient-identified barriers to prevention and emphasizes medication adherence as a priority in recurrent stroke prevention.

IDENTIFYING PRESCRIPTION DRUG USE DISORDER IN PRIMARY CARE CHRONIC PAIN PATIENTS PRESCRIBED OPIOIDS: DIAGNOSTIC CHARACTERISTICS OF THE CURRENT OPIOID MISUSE MEASURE (COMM) E.C. Meltzer[1]; D. Rybin[1]; R. Saitz[1]; J.H. Samet[1]; S. Schwartz[1]; S.F. Butler[2]; J. Liebschutz[1]. [1]Boston University, Boston, MA; [2]Inflexxion, Inc., Amherst, NH. *(Tracking ID # 205459)*

BACKGROUND: The Current Opioid Misuse Measure (COMM), a self-report assessment of past-month aberrant medication-related behaviors (AMRBs), has been validated in specialty pain management patients. We determined the performance characteristics of the COMM in primary care (PC) patients with chronic pain receiving prescription opioids. We hypothesized that the COMM can identify patients with prescription drug use disorder (PDD) and distinguish them from those with other substance use disorders (SUDs) or no disorder.
METHODS: Subjects were English-speaking patients (ages 18–60) with chronic pain (≥3 months), who received ≥1 opioid analgesic prescription in the past-year and were awaiting PC visits at an urban, safety-net hospital. The Composite International Diagnostic Interview (CIDI) was the "gold standard", defining a DSM-IV diagnosis of past-year PDD and other SUDs. Past-month AMRBs were assessed with the COMM. A receiver operating characteristics (ROC) curve demonstrated the COMM's diagnostic test characteristics.
RESULTS: Of 238 participants, 27 (11%) met DSM-IV PDD criteria, while 17 (7%) had other SUDs, and 194 (82%) had no disorder. The mean COMM score was higher in those with PDD than among all others (i.e., those with other SUDs or no disorder) (mean 20.4 [SD 10.8] vs. 8.4 [SD 7.5]), p<0.0001. Sensitivity and specificity were 80% and 71%, respectively, for a COMM score of ≥12, and 76% and 76% for a score ≥13 for identifying patients with PDD. The area under the ROC curve was 0.84.
CONCLUSION: Among PC patients with chronic pain receiving prescription opioids, the COMM appears to be able to identify patients with PDD and distinguish them from all other patients, including those with other SUDs. For PC physicians treating chronic pain patients prescribed opioids, the COMM may be a promising tool for identifying an often-feared complication, the development of PDD.

IDENTIFYING PRESCRIPTION DRUG USE DISORDER IN PRIMARY CARE CHRONIC PAIN PATIENTS: UTILITY OF DOCUMENTED ABERRANT MEDICATION-RELATED BEHAVIORS E.C. Meltzer[1]; D. Rybin[1]; R. Saitz[1]; J.H. Samet[1]; S.L. Schwartz[1]; S.F. Butler[2]; J.M. Liebschutz[1]. [1]Boston University, Boston, MA; [2]Inflexxion, Inc., Amherst, NH. *(Tracking ID # 205223)*

BACKGROUND: Identifying prescription drug use disorder (PDD) in primary care (PC) patients with chronic pain can be challenging. Although lengthy standardized interviews can be used to diagnose PDD, no clinically useful methods exist to identify patients who might have PDD in PC settings. For patients receiving prescription opioids or benzodiazepines, pain and addiction experts recommend that aberrant medication-related behaviors (AMRBs) be used to identify PDD. Medical record documentation of AMRBs has also been used as a proxy for PDD in research. We sought to evaluate the utility of this approach by comparing the frequency of AMRBs in the electronic medical records (EMRs) of primary care patients with and without PDD.
METHODS: We recruited English-speaking patients (ages 18–60) with chronic pain (≥3 months), who received ≥1 opioid analgesic or benzodiazepine prescription in the past year and were awaiting PC visits at an urban, safety-net hospital. The Composite International Diagnostic Interview defined DSM-IV diagnoses of past-year PDD (with or without other substance use disorder [SUD]), other SUD including alcohol dependence, and no past-year disorder. Each participant's EMR was reviewed for documentation of any one of 15 pre-specified AMRBs typically regarded as indicative of addictive disease (e.g. early refill, asking for medication by name, reporting lost or stolen medications) in the 12 months before and after entry into study. The EMR contained all outpatient, inpatient, and emergency department visits and phone notes. Using Fisher's exact test, frequencies of each AMRB were compared between participants with PDD, other SUD, and no disorder.
RESULTS: Of 264 participants, 32 (12%) met DSM-IV PDD criteria, while 29 (11%) had other SUDs, and 203 (77%) had no disorder. EMR documentation of at least one AMRB was present among 87% of participants with PDD, 83% of those with another SUD, and 84% with no disorder (p=0.87). Few differences in frequencies of individual behaviors were noted between groups, with only three achieving statistical significance. Lost medication was documented more frequently in the EMRs of participants with PDD (PDD=15%, SUD=0, no disorder=5%, p=0.03), as was emergency department or urgent care visit for narcotic pain medication (PDD=22%, SUD=7%, no disorder=7%, p=0.02). A statistically significant difference was also noted for EMR documentation of appearing intoxicated or high. However, this AMRB was more common among participants with other SUDs (PDD=12%, SUD=21%, no disorder=4%, p=0.002).
CONCLUSION: Among primary care patients with chronic pain receiving prescription opioids or benzodiazepines, having at least one AMRB documented in the EMR is common. In addition, although lost medication and an urgent visit for narcotics might suggest prescription drug use disorder, frequencies of most individual behaviors are similar among those with and without PDD. Reliance on EMR documentation of AMRBs to identify prescription drug use disorder in primary care patients with chronic pain is not useful. Brief, valid strategies are needed to help clinicians identify patients with this increasingly prevalent condition.

ILLICIT DRUG USE AND QUALITY OF PATIENT-PROVIDER COMMUNICATION IN HIV CLINICS T. Korthuis[1]; S. Saha[2]; R.D. Moore[3]; J.A. Cohn[4]; V. Sharp[5]; D. Mccarty[1]; M.C. Beach[3]. [1]Oregon Health & Science University, Portland, OR; [2]Portland VA Medical Center, Portland, OR; [3]Johns Hopkins University, Baltimore, MD; [4]Wayne State University, Detroit, MI; [5]St. Luke's-Roosevelt Hospital Center, New York, NY. *(Tracking ID # 204736)*

BACKGROUND: Illicit drug use is prevalent among HIV-infected persons and complicates treatment. Little is known about how substance use affects communication. The objective of this study was to assess the quality of communication among HIV-infected patients with illicit drug use. We hypothesized patients with illicit drug use would have less favorable patient-provider communication.

Table: Association between Illicit Drug Use and Communication Behaviors

	Provider Statements		Patient Statements	
Illicit Drug Use (vs. Never):	Current β (p value)	Former β (p value)	Current β (p value)	Former β (p value)
Rapport building	-.034 (.022)	-.013 (.305)	.017 (.289)	.103 (<.001)
Negative statements	.628 (<.001)	.165 (.185)	.713 (<.001)	.577 (<.001)
Question asking	.134 (<.001)	-.019 (.299)	.232 (<.001)	.095 (.041)
Information giving	.064 (<.001)	-.033 (.003)	.225 (<.001)	.153 (<.001)
Engagement	.071 (.001)	.106 (<.001)	.250 (<.001)	.174 (.001)

METHODS: In 2007, we audio-recorded clinical encounters between 414 HIV-infected patients and 44 providers in 4 HIV clinics participating in the Enhancing Communication and HIV Outcomes study. Patients were surveyed about substance use and provider communication quality after the visit. Patient-rated communication quality was assessed with a validated multi-item measure (scale 1–5). Patient-provider encounters were coded into mutually exclusive communication categories using the Roter Interaction Analysis System. We assessed associations between illicit drug use (current, former, never) measured by the ASI-lite and dependent variables (dialogue duration, patient and provider communication behaviors, patient-rated communication quality) using linear and Poisson regression with generalized estimating equations to adjust for covariates, site, and provider as random effect.
RESULTS: Patients were predominantly male (65%), African American (58%), high school graduates (72%) and 34% had been seeing their HIV provider for more than 5 years. Patients reported current (10%) and former (49%) problem drinking. Dialogue duration was comparable among those with current (24 min, p=.195) and former (24 min, p=.068) vs. no alcohol use (26 min). In multivariate models (Table), providers made fewer rapport building, and more negative, question asking, information giving, and engagement statements to illicit drug users vs. non-users. Illicit drug users made more negative, question asking, information giving and engagement statements to their providers. Drug use was not associated with patient-rated provider communication quality.
CONCLUSION: The quality of patient-provider communication was mixed for HIV-infected patients with illicit drug use. While current illicit drug users received fewer rapport building and more negative statements from their providers, other behaviors, dialogue duration, and patient-rated communication quality were similar to non-users. Understanding the complex nature of communication with substance users could lead to more effective care related to both HIV and illicit drug use for this disadvantaged population.

IMMINENT ADOPTERS OF ELECTRONIC HEALTH RECORDS: DO THINGS GO AS PLANNED? C.A. Jenter[1]; C.S. Soran[2]; L.A. Volk[2]; R. Kaushal[3]; L. Zhou[1]; D.W. Bates[1]; S.R. Simon[4]. [1]Brigham and Women's Hospital, Wellesley, MA; [2]Partners Healthcare, Wellesley, MA; [3]Weill Medical College of Cornell University, New York, NY; [4]Harvard University, Boston, MA. *(Tracking ID # 205095)*

BACKGROUND: To improve the quality and safety of health care, President-elect Obama has called for universal adoption of electronic health records (EHRs) by 2014. At present, 20% to 26% of physicians who are currently paper-based report that they intend to adopt electronic health records in the near future. However, little is known about how the intent to adopt relates to actual adoption.
METHODS: We surveyed a randomly sampled cohort of 1,884 physicians in Massachusetts in 2005 and again in 2007. Each survey assessed whether the physician had an EHR and, if not, whether and when the physician planned to implement an EHR (within the next 12 months, 1–2 years, 3–5 years, or no specific plans). The survey also asked about the physician's office-practice environment and opinions on health information technology. For this analysis, we identified physicians in 2005 who said they planned to adopt EHRs within the next 2 years and used 2007 results to stratify them into those physicians who "planned and adopted" and those who "planned but did not adopt." In bivariate analyses, we examined variables corre-lated with the "planned and adopted" group.
RESULTS: In 2005, 1,345 (71%) physicians responded to the survey, of whom 910 also completed the 2007 survey (adjusted response rate=79%). In 2005, 178 physicians planned to adopt an EHR within 2 years, of whom 92 (52%) adopted an EHR and 86 (48%) did not. Adopters and non-adopters were similar in age (mean 50 vs. 51 years, p=0.3), sex (64% vs. 73% male p=0.258), self-reported race (90% vs. 82% white, p=0.185), and hospital base (11% vs. 17% p=0.28). Among adopters, 52% were primary care physicians, compared to 38% of non-adopters (p=0.07). Those who adopted were more likely to report seeing an average of 60 or more outpatients per week (84%) compared to non-adopters (63%; p=0.003) and were less likely to hold ownership stake in their practices (49% vs. 71%; p=0.003). Among adopters, 88% had e-mail in their practice in 2005, compared with non-adopters (69%; p=0.002). Adopters were more likely than non-adopters to report, in 2005, that EHRs would have a positive effect on quality of health care (94% vs. 82%; p=0.03). Multivariate analysis will address potential confounding.
CONCLUSION: Intention to adopt led to actual EHR adoption about half of the time. Physicians with higher patient volume, a primary care practice, prior experience with technology (e.g., e-mail in the practice), and confidence in the potential for EHRs to improve care were more likely to follow through on their intention to adopt EHRs. Further study of the barriers and facilitators to moving from planned to actual adoption will be essential as the national political agenda plans to direct a significant amount of money toward achieving universal EHR adoption.

IMPACT OF A TARGETED VALUE-BASED INSURANCE DESIGN INTERVENTION ON ADHERENCE TO ESSENTIAL SECONDARY PREVENTION MEDICATIONS IN DIABETES A.B. Rosen[1]; J. Wing[1]; W.H. Herman[1]; D.G. Smith[1]; M.E. Chernew[1]; J.G. Stevenson[1]; A.M. Fendrick[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 206113)*

BACKGROUND: Diabetes affects over 24 million Americans, resulting in substantial morbidity, mortality, and costs. While medications are the cornerstone of secondary prevention, many evidence-based therapies are underutilized, with high out-of-pocket costs an important culprit. Value-based insurance design (VBID) has been proposed to mitigate these effects by linking patient copayments to value: the more beneficial a therapy, the lower the patient's cost-share. While VBID holds much promise—and has garnered substantial attention among payers and in the media—rigorous evaluation is needed to assess its effects in actual practice. The objective of this study was to evaluate the impact of an employer-based intervention of targeted medication copayment reductions on the use of and adherence to secondary prevention therapies among individuals with diabetes.
METHODS: The study employed an interrupted time series with concurrent control group design. The intervention was implemented on July 1, 2006, the 12 months prior to and 12 months following this date correspond to the "Pre" & "Post" periods, respectively. The "intervention" group included 1,777 employees and dependents, of one large employer, who were continuously enrolled in the drug benefit plan and identified as diabetic based on their prior 12 months of pharmacy claims. The "control" group included 3,273 employees and dependents of other firms, who were enrolled in the same managed care plan and met the same enrollment and pharmacy claims criteria as the intervention group. Both groups received an educational letter on the importance of medication adherence, while the intervention group alone received the targeted copayment reductions for antihypertensives, lipid-lowering agents, and glucose-lowering therapies. "Difference-in-difference" estimates were calculated for the intervention's impact on medication use (defined as having at least one fill of that medication in the one year period—pre or post—of interest), and medication adherence (measured as a medication possession ratio—MPR—or the supply of medication filled relative to the amount needed to take as prescribed). Estimates were calculated separately for statins, ACE Inhibitors and angiotensin receptor blockers (ACE/ARBs), and metformin.
RESULTS: Baseline medication use ranged from 52.7% for statins to 65.4% for metformin. In those on the medications, adherence ranged from a mean MPR of 72.0% for metformin to 83.8% for ACE/ARBs. Differences between the intervention and control groups' baseline rates of use and adherence ranged from 1% to 5%, with no consistent direction to these differences. Following implementation of the VBID program, there was a significant increase in the intervention group's use of medications (relative to control group's use) for all drug classes: Metformin use increased by 4.8%, ACE/ARBs by 8.5%, and statins by 9.3% (p<0.001 for all). Relative to controls, the intervention group also had a 7.2% increase in ACE/ARB adherence (p<0.001) and 4.1% increase in statin adherence, although this did not meet statistical significance (p=0.067).
CONCLUSION: To our knowledge, this is the first prospective controlled VBID intervention targeted to high value services for specific high risk patient groups. It demonstrates both feasibility of implementation in a real world setting, and effectiveness in improving both the utilization of and, to a lesser extent, adherence to life-saving therapies among individuals with diabetes and employer-sponsored health care.

IMPACT OF ACCULTURATION AND RELIGIOSITY ON OBESITY RISK AMONG ASIAN INDIAN IMMIGRANTS IN CALIFORNIA, 2004 N. Bharmal[1]; W. Mccarthy[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 204948)*

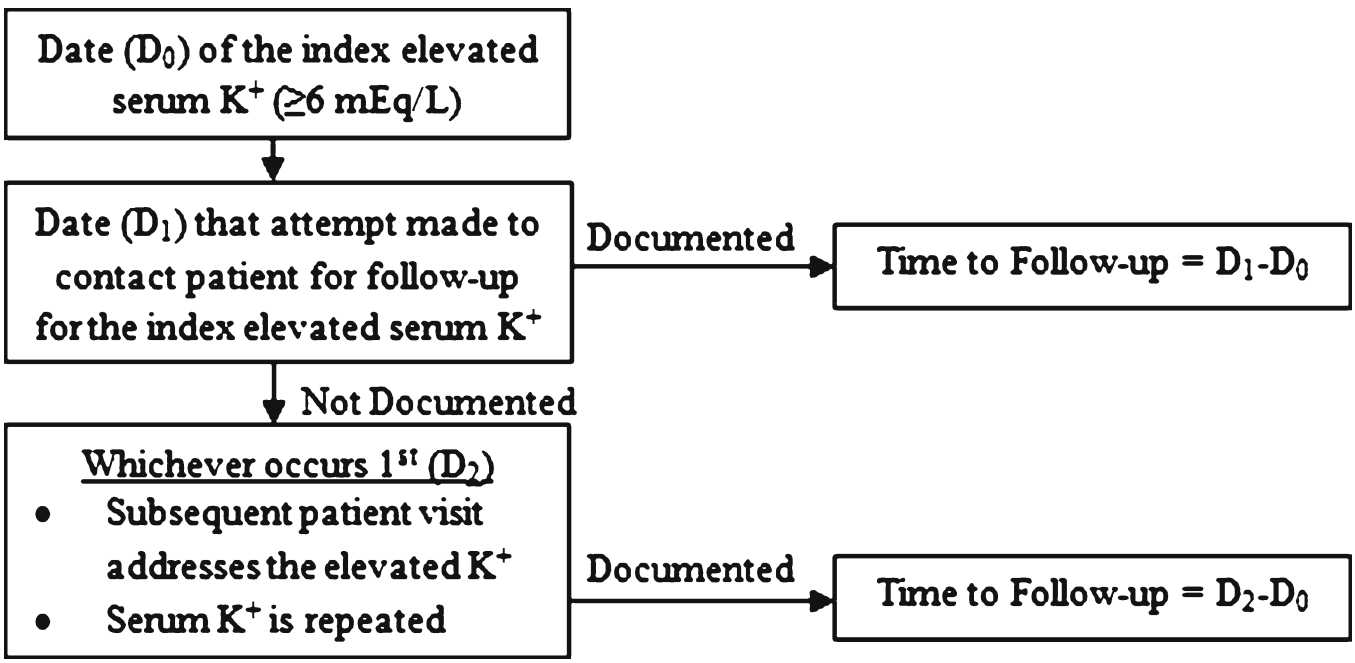
BACKGROUND: The prevalence of obesity has increased substantially in past 30 years. There is little known about the impact of acculturation and its mediators on Asian Indian immigrants, a rapidly growing population in the United States. Our objective was to examine the impact of acculturation and religiosity on obesity risk for a multi-religious group of Asian Indian immigrants.

METHODS: Data collected via 2004 telephone survey, the California Asian Indian Tobacco Survey from a sample of Asian Indians living in California. The acculturation and religiosity composite measures were derived from self-assessed questions. Sample size for immigrants from traditional South Asian religions was 2071.
RESULTS: Asian Indian residents of California have high socioeconomic status. 82% had a bachelor's degree or higher, 61% had a household income greater than $75,000, and 90% had health insurance. 41% of Asian Indians are overweight/obese (body mass index 25). In multivariate logistic regression analysis, Asian Indians had greater odds of being overweight/obese if they were male (p=0.001), married (p=0.001), less educated (p<0.001), uninsured (p=0.031), more acculturated to American culture [p=0.07], and more religious (p=0.001). Religiosity did not impact the effects of acculturation on obesity risk. The impact of religiosity on obesity risk differed among religious subgroups: religiosity was associated with greater odds of being overweight/obese for Hindus (p=0.005), but lesser odds for Muslims (p=0.19), and equivocal for Sikhs (1.1, p=0.7).
CONCLUSION: Despite the high socioeconomic status, Asian Indian immigrants who are more acculturated are at risk for being overweight/obese. Religiosity also impacts obesity risk, and further examination of dietary practices and health behaviors among religious subgroups is warranted. Religious institutions may be a venue for lifestyle interventions.

IMPACT OF AN ELECTRONIC MEDICAL RECORD ON FOLLOW-UP TIME FOR MARKEDLY ELEVATED SERUM POTASSIUM RESULTS
J.J. Lin[1]; C.R. Moore[2]. [1]Mount Sinai School of Medicine, New York, NY; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 204854)*

BACKGROUND: Ensuring that outpatients receive timely follow-up for abnormal test results is a significant patient safety concern. Electronic medical records (EMR) with test results management tools have been suggested as systems methods to improve timely follow-up of abnormal outpatient laboratory results. We sought to investigate the impact of an EMR on follow-up of markedly elevated blood potassium (K+) results in an ambulatory setting.
METHODS: We conducted a retrospective medical record review of all patients seen at a large adult primary care practice between January 2002 and December 2005 (before an EMR was implemented) and between July 2007 and June 2008 (one year after an EMR was implemented) who had at least one non-hemolyzed serum potassium result 6.0 mEq/L. The study outcome was a documented follow-up for an episode of hyperkalemia within 3 days or less (see Figure). We used multivariate logistic regression to adjust for differences in patient and system factors in the two groups.

Figure 1



RESULTS: There were 259 episodes of marked hyperkalemia in the pre-EMR group (among 48,333 total serum potassium results) and 52 episodes in the post-EMR group (among 12,100 total serum potassium results) that satisfied the inclusion criteria. The mean serum K+ result for the index episodes of hyperkalemia was 6.2 mEq/L (SD=0.29). Sixty-three percent of patients were women. The mean patient age was 65 years (SD=14) and 57% were Hispanic, 34% African-American, 5% White, and 4% other. The mean number of chronic medical problems was 2.2 (SD=1.1); 83% of patients had hypertension, 72% of had diabetes, and 18% had congestive heart failure. The only significant difference between the pre- and post-EMR groups was the mean number of medical comorbidities (2.0 vs. 2.9, P<.001). There were no differences in the 2 groups with respect to age, gender, ethnicity, and insurance type. Follow-up for the index episode of hyperkalemia was documented within 3 days in only 55.3% of cases in the pre-EMR group vs. 90.0% (P<.001) in the post-EMR group and the adjusted odds ratio was 6.2 (95% CI: 1.8 to 21.5).
CONCLUSION: An EMR with a test results management tool reduces the time that physicians take to document the follow-up of markedly abnormal laboratory results in the ambulatory setting. Further research is needed to determine if the improvement in documentation that we found represents timelier follow-up of abnormal test results.

IMPACT OF BESIDE BARCODE SCANNING TECHNOLOGY ON MEDICATION ADMINISTRATION ERRORS IN THE HOSPITAL
E.G. Poon[1]; C.A. Keohane[1]; M. Ditmore[1]; T. Moniz[1]; C. Yoon[1]; A. Bane[1]; J. Hayes[1]; A. Whittemore[1]; J. Rothschild[1]; A.B. Kachalia[1]; O. Levtzion-Korach[1]; D.W. Bates[1]; T. Gandhi[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204944)*

BACKGROUND: Serious medication errors are common in the hospital setting, and about one-third of them occur during the nursing administration stage. Barcode scanning technology in conjunction with electronic medication administration record (barcode-eMAR) is becoming more commonly used to prevent these errors, but the effectiveness of this technology remains unclear.
METHODS: We conducted our study in the adult medical, surgical, and intensive care units in a 735-bed tertiary academic medical center that was rolling out barcode-eMAR technology unit by unit over a period of 5 months. We measured over a 7-month period the rate of medication administration errors on units before and after deployment of barcode-eMAR technology to assess the impact of the technology on error rates. To measure the rate of administration errors, trained nursing observers recorded the details of the medications administered by clinical nurses. After the completion of each observation session, the nursing observer compared observed medication administrations against physician

orders, and discrepancies were considered medication administration errors. Each administration error was further reviewed by 2 clinicians to determine the potential of the error to cause patient harm. Medication administration errors with the potential to cause patient harm were classified as potential adverse drug events. (potential ADEs). Late administrations were excluded for the current analysis. The rates of non-late medication administration errors and potential ADEs were compared between medication administrations aided by barcode-eMAR technology against those that were not using the chi-squared test. We extrapolated our findings to estimate the number of non-late administration errors and potential ADEs per year in our hospital.

RESULTS: We observed 14026 medication administrations, of which 6712 (48%) were observed on units before they deployed barcode-eMAR technology, and 7314 (52%) doses were observed on units with barcode-eMAR technology. On non barcode-eMAR units, we observed 784 non-late medication administration errors (error rate=11.7%), while we observed 519 non-late medication administration errors on units with barcode-eMAR (error rate=7.1%), representing a 39% reduction in the rate of non-late medication administration errors ($p<0.0001$). The rate of potential ADEs fell from 3.2% to 1.6%, representing a 49% reduction ($p<0.0001$). Among sub-types of non-late medication administration errors, we observed significant reductions in wrong medication errors, dose errors, and documentation errors. ($p<0.001$ for all 3 subtypes). Significant reductions in non-late medication administration error rates were seen in surgical units (44%, $p<0.0001$) and intensive care units (41%, $p<0.0001$). Reduction in error rate in medical units was more modest (22%, $p=0.05$). Given the study hospital administers approximately 6 million doses of medications per year, barcode-eMAR technology is expected to prevent approximately 270,000 non-late medication administration errors and 95,000 potential ADEs due to these errors every year in the study hospital.

CONCLUSION: Barcode-eMAR technology significantly reduced the incidence of non-late medication administration errors and potential adverse drug events due to these errors. The number of errors that could be prevented by this technology suggests that barcode-eMAR should be considered an important tool for improving medication safety in the inpatient setting.

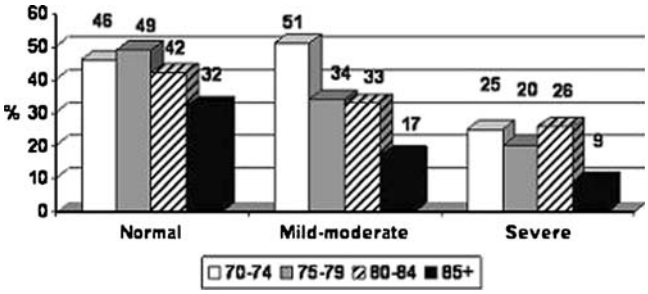
IMPACT OF COGNITIVE IMPAIRMENT ON SCREENING MAMMOGRAPHY USE IN OLDER US WOMEN K. Mehta[1]; K. Fung[2]; C. Kistler[1]; A. Chang[1]; L. Walter[1]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 205765)*

BACKGROUND: Guidelines do not recommend screening mammography in elderly women who have limited life expectancies because the harms outweigh the benefits. However, while cognitive impairment is a strong predictor of decreased life expectancy there are no large-scale studies of screening mammography practices in elderly women according to their cognitive status. Thus our primary objective was to characterize the rates of screening mammography use among elderly women in the U.S. according to age and cognitive status. Our secondary objective was to determine survival and life expectancy estimates for these age and cognitive status groups.

METHODS: Data were derived from the Health and Retirement Study, a population-based representative longitudinal study. We studied the 2,131 women aged 70 years and older at the 2002 wave of the Health and Retirement Study, who did not have a history of breast cancer or breast symptoms. A 35 point standardized cognitive instrument was used to stratify women into 3 groups ranging from normal cognitive function (>20 points) to severe cognitive impairment (<10 points). Our main outcome measure was a receipt of screening mammography based on Medicare claims that occurred from 2000–2002. Vital status was obtained from the National Death Index from 2002–2006.

RESULTS: Rates of screening decreased with worsening cognitive status: 45% for women with normal cognitive status, 33% for women with mild-moderate impairment and 18% for women with severe cognitive impairment, which represented over 120,000 mammograms (p trend<0.001). After adjustment for age, socio-demographics and comorbidity, severe cognitive impairment was associated with 60% less screening compared to women with normal cognitive status. However, certain subgroups of women with severe cognitive impairment, such as married women with net worth greater than $100,000, had screening rates approaching 50%. This is despite the fact that women with severe cognitive impairment have an average life expectancy of 3.3 years (95% CI 2.8–3.7).

CONCLUSION: While elderly women with severe cognitive impairment have lower screening mammography rates than those with normal cognition, wealthier married women with severe cognitive impairment are often screened when they are unlikely to benefit. Guidelines should explicitly recommend against screening elderly women with severe cognitive impairment given their limited life expectancies.



Screening Mammography Rates according to Cognitive status and Age in Older US Women

IMPACT OF ELECTRONIC PRESCRIBING IN COMMUNITY-BASED PRACTICES ON POTENTIAL DRUG-DRUG INTERACTIONS M.A. Fischer[1]; M. Stedman[2]; J. Lii[2]; R. Kaushal[3]; J. Weissman[4]. [1]Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Weill Medical College of Cornell University, New York, NY; [4]Institute for Health Policy and Department of Medicine, Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205745)*

BACKGROUND: Healthcare information technology (HIT) has been proposed as a solution to the current crisis in patient safety, but evidence that HIT systems can deliver on the promise of improved patient safety in the outpatient setting is lacking. Electronic prescribing (eRx) can identify potential harmful medication decisions and offer warnings at the point of prescribing. If these systems are effective, then patients may be less likely to receive medications that could have a harmful drug-drug interaction (DDI). In April 2004 two large Massachusetts insurers began providing eRx systems to community-based practices. This study compares rates of potential DDIs for prescriptions written by prescribers using a stand-alone eRx system to controls not using the eRx system.

METHODS: We conducted a pre-post study with concurrent controls, using 18 months (Oct 1, 2003 -March 31, 2005) of administrative data, with the first 6 months serving as baseline (pre-intervention). The intervention group included over 1,000 physicians who used the eRx system. Physicians who never used the eRx system were controls. We used the pharmacy claims to identify the date dispensed and quantity supplied for each prescription and specify the dates covered by each prescription. When the time periods covered by two prescriptions overlapped, we identified a "co-exposure pair." These pairs served as the unit of analysis. We checked each drug pairing for whether it was classified as a potential "Major" DDI in the commercial database used in the eRx system studied. We compared the rates of potential "Major" DDIs for medications prescribed by clinicians who ever used the eRx system compared to medications written by control prescribers.

RESULTS: We studied over 15,000 community based clinicians prescribing for over 1 million outpatients, who filled 12.8 million prescriptions during the study period. During the study period, among clinicians who ever used the eRx system, there were potential Major DDIs for 1.06% of all co-exposure pairs, compared to a rate of 1.35% in the control population. In the baseline period the rate of potential Major DDIs was 1.07% for prescriptions issued by prescribers who ever used the eRx system and 1.38% for controls.

CONCLUSION: Although the rate of potential Major DDIs was lower for prescriptions issued by clinicians who adopted the eRx system than among controls, the rates were similarly lower in the period before

beginning eRx. These findings do not suggest that eRx prevented Major DDIs that would otherwise have occurred. There were large differences in the rates of potential DDIs between the eRx and control groups, these may reflect underlying differences between clinicians who choose to e-prescribe and those who do not. Even so, there was no change in the outcome rate after eRx began. It is possible that many potential Major DDIs are identified and averted by pharmacists at the point of dispensing. In this circumstance, the ability of the eRx system to prevent prescribing of potentially dangerous medications would create gains in efficiency in the pharmacy and physician office by avoiding callbacks and delays, rather than actual gains in safety outcomes. Although such efficiency improvements could be important, they do not represent the promised safety gains from e-prescribing. Further study of the mechanism by which eRx systems can avoid potentially dangerous medication use will be needed if the safety promise of eRx is to be demonstrated in the outpatient setting.

IMPACT OF LIMITED ENGLISH PROFICIENCY AND PHYSICIAN LANGUAGE CONCORDANCE ON PATIENT REPORTS OF CLINICIAN-PATIENT INTERACTIONS Y. Schenker[1]; A.J. Karter[2]; D. Schillinger[1]; E.M. Warton[2]; N.E. Adler[1]; H.H. Moffet[2]; A.T. Ahmed[2]; A. Fernandez[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Kaiser Permanente Division of Research, Oakland, CA. *(Tracking ID # 203762)*

BACKGROUND: Health plans have noted that patients with limited English proficiency (LEP) are less satisfied with their health care than English-speaking patients. Whether having a language concordant physician changes the association of LEP with patient-centered outcomes is not known.
METHODS: Cross-sectional study in 17,038 survey respondents with diabetes, all members of Kaiser Permanente Northern California health plan. Surveys were administered in 2005–6 and offered in five languages (English, Spanish, Cantonese, Mandarin, and Tagolog) via written questionnaire, web-based, or telephone interview. Patient responses to survey data were used to define patient primary language (LEP vs English-speaking) and physician-patient language concordance. The quality of clinician-patient interactions was measured by asking 12 questions about involvement in decisions, physician understanding, trust, putting medical needs above other considerations, listening, explaining, respect, time spent with patients, and global experiences of discrimination because of race, education, sex or language. Responses ranged from 1 (never) to 4 (always) on a Likert frequency scale; poor interaction was defined as a score of 3. We first evaluated the independent association of patient primary language (LEP vs English-speaking) with clinician-patient interactions using GEE models to isolate language from demographic (age, sex, race, education and income) and clinical (comorbidities and depression) variables while accounting for clustering by physician. We then reran the analysis after grouping LEP patients by physician language concordance.
RESULTS: The study included 15,766 English-speakers and 1272 LEP patients. Thirty-six percent (N=459) of LEP patients answered the question on physician language skills; of these, 266 were language concordant and 193 were language discordant. In fully adjusted analysis, LEP patients were more likely than English-speakers to report poor clinician-patient interactions on 4 out of 12 items (physician understanding and global experiences of discrimination because of race, education or language). In models grouping LEP patients by language concordance and accounting for missing variables, language concordant LEP patients were more likely than English speakers to report poor clinician-patient interactions on only one item (global experiences of discrimination because of language). In contrast, language discordant LEP patients were more likely than English speakers to report poor clinician-patient interactions on 6 out of 12 items (physician understanding, putting medical needs above other considerations, explaining, respect, and global experiences of discrimination because of race or language).
CONCLUSION: Despite uniform access to care, patients with diabetes and limited English proficiency more often report poor clinician-patient interactions, with physician-patient language discordance being the primary driver of these associations. Language concordance is an important factor to consider when interpreting patient satisfaction data. The provision of language concordant physicians represents a promising target for reducing disparities in clinician-patient interactions.

IMPACT OF MEDICATION REFILL VISITS AT A LOS ANGELES COUNTY ED AND URGENT CARE CLINIC C. Rooke[1]; M. Richman[2]. [1]University of California, Los Angeles, Sylmar, CA; [2]UCLA-Olive View, Los Angeles, CA. *(Tracking ID # 205356)*

BACKGROUND: Patients seeking care at public hospitals frequently have difficulty obtaining primary care, including the renewal of medication prescriptions ("medication refills"). These patients often have poorly-treated health conditions, low health literacy, and socio-economic barriers to obtaining timely refills. Patients may obtain refills from sources of unscheduled care (Emergency Departments (ED) or Urgent Care Clinics). This study describes visits for medication refills from both the ED and Medical Walk-In (MWI) Clinic at Olive View-UCLA Medical Center (OVMC).
METHODS: Data were collected retrospectively from an electronic patient tracking system at OVMC in Los Angeles County. Included were all ED and MWI visits for "medication refill" between January 2006 and June 2008. Subjects with missing or incorrect data were not included in analyses of the affected variables.
RESULTS: Since 2006, medication refills have comprised a steady 1.5% of ED visits. By contrast, they accounted for 7.5% of MWI visits in 2006 and 10% of MWI visits in 2008, a 33% increase. Patients wait an average 5.5 hours (MWI) to 7 hours (ED) per medication refill visit (from triage to receipt of prescription). The percentage of hospitalizations resulting from medication refill visits is increasing. In 2008, 7% of patients seeking medication refills from the ED were hospitalized, nearly three times the percentage in 2006. By contrast, hospitalizations resulting from non-medication-related ED visits has remained constant (22%). Compared to the overall Olive View demographics, those seeking medication refills tend to be White (accounting for 24% of medication refills but only 17% of the total population), working-age (92% of refills; 78% of population), and male (57% of refills; 41% of population). Patients seeking medication refills are commonly affected by chronic medical conditions: diabetes, hypertension, and neurologic conditions (e.g. epilepsy) account for over 50% of refill visits. Many patients seek medication refills multiple times per year, accounting for over a third of all refill visits.
CONCLUSION: This is the first comprehensive retrospective evaluation of medication refill visits among patients presenting for unscheduled care. Our results indicate that Olive View's ED and MWI are important venues for medication refills and are used disproportionately by working-age men. Both the absolute number of refill visits and the frequency with which these patients are hospitalized are increasing rapidly. Patients spend roughly 15,000 man-hours annually waiting for refills. We theorize that patients use these venues for medication refills for several reasons. Employment constraints may cause working-age men to miss primary care appointments. Limited clinic capacity results in long waits for appointments, and patients may run out of medications between visits. Finally, patients with chronic medical conditions often require multiple medications with multiple refill deadlines. In these cases, unscheduled venues fill the gap for medication refills. Long wait times at the ED and MWI may discourage patients from seeking an unscheduled care visit for a medication refill until their chronic diseases become symptomatic. Thus, they may be more likely to require hospital admission than if they had accessed medication refills in a timely manner. Future studies will investigate these hypotheses and direct interventions to alleviate the burden of medication refill visits on unscheduled care.

IMPACT OF RESIDENT PHYSICIAN WELL-BEING ON ASSESSMENTS OF CLINICAL TEACHERS T.J. Beckman[1]; C.P. West[1]; D.A. Reed[2]; T. Shanafelt[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo Clinic College of Medicine, Rochester, MN. *(Tracking ID # 205379)*

BACKGROUND: National surveys of department of medicine chairpersons have revealed that teaching effectiveness is an important criterion

for promoting clinician-educators. Teaching assessments should reflect teaching ability, but other factors may influence learners ratings of teachers. For example, previous research has demonstrated that females receive lower teaching assessment scores than males and that assessment scores vary among medical specialties, likely because of differences between learning environments as opposed to teacher-related factors. Other studies have shown that resident physicians well-being relates to their attitudes towards patients and the quality of care that they provide. Therefore, we sought to determine whether resident well being, as measured by standardized instruments, correlates with residents assessments of teachers.

METHODS: We studied 1191 monthly assessments of 356 faculty members by 209 internal medicine residents in August 2007, February 2008, and August 2008. Resident characteristics were obtained from a longitudinal Mayo Clinic survey of resident physician well-being (the Mayo IMWELL Study) that uses standardized instruments measuring multiple domains of well-being. Validity of the 12-item faculty assessment scale was supported by previous factor analytic studies showing excellent internal consistency and interrater reliability and that items grouped into interpersonal and clinical-teaching domains. A repeated measures design, analyzed using multivariate generalized estimating equations, was used to evaluate associations between residents assessments of faculty and residents quality of life, burnout, empathy, fatigue, and depression. The faculty assessment scale was collapsed into an overall faculty score ranging from 1 to 5 and the empathy scale had 140-points. The study sample provided 80% power for a medium-to-small Cohens effect size of 0.3.

RESULTS: A total of 149 residents (71%) provided both well-being and assessment data. In multivariate models, greater empathy as measured by the Jefferson Scale of Physician Empathy was associated with higher evaluation ratings (beta=.0060, 95% CI=.0014-.0106, p=.011). A 10 point increase in empathy score was associated with a 0.06 point increase in residents ratings of faculty. There were no statistically significant associations between faculty assessments and quality of life, burnout, fatigue, or depression. The factor most strongly correlated with residents assessments of faculty was each faculty members average rating for the year preceding the study. Across models, a one point increase in the baseline rating was associated with a 0.65 point increase in the current rating.

CONCLUSION: In this sample, resident physicians well-being did not impact on their assessments of clinical teachers. The strongest predictor of residents assessments of faculty was previous faculty performance. These findings provide evidence for the validity of residents assessments of faculty and support the trustworthiness of residents ratings as criteria for promoting clinical teachers. However, the association between resident empathy and residents assessments of faculty suggests that faculty ratings are influenced by factors external to the teacher. Therefore, the influence of empathy on residents assessments of faculty requires further study.

IMPAIRED EXECUTIVE FUNCTION IS ASSOCIATED WITH DECREASED FUNCTIONAL PERFORMANCE AND ELEVATED INFLAMMATORY BIOMARKERS IN PATIENTS WITH PERIPHERAL ARTERY DISEASE: THE WALKING AND LEG CIRCULATION STUDY II

L.J. Zimmermann[1]; M.M. Mcdermott[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205530)*

BACKGROUND: Both cognitive impairment and PAD are associated with poor functional performance in the elderly, and PAD is associated with cognitive impaiment. There are no studies of the association between cognitive impairment and functional performance in PAD patients. This study determines whether a poorer clock-draw test (CDT) score, a test of executive function, is associated with poorer functional performance among non-demented participants with and without PAD. We also studied whether poorer CDT score is associated with higher levels of circulating inflammatory biomarkers, which would suggest CDT is a marker of severity of systemic arterial disease.

METHODS: Patients age 60 and older were recruited from medical centers in Chicago. PAD participants (n=388) had an ankle brachial index (ABI) <0.90. Non-PAD participants (n=294) had an ABI of 0.90 to 1.30. Patients with clinically-recognized dementia and those with a Mini Mental Status Exam score of <24 were excluded. Comorbidities were verified through medical record review. Functional performance measures included walking velocity measured with a four-meter walk performed at "usual" and "fastest" pace and the short physical performance battery (SPPB) which combines data from the usual-paced four-meter walking velocity, time to rise from a seated position five times, and standing balance. CDT was administered and scored 0–5, 5 best, based on previously-published guidelines. Using multivariate analysis, we investigated the relationship between CDT and the performance measures and CDT and inflammatory biomarkers.

RESULTS: Results are shown in the table and include statistical adjustment for age, sex, gender, education, race, ABI, CVD, cancer, and pulmonary disease. In PAD patients, poorer CDT score was also associated with increased VCAM (p=0.0183)and IL-6 (p=0.018). This association was not significant in non-PAD patients.

CONCLUSION: Poorer executive function is associated with poorer functional performance in PAD and non-PAD patients. Within PAD patients, poorer executive function is also associated with higher levels of circulating inflammatory biomarkers, suggesting a unique and likely vascular mechanism of cognitive impairment.

Adjusted associations of clock draw test score with functional performance measures among participants with and without PAD

Clock Draw Score Categories	Entire Cohort	PAD Patients	Non-PAD Patients
Four Meter Normal Pace		Velocity(meters/sec)	
Score 0--2	0.79(0.027)	0.77(0.032)	0.80(0.053)
Score 3	0.86(0.013)	0.82(0.017)	0.92(0.021)
Score 4--5	0.90(0.009)	0.86(0.012)	0.96(0.013)
P-trend	0.0001	0.0062	0.013
Four Meter Fast Pace			
Score 0--2	1.09(0.037)	1.46(0.044)	1.13(0.072)
Score 3	1.18(0.018)	1.13(0.024)	1.25(0.028)
Score 4--5	1.24(0.012)	1.18(0.017)	1.30(0.018)
P-trend	0.0003	0.0118	0.0393
SPPB		Score (0--12, 12 best)	
Score 0--2	7.98(0.383)	7.92(0.486)	7.53(0.656)
Score 3	9.36(0.191)	8.90(0.262)	9.95(0.281)
Score 4--5	9.78(0.127)	9.36(0.180)	10.34(0.179)
P-trend	<.0001	0.0172	0.003

IMPLEMENTATION OF GERIATRICS CONSULTANTS' RECOMMENDATIONS ABOUT PATIENTS HOSPITALIZED ON A GENERAL MEDICINE SERVICE

M. Homsi[1]; A.J. Perkins[1]; V. Lamar[2]; S. Munger[2]; B. Fultz[2]; C.M. Callahan[1]; E. Bowman[3]; M. Weiner[1]. [1]Indiana University Center for Aging Research, Indianapolis, IN; [2]Regenstrief Institute, Indianapolis, IN; [3]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 205951)*

BACKGROUND: Although consultants' medical recommendations are often essential for the best care and outcomes, about half of consultants' recommendations are not implemented. Reasons for lack of implementation include deficiencies in knowledge, differences of opinion, time constraints, and numerous gaps in communication. In a 12-month prospective observational study on a general medicine service, we sought to identify determinants of implementation of recommendations. We hypothesized that personal contact between teams and facilitation of recommendations would be associated with implementation.

METHODS: In an urban, academic, public hospital, a geriatrics team provided consultation services, leading to recommendations or direct facilitation of recommendations. Facilitation, for example, was offered for discharge planning and psychosocial issues. For 12 consecutive months, we prospectively collected data about all geriatrics consultations conducted by the team. Medical records were reviewed to assess characteristics about patients and providers, types of recommendations, and frequency of implementation. Type of communication between primary team and geriatrics team was documented. To determine associations between individual factors and implementation, the t-test was used for continuous variables, and chi square analysis was used for categorical variables. Multivariate logistic regression analysis was then used to identify factors independently associated with implementation.

RESULTS: We assessed 6560 recommendations from 651 hospital admissions among 557 patients. Mean age±standard deviation was 78±8 years; 71% were women. The mean length of stay was 6±6 days. The mean number of recommendations per admission was 10±5; 58% were related to the acute illness. Of all recommendations, 3877 (59%) were implemented. Implementation varied widely among type of recommendation and was higher when recommendations were facilitated by consultants (e.g., 79% for counseling or related services), compared to when they were not facilitated (e.g., 31% for prevention or community services). Implementation was also higher when recommendations were related to acute illness (64% vs. 53%; p<0.001), were made early in hospitalization (65% for recommendations made at least 6 days before discharge, vs. 47% for those made on day of discharge; p< 0.001 across all 5 categories), or were made in person (83%, vs. 54% for only handwritten notes; p<0.001 across all 5 categories). In multivariate analysis, higher implementation was found if recommendations were facilitated (OR 11.1 [95% CI: 1.87,66.4] for counseling, compared to prevention), were related to acute illness (OR 1.44 [95% CI: 1.26,1.64] compared to recommendations unrelated to acute illness), were made six or more days before discharge (OR 0.61 [95% CI: 0.42,0.88] for recommendations made one day before discharge), or were made in person (OR 0.22 [95% CI: 0.06,0.78] if only handwritten).
CONCLUSION: Less than two-thirds of geriatrics recommendations were implemented. Direct communication and facilitation by consultants were associated with higher implementation. Recommendations related to the acute illness rather than non-acute issues were also more likely to be implemented. More systematic approaches to facilitating implementation of recommendations could lead to improved quality of care.

IMPLICIT RACIAL BIAS AMONG CLINICIANS, COMMUNICATION BEHAVIORS, AND PATIENT AND CLINICIAN RATINGS OF INTERPERSONAL CARE L.A. Cooper[1]; D. Roter[1]; M.C. Beach[1]; J. Sabin[2]; K.A. Carson[1]; A.G. Greenwald[2]; T.S. Inui[3]. [1]Johns Hopkins University, Baltimore, MD; [2]University of Washington, Seattle, WA; [3]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 205348)*

BACKGROUND: African Americans, who are commonly in race-discordant relationships with physicians, report less satisfaction and participation and have shorter visits with less positive emotional tone. The role of implicit racial bias among physicians in healthcare disparities is poorly understood.
METHODS: We conducted a cross-sectional study of 39 primary care clinicians and 213 of their African American adult patients from 17 urban, community-based practices. Clinicians were asked to complete an online survey which included the Race Implicit Association Test (IAT), a widely used indirect measure of implicit racial bias, and a newer IAT geared towards measuring implicit racial bias in the medical context. Following audio-recorded patient-clinician encounters, patients and clinicians completed post-visit surveys that included ratings of the interpersonal process of care. We used linear and logistic regression with generalized estimating equations to assess the associations of clinicians' implicit attitudes about race with clinician and patient communication behaviors (as measured by the Roter Interaction Analysis System), and patient and clinician ratings of care.
RESULTS: Clinicians had a mean age of 44.1 years and 13.5 years of experience; 64% were women, 49% white, and 21% African-American. The average score on the race IAT (D1) and the race medical compliance IAT (D2) were 0.28 and 0.29, respectively. Implicit bias favoring whites (D1) is associated with more clinician negative affect (beta=0.23, p= 0.028), less patient positive affect (beta=-0.28, p=0.032), and lower odds of the patient perceiving respect (OR=0.24, p<0.001), recommending the clinician (OR=0.32, p=0.005), and liking the clinician (OR= 0.22, p<0.001). More pro-white compliance bias (D2) is associated with longer visits (beta=1.28 minutes, p=0.043), less patient-centeredness (beta=-3.12, p=0.004), higher clinician reports of liking the patient (OR=4.43, p=0.018) and perceiving patient trust (OR=3.41, p=0.012), but lower odds of patient satisfaction (OR=0.49, p=0.05), perception of respect (OR=0.48, p=0.026), and of the clinician asking them to help make decisions (OR=0.20, p=<0.001).
CONCLUSION: Primary care clinicians in this study display implicit attitudes about race that are similar to those measured in large samples of society. Implicit bias favoring whites and the association of white race with medical compliance are associated with more negative clinician and patient emotional tone, less patient-centered interviews, and poorer ratings of interpersonal care and satisfaction with clinicians by African-American patients.

IMPROVEMENT PROGRAM TO SHORTEN DOOR-TO-BALLOON TIME IN A LARGE PUBLIC HOSPITAL: IMPACT ON ENGLISH AND NON-ENGLISH SPEAKING PATIENTS M.I. Pascual[1]; Y. Rodriguez[2]; A. Ferreira[3]; D. Seo[3]; W. O'Neill[3]; A. Heldman[3]. [1]University of Miami, Coral Gables, FL; [2]Miller School of Medicine at the University of Miami, Miami, FL; [3]University of Miami, Miami, FL. *(Tracking ID # 204108)*

BACKGROUND: Access to optimal treatment for acute myocardial infarction is one of the health care disparities affecting ethnic minorities. Language barrier between patients and providers may delay treatment, prolonging the door-to-balloon time (D2B) for primary angioplasty. We developed a process improvement plan to reduce D2B times for patients with ST elevation myocardial infarctions (STEMI) in a large urban public hospital with a large Hispanic population. The plan incorporated pre-hospital diagnosis and triage, and abbreviated Emergency Department (ED) and Catheterization Laboratory procedures. We investigated the impact of those measures on time to angioplasty for English and non-English speaking patients
METHODS: Patients with acute STEMI treated by primary coronary intervention were identified according to catheterization records from May 2006 to March 2008. A retrospective chart review was performed. Group I included those treated prior to the implementation of the improvement plan, June 1, 2007. Group II included those treated after the initiative. D2B time was analyzed according to the patient's primary spoken language (English vs. non-English.)
RESULTS: Group I included 33 patients (11 English speakers and 22 non-English speakers.) Prior to implementation of the improvement plan there was a statistically significant difference in D2B time between English speakers (mean D2B time 136.6 [+/- 48.5] minutes) and non-English speakers (224.7 [+/- 140.3] minutes); (p=0.05). Group II included 29 patients (20 English speakers and 9 non-English speakers.) After the improvement plan the mean D2B had decreased to 84.5 [+/- 38.9] minutes for English speakers, and 97.2 [+/-49.2] for non-English speakers (p=0.46, NS), thus eliminating the previously observed disparity. The percentage of non-English speaking patients having D2B in less than 90 min increased from 9% to 63.2%.
CONCLUSION: A STEMI process improvement reduced D2B times for English and non-English speakers. The process improvement system to shorten D2B time eliminated language-associated disparities in time to treatment.

IMPROVEMENTS IN FIBROMYALGIA SYMPTOMS ARE SUSTAINED FOR 1 YEAR WITH MILNACIPRAN TREATMENT: RESULTS FROM A DOSE-CONTROLLED, EXTENSION STUDY P. Mease[1]; R.H. Palmer[2]; S. Rao[3]; R. Zablocki[3]; P. Qu[2]; M. Trifilo[2]. [1]Seattle Rheumatology Associates and Swedish Medical Center, Seattle, WA; [2]Forest Research Institute, Jersey City, NJ; [3]Cypress Bioscience, Inc., San Diego, CA. *(Tracking ID # 205497)*

BACKGROUND: A double-blind extension study assessing the long-term safety and efficacy of milnacipran for up to 1 year in the treatment of fibromyalgia (FM) was available to patients completing the Phase III pivotal lead-in study. The objectives of this extension study were to evaluate the durability of milnacipran's efficacy in patients who completed the lead-in study; to assess efficacy of milnacipran in patients crossing over from placebo to active treatment during the transition from the lead-in study; and to collect additional information on the safety and efficacy of long-term exposure to milnacipran.
METHODS: A total of 449 FM patients successfully completing the lead-in study were enrolled in the extension study. All participants in the extension study were maintained on milnacipran 200 mg/day (n=209) or re-randomized to receive milnacipran 100 mg/day (n=48) or

200 mg/day (n=192) for an additional 28 weeks (2-week dose-escalation period followed by 26-weeks of stable-dose) in a blinded fashion. Patients were assessed at Weeks 8, 14, 20, and 28. Efficacy measures included the change in mean scores (from lead-in or extension study baseline) on 24-hour and weekly recall pain measured by 10 cm visual analog scale (VAS), change in Fibromyalgia Impact Questionnaire (FIQ) total score and item subscores, and Patient Global Impression of Change (PGIC).

RESULTS: The groups receiving continuous 12-month treatment with milnacipran 100 or 200 mg/day demonstrated persistent drug efficacy over the entire study period, with mean improvements from lead-in study baseline of 39% to 46% in 24-hour recall pain scores and 41% to 47% in weekly recall pain scores. In those patients, the final observed 24-hour and weekly recall pain scores remained within 2% of extension study baseline scores. The continuing treatment cohort also demonstrated improvements on the PGIC and sustained drug efficacy over 12 months on the pain, stiffness, tiredness, and depressed mood items of the FIQ. Patients who received milnacipran 100 mg/day and were re-randomized to milnacipran 200 mg/day demonstrated a reduction in pain scores during the extension trial period. Patients re-randomized from placebo to milnacipran 200 mg/day had a 22% improvement from extension study baseline in their mean 24-hour and weekly recall pain scores. The patient cohort switching from placebo to milnacipran 200 mg/day also experienced quantitative improvements from extension study baseline by Week 8 in mean VAS scores in the following FIQ items: pain (40%), stiffness (32%), tiredness (22%), and depressed mood (44%). Milnacipran treatment was generally well tolerated. The most commonly reported newly-emergent adverse event was nausea (100 mg/day, 18.8%; 200 mg/day, 17.5%).

CONCLUSION: These data indicate that milnacipran sustains 1-year durable efficacy in this patient population, confirming results from the lead-in study that milnacipran safely and effectively improves the multidimensional symptoms of fibromyalgia. In addition, patients who received placebo in the lead-in study showed improvements in fibromyalgia symptoms when switched to milnacipran.

IMPROVING ADHERENCE TO CARDIOVASCULAR MEDICATIONS: DEPEND ON THE DOCTORS? S.L. Cutrona[1]; N.K. Choudhry[2]; M. Stedman[3]; A. Servi[3]; J.N. Liberman[4]; M.A. Fischer[2]; M.A. Brookhart[3]; W.H. Shrank[5]. [1]Harvard Medical School, Sharon, MA; [2]Brigham and Women's Hospital, Harvard Medical School, Boston, MA; [3]Brigham and Women's Hospital, Boston, MA; [4]CVS Caremark, Hunt Valley, MD; [5]Society of General Internal Medicine, Boston, MA. *(Tracking ID # 205353)*

BACKGROUND: Medications for the prevention and treatment of cardiovascular disease reduce mortality and morbidity yet adherence is often inadequate. Numerous interventions to improve medication adherence have been tested. While some approaches emphasize the importance of physician involvement, there is limited evidence to support the role of the physician in adherence interventions. Our objective was to evaluate the effect of physician involvement on adherence outcomes via a systematic review of published results of medication adherence interventions.

METHODS: We systematically searched English-language peer-reviewed publications in MEDLINE and EMBASE from 1966 through 11/1/2008. Articles were selected if they examined a randomized controlled trial to improve adherence to medications used for preventing or treating cardiovascular disease or diabetes and included medication adherence as an outcome. We extracted variables related to the study design, setting, participants, medication adherence outcome, methodologic quality, and clinical outcome. A meta-analysis was performed to determine aggregate Cohen's D effect sizes (ES). Articles were classified as either (1) physician "active" - the physician participated in designing or implementing the intervention; (2) physician "passive" - physicians treating the intervention group received different information about their patients than physicians treating the control group; or (3) "physician uninvolved" in the intervention.

RESULTS: We identified 6550 articles, of which 163 articles were reviewed in full and 108 articles met inclusion criteria. Most studies gathered data on adherence either through pill count (manual or electronic pill bottle) or self-report. Thirty articles involved the physician (21 (70%) with a "passive" intervention, and 9 (30%) with an "active" intervention) and 78 did not. "Passive" interventions predominantly transmitted data on adherence and clinical outcomes to physicians by either nurses or pharmacists. "Active" physician involvement studies were often characterized by moderate time investment on the part of the physician (examples include physicians attending intensive seminars on hypertension; increased frequency of physician follow-up appointments; physicians delivering educational lectures to patients). While the majority of all published study types showed improved adherence, a lower percentage of physician-involved interventions improved adherence (66.0% success in "active" studies and 61.9% success in "passive" studies) compared to physician uninvolved (84.1%). Among multifaceted interventions, the magnitude of the effect of interventions in which physicians played an active role was less (ES 0.16; 95% C.I. 0.11 – 0.21) than interventions in which physicians were not the major target, ("passive role" – ES 0.33; 95% C.I. 0.25 – 0.42) or interventions in which physicians were uninvolved (ES 0.48; 95% C.I. 0.40 – 0.56).

CONCLUSION: Continued efforts are needed to improve adherence to cardiovascular medications. When resources are scarce, interventions that target physicians may not be the most effective or cost-effective approach. Future research needs to design and test more effective physician-based interventions.

IMPROVING MEDICAL TRAINING FOR THE CARE OF CHRONIC CONDITIONS S. Kirsh[1]; D. Aron[1]; R. Lawrence[1]. [1]Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH. *(Tracking ID # 204578)*

BACKGROUND: While medical training has increasingly included chronic care management, quality care necessitates education approaches that go farther. Shared medical appointments (SMAs), which are associated with sustained improved clinical outcomes, offer an important opportunity for training physicians and have been mandated by the Veteran's Health Administration nationally. In order to equip physicians with needed resources to manage chronic care, it is important to examine the ways in which SMA experiences are processed and integrated into learning about interdisciplinary approaches and expanding trainees' understanding of chronic care issues. This pilot project included using a think-aloud protocol to evaluate and validate new survey items and scales that assess interdisciplinary team and chronic care/diabetes beliefs. In addition, this protocol was used to evaluate direct observation coding tools. We sought to evaluate the impact of SMAs on residents' and medical students' confidence, attitudes, comfort and beliefs regarding chronic care issues and management of diabetes compared to other ambulatory training experiences. To assess the feasibility of using direct observation to measure and compare time utilization and diabetes management issues.

METHODS: Pre-post design with trainees completing structured questionnaires. In-depth post-only interviews, using the think-aloud protocol to evaluate new items, were randomly conducted with a sample from each group. This method asked participants to dialogue about what they were thinking, focusing on, feeling and doing internally as they read the items and responded.

RESULTS: On average, trainees in the intervention group observed/participated in 3.4 SMAS for patients with diabetes and 7.0 for other types of health conditions. The comparison sites did not conduct shared medical appointments that included simultaneous involvement of multiple disciplines and patients in a group setting at one time. Of the four sets of items to assess impact on interdisciplinary teamwork perceptions, significant differences were found on only one set: change scores were significantly different for the two groups on the three-item scale assessing confidence in ability to perform teamwork related aspects of care. In addition, the groups significantly differed in the predicted direction on only one of the five subscales from the Diabetes Attitude Scale: seriousness of type 2 diabetes. The intervention group's mean level increased (mean change of -.88) while the comparison group's decreased (mean change of 1.12). There were no significant differences on any of the items assessing beliefs about importance and comfort with utilizing skills related to chronic illness management, and no meaningful differences on items assessing changes in beliefs about barriers patients face. Results from the think-aloud method suggested that several items were vague, and

thoughts/reactions to several items about patients challenges and teamwork brought up the theme of 'it all depends' (e.g., on the stage of the disease).
CONCLUSION: Given the VA's commitment to both high quality care and education, understanding ways to improve chronic disease management is essential. In particular, SMAs must be considered as a means to link quality training to quality care. This pilot study helped identify conceptual areas where additional/other measures are needed. Further research to evaluate these links for chronic conditions is needed.

IMPROVING SCREENING COLONOSCOPY RATES IN UNDERSERVED POPULATION - NAVIGATOR INTERVENTIONS S. Percac-Lima[1]; R.W. Grant[2]; A. Green[2]; J.M. Ashburner[2]; G.B. Gamba[1]; S. Oo[1]; J.M. Richter[2]; S.J. Atlas[2]. [1]Massachusetts General Hospital, Chelsea, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205268)*

BACKGROUND: Despite evidence that reductions in colorectal cancer (CRC) morbidity and mortality can be achieved through early detection and treatment, CRC screening rates are relatively low, particularly for low-income and racial and ethnic minorities. We have previously found that a culturally-tailored, multi-faceted CRC screening navigator program increased overall CRC screening, especially colonoscopy rates. In this follow-up analysis, our objective was to determine which components of the navigator intervention had the greatest impact on successful colonoscopy screening.
METHODS: Among patients within the intervention arm of a randomized controlled trial of a CRC screening navigator program, we compared the nature of the navigator intervention among patients that completed screening colonoscopy vs. those that did not. The study was conducted at a single academic community health center serving a low-income, ethnically diverse urban population. Patients were eligible for analysis if they were 52 to 79 years old, were overdue for CRC screening and had contact with the navigator during the 9 month study period.
RESULTS: Among 302 patients contacted by the CRC screening navigator during the study period, 83 (27.5%) had a screening colonoscopy. Patients completing screening averaged 4.3 contacts/person with the navigator, while those not completing screening averaged 2.7 contacts/person. Although initial navigator contact was by phone, patients completing screening were more likely to be contacted in person than patients not completing screening (48.8% vs. 34.9%, p= 0.04). All interventions were more common in patients completing screening vs. those not completing screening: patient education about CRC screening (70% vs. 53%, p=0.01), scheduling an appointment with the patient's PCP or gastroenterologist (49% vs. 12%, p<0.001), reminding the patient about the appointment (90% vs. 17%, p<0.001), translating or interpreting for non-English speakers (32% vs. 13%, p<0.001), helping to prepare the patient for the procedure (62% vs. 20%, p<0.001), and arranging transportation (43% vs. 14%, p<0.001).
CONCLUSION: Frequent contact, often in person, was associated with higher screening rates among patients in a CRC navigator program. Active participation in coordinating care was more likely to be associated with completing a screening colonoscopy than simply educating the patient.

IMPROVING SIGN-OUT PRACTICES AMONG MEDICINE HOUSESTAFF B. Gakhar[1]; A.L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204760)*

BACKGROUND: Sign-out (S/O) between physicians is a key process in the care of hospitalized patients. Incomplete S/O may adversely affect clinical outcomes. Our aims were to evaluate medical interns' S/O skills; develop and implement a S/O curriculum; and evaluate S/O skills after curricular implementation.
METHODS: Our S/O skills assessment consisted of multiple components. First, we designed a 26- item survey to assess the interns' satisfaction, level of training and comfort with current S/O practices. We then assessed verbal S/O skills by grading interns (n=14) during S/O rounds. We observed each intern "S/O" 4–8 patients for a total of 100 observations. Interns were graded using a 7-item checklist of important S/O components based on the Yale "S/O" mnemonic, as described in Table 1. We calculated the percentage of times that each of these components was addressed during S/O. Written S/O sheets were assessed for completeness using an 8-item checklist including: patient identification, attending, code status, problem list, medications, allergies, tasks, and legibility. Finally, we validated the S/O sheets for 28 randomly selected patients by reviewing their charts to verify if documented items were accurate as described in Table 2. Results from the pre-curricular assessment guided our development of a curriculum which included didactic and experiential components. The didactic portion reviewed the importance of proper S/O. This was followed by small-group practice sessions conducted by chief residents where interns "signed-out" patients and received feedback on their S/O skills. A post-curriculum evaluation to assess its impact on S/O skills was conducted 2 months later using the same methodolgy. Verbal S/O skills were assessed for 12 interns for a total of 61 observations, written S/O sheets were assessed for completeness for 74 observations, and validity of the written S/O sheets was assessed for 28 patient S/Os. Pre- and post-curriculum evaluation data were compared using chi-square analysis.
RESULTS: Interns demonstrated significant improvement in their verbal and written S/O skills after the curricular intervention. Results of pre- and post-curricular verbal S/O skills and validity of written S/O skills are described in Table 1 and 2 respectively. P value<0.001 in all the components. Post-curricular written S/Os were significantly more complete than pre-curricular S/O sheets (77% vs 16%, P<.001) and the average scores were significantly higher (7.6/8 vs 5.8/8)
CONCLUSION: Deficiencies in S/O skills were prevalent among our housestaff. These deficiencies were identified and corrected by gathering data about our current S/O practices and implementing a targeted curriculum using both didactic and experiential learning. Our study highlights the importance of instituting a formal curriculum to improve both written and verbal S/O skills among housestaff, only then can we be more confident that our patients are well-cared for in our absence.

Table 1

	Pre- (%)	Post- (%)
S: Sick/DNR	16	54
I: Identification	26	97
G: General Hosp Course	92	100
N: New events	39	95
O: Overall health	21	87
U: Upcoming possibilities	37	89
T: Tasks to do	50	93

Table 2

	Pre- (%)	Post- (%)
Med list	4	79
ID data	64	89
Code status	82	100
Allergies	96	82

INAPPROPRIATENESS OF SPECIALTY REFERRALS FROM PRIMARY CARE: A SYSTEMATIC REVIEW C. Lin[1]; A. Mehrotra[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205832)*

BACKGROUND: There are over 135 million specialist referral visits per year in the US, and primary care physicians vary widely in what fraction of patients they refer to a specialist. There are concerns that many specialist referrals are inappropriate and that some patients are inappropriately ***not*** referred to a specialist. In this systematic review, we sought to summarize published US studies on how to define an inappropriate referral and what fraction of referrals are judged to be inappropriate.
METHODS: We conducted a search of five databases (MEDLINE, CINAHL, LocatorPlus, NLM Gateway, and PsycINFO) for articles published between January 1, 1980 to July 28, 2008 using an iterative

process to maximize relevant retrievals. Titles and abstracts were reviewed against a pre-specified inclusion/exclusion screening tool by two independent reviewers for full-text review. Full-text articles were subsequently selected for full data abstraction if they met all inclusion/exclusion criteria. Abstracted data from the two reviewers was then cross-checked for accuracy. Any study that examined whether referrals were "appropriate", "discretionary", or "indicated" was included. Of the initial 1561 citations identified, 285 were selected for full-text review, and 9 met full criteria.

RESULTS: Across the 9 studies, 5 examined a specific condition while 4 looked at referrals for all conditions. An inappropriate referral was defined using three different methods: (1) referral was not consistent with published guidelines (5 articles); (2) referral met pre-defined criteria such as commonly occurring condition and high level of certainty of diagnosis or treatment (2 articles); and (3) referral was self-judged by the referring physician as inappropriate (2 articles). Of the 9 articles, 5 examined the fraction of referrals that were inappropriate, with rates ranging from 12–65%. The other 4 examined the fraction of patients that were inappropriately ***not*** referred, with rates ranging from 26–52% for patients with chronic kidney disease and 60–68% for patients with depression or adjustment disorder.

CONCLUSION: Despite the common nature of specialist referral, few US studies have examined what fraction of referrals are inappropriate, and the published studies vary widely in how they define inappropriate. Nonetheless, it is notable that a significant fraction of referrals are judged to be inappropriate and that a significant fraction of patients who should be referred are not. Future research should help develop a more consistent framework for defining appropriate referrals and examine mechanisms to improve the referral process.

INCARCERATION: A ROOT CAUSE OF RACIAL DISPARITIES IN HEALTH? E.A. Wang[1]; J. Green[2]. [1]Yale University School of Medicine, New Haven, CT; [2]Yale University, New Haven, CT. *(Tracking ID # 204985)*

BACKGROUND: Health disparities persist within minority communities, which are characterized by large numbers of adults cycling through the criminal justice system. Currently 1 in 15 Black men and 1 in 36 Latino men is behind bars. In spite of the rise in incarceration as a normative experience for racial minorities and the traditionally poor quality healthcare, built environment, food behind bars, little data exist investigating how being incarcerated contributes to racial health disparities.

METHODS: We studied whether incarceration mediates racial disparities in chronic conditions using data from the New York City Health and Nutrition Examination Study (NYC HANES). NYC HANES is a community-based survey of 1999 non-institutionalized NYC adults recruited using a 3-stage sampling plan between June and December 2004. Participants underwent a brief physical and lab exam and were asked questions about their sociodemographics and history of chronic disease, healthcare utilization, incarceration, and illicit drug use. We measured the prevalence of asthma, hypertension, and diabetes by race and then performed both formal mediation analysis using logistic regression and propensity score matching methods to explore whether incarceration mediates health disparities for these conditions, thus strengthening causal inferences.

RESULTS: Asthma prevalence varied by race; 16% of Blacks, 15% of Latinos and 11% of Whites reported having asthma ($p<0.001$). Hypertension was more common among Blacks (27%) than among Latinos (18%) and Whites (19%, $p<0.01$). Diabetes prevalence was 20% among Whites, 18% among Blacks, and 10% among Latinos ($p<0.001$). In a model adjusting for participant demographics, education, income, smoking, and illicit drug use, asthma was 1.7 times more prevalent [95% CI: 1.1, 2.5] among Blacks than Whites ($p<0.01$) and 1.6 times more prevalent [95% CI: 1.1, 2.4] among Latinos than Whites ($p<0.05$). By including incarceration in the model, the odds of asthma among Blacks were reduced [AOR 1.5, 95% CI 1.0, 2.3]; the increased rates of incarceration among Blacks are responsible for 29% of the disparity in asthma prevalence. The odds of asthma among Latino participants were also reduced [AOR 1.5, 95% CI 1.0, 2.2] with incarceration accounting for 17% of the disparity between Latinos and Whites. Incarceration was the strongest predictor of asthma, associated with a 2.1 fold increase in the odds of asthma ($p<0.01$). Propensity score matching methods reveal that incarceration is associated with a 10% increased prevalence of asthma ($p<0.05$). There was no measurable impact of incarceration on racial disparities for hypertension or diabetes in either formal mediation analysis or a propensity-matched sample. Among asthmatics, 31% of former inmates did not have a regular healthcare provider, compared to 19% of individuals never incarcerated. 76% of formerly incarcerated asthmatics had an asthma attack within the past 12 months, compared to 52% of those never incarcerated ($p<0.05$).

CONCLUSION: Incarceration is a mediator of racial disparities in asthma prevalence in NYC residents, though not for hypertension or diabetes. Poor environmental conditions and second-hand smoke in correctional facilities may need to be addressed to reduce the city's disparities in asthma. Reaching our national goal of eliminating health disparities should include a better understanding of the role of incarceration in creating these disparities.

INCIDENCE, PREDICTORS, AND MORTALITY OF VENTRICULAR ARRHYTHMIAS IN PATIENTS WITH NON-ST ELEVATION MYOCARDIAL INFARCTION (NSTEMI) S. Gupta[1]; S. Gupta[1]; V. Figueredo[2]. [1]Albert Einstein College of Medicine, Jenkintown, PA; [2]Albert Einstein College of Medicine, Philadelphia, PA. *(Tracking ID # 203682)*

BACKGROUND: Acute myocardial infarction (MI) patients are at increased risk for life-threatening ventricular arrhythmias in early phases of MI. Therefore, admission to a coronary care unit (CCU) and cardiac monitoring are recommended in the first 24–48 hours post-MI. However, these recommendations are largely based on historical data and do not reflect recent changes in diagnostic and therapeutic approach towards MI patients. The redefinition of MI with the sensitive and specific biomarker cardiac troponin has led to an increase in the incidence of non-ST-segment elevation myocardial infarction (NSTEMI) of 60–100%. The risk of serious ventricular arrhythmias in these cases may differ from that in patients with ST-elevation myocardial infarction (STEMI), and thus, the level of monitoring required may be different, potentially reducing hospitalization costs. We studied the incidence, predictors and mortality rates for ventricular arrhythmias in NSTEMI patients undergoing early invasive treatment.

METHODS: NSTEMI patients who underwent cardiac catheterization within 48 hours of admission were identified from a retrospective chart review. The presence and type of ventricular arrhythmias and mortality rate were noted. Data on cardiac risk factors, laboratory tests, findings on electrocardiogram (EKG), echocardiogram, cardiac catheterization and revascularization procedures done were collected. The need for defibrillation and/or anti-arrhythmic therapy was also recorded.

RESULTS: Of 215 patients, sustained ventricular tachycardia (VT) or ventricular fibrillation (VF) grouped together as malignant ventricular arrhythmias occurred in 20 patients (9.3%), with 12 requiring defibrillation. Non-sustained VT was identified in 12 (5.6%) patients, but was not included in statistical analysis. Fourteen patients (6.5%) died, out of which 7 had sustained VT/VF. Arrhythmias occurred within the first 12 hours in 40% of the patients. On univariate analysis, the presence of left bundle branch block ($p=0.03$) or T wave inversions ($p=0.005$) on EKG, early coronary artery bypass grafting ($p=0.012$) and left ventricular ejection fraction (LVEF) ($p=0.007$) were significantly associated with VT/VF. Counter-intuitively, potassium and magnesium levels were not significantly associated with VT/VF ($p=0.44$ and 0.40 respectively). Multivariate analysis revealed LVEF as the only predictor. The risk of VT/VF increased by 33% for every 10% decrease in LVEF (odds ratio 0.97, 95% confidence interval 0.94–0.99).

CONCLUSION: The incidence of malignant ventricular arrhythmias in NSTEMI was fairly high (9.3%) despite early revascularization; higher than reported in previous studies (2.1 to 2.6%). The only significant predictor identified was reduced LVEF. Among NSTEMI patients who died, 50% had VT/VF. Though prosepective studies are needed to better characterize the risk of ventricular arrhythmias in NSTEMI, we conclude that the risk is high enough to warrant close monitoring of NSTEMI patients in CCU.

INCORPORATING FAMILY MEMBERS INTO CHRONIC DISEASE CLINICAL CARE A. Rosland[1]; J.D. Piette[1]; M. Heisler[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205507)*

BACKGROUND: As the prevalence of chronic disease grows in the context of dwindling health care resources, it is important to develop low-

cost modalities to support patients' chronic disease self-management. Daily self-management of chronic diseases takes place in the home, and family members can be a natural source of support. Evidence that increased support from family contributes to better self-management behavior and chronic disease outcomes has led to calls for providers to increase family involvement in chronic disease clinical encounters. However, little is known about current family interactions with primary care clinicians, especially for functionally independent patients

METHODS: We surveyed 1000 adult patients with diabetes or heart failure and their primary care physicians (N=118) by mail. Participants were identified through two health system chronic disease registries. We excluded patients who had dementia, needed assistance with ADLs, were institutionalized, or were under treatment for cancer. We used descriptive statistics to summarize how families are involved in clinical care and patients' and physicians' perceptions of consequences of such involvement. We used multivariable regression models to analyze correlates of family involvement

RESULTS: 435 (59% of eligible) patients responded, including 225 with diabetes and 210 with heart failure. The average age of respondents was 63 (range 25–95), 53% were male, and 55% reported some functional limitations. 85 (75% of eligible) physicians responded. 49% of patients reported that family members came into the exam room, and 13% that family members spoke to the patient's doctor by phone. Family members were most often involved in physician discussions of care decisions (83%), test results (81%), patient symptoms (79%), and what to expect for future health (76%). In multivariable models patient correlates of increased family involvement in clinical care included male gender, lower income, worse literacy, and better family function. Age, health status, functional limitations, and social network size were not associated with level of family involvement. Patients reported that family involvement led to increased motivation to follow physician advice (77%), better understanding of physician instructions (77%), and increased discussion of difficult topics with the physician (44%). Very few patients (<10%) perceived negative consequences. Physicians perceived that family involvement led to increased patient (89%) and physician (97%) understanding. However, 37% of physicians felt that increasing family involvement would overburden them, and 28% felt they did not have enough training to involve family more. 24% felt that talking to family members impeded their ability to address important patient issues. Very few physicians (<20%) felt privacy, patient-doctor relationship concerns, or family conflicts were barriers to more family involvement

CONCLUSION: For functionally independent patients with diabetes and heart failure, family members, especially of low-income and low-literacy patients, are often involved in clinical encounters. Patients and physicians perceive multiple benefits and few costs to increasing this involvement, though approximately one-third of providers noted barriers of time constraints and lack of training. Interventions to increase family involvement in chronic disease care should include physician training and strategies to help physicians and families manage potentially increased competing demands from family.

INCREASING AFRICAN AMERICAN SENIORS' KNOWLEDGE, POSITIVE ATTITUDES, AND INTENTION TO BE VACCINATED AGAINST INFLUENZA THROUGH A MULTIMEDIA EDUCATION PROGRAM

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BACKGROUND: Current influenza (flu) vaccination rates among adults 65 and older are approximately 65.6%, a rate significantly lower than Healthy People 2010's goal of 90%. Racial disparities in influenza vaccination (the flu shot) exist: current rates for African American seniors are 57.6%, whereas vaccination rates for non-Hispanic Whites reach 69.7%. A 6-minute multimedia program that raised and refuted widespread myths about the flu and the flu shot was developed and tested to address this racial disparity.

METHODS: The multimedia program was developed via an iterative process, through conducting a series of four waves of focus groups (total N=121). The first wave consisted of six focus groups; transcripts were analyzed using latent content and constant comparative analysis as well as the identification of emergent themes related to the constructs of the Extended Parallel Process Model (i.e., perceived severity, perceived susceptibility, self-efficacy, response efficacy) to pinpoint key information needs among African American seniors. The message was drafted and revised through the following three waves of focus groups, allowing for focus groups to identify preferences for voice-over, format and images, and to critique the message. Two versions of the multimedia program were pilot tested among 150 African American seniors. Versions differed only in one sequence (gain frame vs. loss frame). Participants completed pre- and post-test structured interviews about flu-related knowledge, attitudes, and intention to be vaccinated within the next year.

RESULTS: Participants mean age was 74.8 years (sd=7.1); 74% were female. Knowledge increased significantly following the intervention, with the most dramatic increases related to knowledge that the flu virus changes yearly, that the flu shot does not give you the flu, and that the flu shot does not contain a live virus (all $p<.01$). Participants' individual risk perception and perceived vaccine efficacy increased significantly, whereas fears regarding the vaccine decreased ($p<.01$). Those viewing the loss frame expressed less fear regarding the contents of the vaccine than those viewing the gain frame, although the groups did not differ at baseline; no other differences between the versions emerged. Prior to viewing the multimedia intervention, 58% intended to get a flu shot within the next 12 months; after viewing the intervention 72% intended to get a flu shot within the next 12 months ($p<.001$). Among the 62 participants not intending to get a flu shot prior to the intervention, after viewing the program 33% said they intended to be vaccinated within the next 12 months ($p<.001$). Equally important, all participants who indicated they planned to get a flu shot prior to the intervention verified their intention to be vaccinated after viewing the intervention.

CONCLUSION: A multimedia patient education program developed using both theory and community input can increase knowledge and positive attitudes toward influenza vaccination, and individual intention to be vaccinated.

INTERNAL MEDICINE RESIDENTS' KNOWLEDGE OF ASTHMA SELF-MANAGEMENT, RESPIRATORY INHALER TECHNIQUE AND ASTHMA HEALTH POLICY

A. Pincavage[1]; J. Kleczek[1]; D. Baker[1]; W. Conwell[1]; M. Prochaska[1]; V.G. Press[1]; V. Arora[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 204190)*

BACKGROUND: Inadequate self-management of asthma increases morbidity and mortality. In 2009, to protect the ozone layer, the familiar metered dose (MDI) inhalers with chlorofluorocarbons (CFCs) will be replaced by newer hydroflouroalkane (HFA) inhalers. Since the two inhalers deploy medication differently and feel differently to patients, this policy will likely worsen patients' ability to self-manage their asthma. It is important for healthcare providers to be aware of this policy change and familiar with inhaler technique to help patient's navigate through this transition. The aim of this study is to assess internal medicine (IM) resident knowledge regarding inhaler technique, asthma self-management and the inhaler policy change.

METHODS: An anonymous 22-item survey to assess resident knowledge of asthma management, inhaler technique, and the upcoming pharmacotherapy policy change was administered to a convenience sample of residents attending the 2008 Illinois Regional ACP Associates meeting on October 7, 2008. For completing the survey, residents were entered into a raffle for an Apple iTouch. Participants were asked if they had asthma, used an inhaler, ever helped a family member or friend use an inhaler, and if they had ever prescribed an HFA or MDI-CFC inhaler. Confidence with teaching inhaler technique and knowledge regarding the correct steps for inhaler use was also ascertained. Using open-ended questions, residents were asked to report if they were aware of any differences between HFA and MDI-CFC inhalers and policy changes regarding inhaler prescribing.

RESULTS: Of the surveys distributed, 94% (134/143) were returned. Surveys from non-residents (15 faculty and students) were excluded. Residents (n=119) represented 15 Illinois internal medicine residency programs. Half (50%) were international medical graduates, 63% were male, and 61% intended to pursue a subspecialty fellowship. Roughly 1/3 were interns, 1/3 were PGY2s and 1/3 were PGY3s. 7% had asthma, 17% had used an inhaler, and one third had helped family

members or friends use an inhaler. While 59% of residents felt confident in their ability to teach inhaler technique, only 49% could correctly identify the steps in using an inhaler. Correctly identifying the steps for inhaler use was not associated with confidence in the ability to teach inhaler technique (49% confident vs. 49% not confident, p=0.97). Residents were more likely to have ever prescribed an MDI-CFC compared to an HFA inhaler (81% MDI-CFC vs. 52% HFA prescribed, p<0.001). While 26% of residents stated that they knew the difference between an HFA and an MDI-CFC inhaler, only 5% were able to correctly describe the difference when asked. Only 3% of residents were aware of the upcoming policy change to HFA inhalers.
CONCLUSION: A significant fraction of internal medicine residents are not familiar with correct inhaler technique, the differences between MDI-CFC and HFA inhalers, or the pending policy change. An education intervention is imperative to improve care for asthma patients during this transition.

INTERNAL MEDICINE RESIDENTS' OPINIONS ABOUT PROVIDING CARE FOR ADULT PATIENTS WITH DOWN SYNDROME AND ATTENTION DEFICIT HYPERACTIVITY DISORDER
M.E. Brown[1]; A.R. Gonzaga[2]; M.A. Mcneil[2]. [1]Tufts University School of Medicine, Boston, MA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205710)*

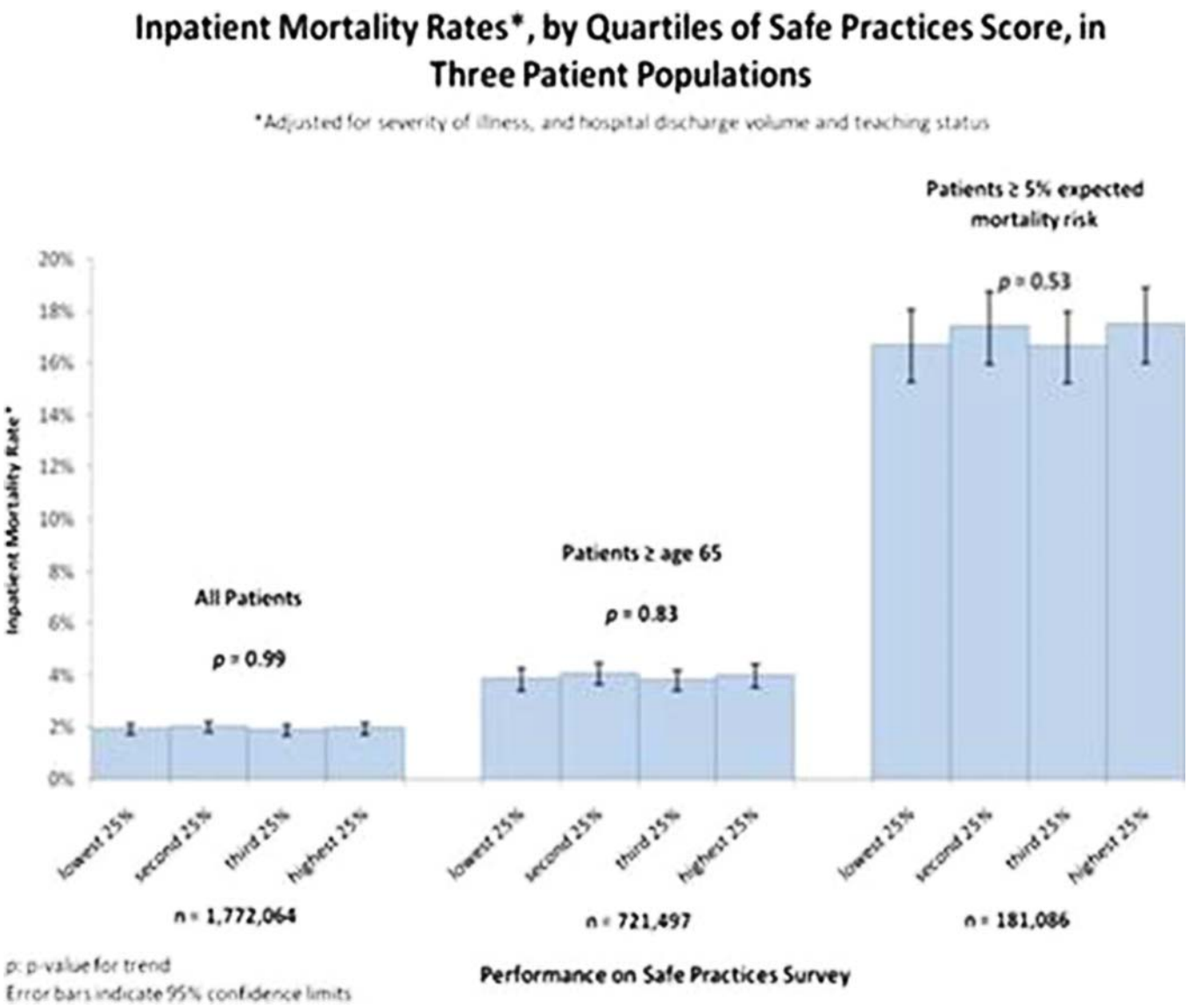
BACKGROUND: As more adolescents with Down Syndrome (DS) and Attention Deficit Hyperactivity Disorder (ADHD) transition from pediatric to adult-oriented health care, it is important for adult providers to be prepared to care for this special needs population. However, internal medicine residency programs do not have specific requirements to provide education about these conditions to their trainees. Little is known about internal medicine residents' opinions and attitudes about caring for adults with DS and ADHD. Our objective was to describe internal medicine residents' perceived importance, preparedness, and attitudes toward delivering care for adult patients with DS or ADHD.
METHODS: Internal Medicine residents at the University of Pittsburgh were surveyed with a 37 item questionnaire. The items focused on residents' perceived importance of learning about DS and ADHD, their preparedness to provide care for patients with these conditions, and their attitudes towards patients with these conditions. These domains were rated on 4-point Likert scales.
RESULTS: Among 39 respondents (69% response rate), 49% were female, 72% planned to specialize, 18% planned to practice primary care, 5% planned to practice hospitalist medicine, and 5% were undecided about future career plans. Most respondents reported an importance to learn to provide specific aspects of care for patients with DS (range 79–97%) and with ADHD (range 72–89%). However, fewer respondents felt prepared to provide this care for patients with DS (range 8–31%) and with ADHD (range 15–26%). Overall, respondents indicated they enjoy caring for patients with DS (65%) and ADHD (44%), and desire to see patients with DS (68%) and ADHD (56%) in their future practice.
CONCLUSION: Internal medicine trainees reported an importance to learn to provide care for adult patients with DS and with ADHD, and indicated some desire to care for these patients. However, residents do not feel prepared to provide that care, thus identifying a specific educational need within internal medicine residency training programs.

INTERNET ACCESS, USE AND SELF-EFFICACY RELATED TO OUTCOMES IN A WEB-BASED INTERVENTION TO IMPROVE HYPERTENSION CARE: A SECONDARY ANALYSIS OF THE EBP TRIAL.
J.D. Ralston[1]; A. Cook[2]; D. Carrell[1]; T. Ross[1]; J. Hecht[1]; S. Catz[1]; P. Crane[3]; B.B. Green[1]. [1]Group Health Cooperative, Seattle, WA; [2]Group Health Cooperative, Seattle, WI; [3]University of Washington, Seattle, WA. *(Tracking ID # 205684)*

BACKGROUND: Treating hypertension reduces cardiovascular-related morbidity and mortality, but most hypertension is inadequately controlled. A recent randomized trial of a new model of care using patient Web services, home blood pressure monitoring and pharmacist assisted care improved blood pressure control. The effectiveness of this model of care may be constrained to those with broadband Internet access, greater Internet skills and greater self-efficacy.
METHODS: We performed a secondary analysis of a three-arm randomized controlled trial based on the Chronic Care Model and delivered over a secure patient Web site from June 2005 to December 2007. Study arms included usual care, usual care with a home blood pressure monitor and usual care with a home blood pressure monitor and Web-based pharmacist care. Usual care included access to a patient Web site with prescription refills, appointment scheduling, medical records access, and secure electronic messaging with health care team members. The study included 778 participants age 25–75 with uncontrolled essential hypertension and Internet access. All study participants received primary care through an integrated group practice in Washington state. The primary outcome was percent with BP<140/90. Survey measures included baseline diversity and intensity of Internet Use; baseline self-efficacy of patient Web site use; and broadband access to the Internet at 12 months following intervention.
RESULTS: At 12 months of follow-up, broadband Internet access, intensity and diversity of Internet use and self-efficacy with patient Web site use were not associated with having a BP<140/90 among participants in the pharmacist care group compared to participants in the usual care and usual care plus home blood pressure monitor groups(p=0.702 for interaction). All participants in the study with broadband Internet access were more likely to have BP<140/90 at 12 months compared to participants with dial-up Internet access (43% with broadband versus 34% without, p=0.049); this association remained significant after adjusting for age, BMI, income, sex, race, education, and baseline systolic BP (p=0.008).
CONCLUSION: Broadband Internet access, prior use of the Internet, and self-efficacy with using a patient Web site were not associated with the effectiveness of Web-based management of hypertension by pharmacists.

INTERRUPTIONS IN COVERAGE FOR A COUNTY INDIGENT HEALTH PLAN ARE ASSOCIATED WITH MORE HOSPITALIZATIONS
M.J. Seleznick[1]; S.S. Mazzarolo[1]; E.A. Warner[1]. [1]University of South Florida, Tampa, FL. *(Tracking ID # 205109)*

BACKGROUND: Several cross-sectional studies have indicated that disruptions in health insurance status adversely affect access to care and management of chronic diseases. The Hillsborough County Health Care Plan is a locally funded health care plan supported by a local sales tax that provides comprehensive health care, including outpatient, pharmacy, preventive, and hospitalization to indigent residents. The purpose of the plan is to reduce emergency and hospital visits, while improving the health of residents. Many of these patients are enrolled in the plan after a hospitalization or emergency department visit; therefore, enrollees typically have established health care needs related to chronic disease at the time of enrollment. The program requires that participants re-enroll every 6 months to remain covered by the health plan. The purpose of this study is to examine whether the hospitalization rate of individuals covered by the Hillsborough County Health Care Plan is affected by interruptions in coverage.
METHODS: Retrospective review of the Hillsborough County Health Plan claims data from January 2002 until November 2007. A gap in coverage was defined as a lapse of at least 30 days in continuous coverage. The population considered to be at risk for gaps were those patients enrolled in the plan for at least 6 months, the standard length of time until reenrollment is required. Measurements included analysis of gaps in coverage, length of enrollment, and hospitalization rates in the population at risk for gaps.
RESULTS: There were 5935 patients at risk for gaps in coverage, of which 2475 (41.7%) were hospitalized in the five year period. The hospitalization rate was 47% for those with a gap versus 38% with no gap (p<0.001). During the study period, patients with gaps in coverage had an average of 1.25 hospitalizations, compared to 0.85 hospitalizations in those without gaps. Gaps were associated with increased hospitalization rate, when controlled for length of eligibility. The ratio of gap time/cumulative time since enrollment also correlated with risk of hospitalization, when included in a multiple logistic regression model (beta=0.365, p<0.01).
CONCLUSION: Lapses in coverage are associated with increased hospitalization rates. This study demonstrates that a local government-based health plan that provides routine ambulatory and preventive care services functions more efficiently and effectively when access to care is uninterrupted. In the absence of major health care reforms, the burden of caring for uninsured and medically needy populations will be the responsibility of local governments. This study documents the effectiveness of a proactive approach to indigent care.



IS BETTER PERFOMANCE ON LEAPFROG'S SAFE PRACTICES LEAP ASSOCIATED WITH LOWER INPATIENT MORTALITY? L.P. Kernisan[1]; S.J. Lee[1]; W. Boscardin[2]; C.S. Landefeld[1]; R.A. Dudley[2]. [1]Veterans Affairs Medical Center, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204621)*

BACKGROUND: The Leapfrog Survey allows hospitals to self-report the steps they have taken towards implementing the "Safe Practices for Better Healthcare" endorsed by the National Quality Forum. Leapfrog ranks hospital performance on this survey by quartiles, and posts rankings on its website. It is unknown if hospitals' resulting Safe Practices Scores (SPS) correlate with outcomes such as inpatient mortality.
METHODS: We analyzed discharge data for all urban hospitals that completed the 2006 Leapfrog Safe Practices Survey and were identifiable in the Nationwide Inpatient Sample (1,772,064 discharges at 155 hospitals). Leapfrog provided a SPS for each hospital. We used hierarchical logistic regression to assess the relationship between quartiles of SPS and risk-adjusted inpatient mortality, adjusted for hospital volume and teaching status. Subgroup analyses were done on patients ≥65 years and patients with ≥5% expected mortality.
RESULTS: SPS was not predictive of risk-adjusted inpatient mortality (p=0.99). Results were similar in patients ≥65 or with with ≥5% expected mortality.
CONCLUSION: Scores on the Safe Practices Survey do not appear to correlate with inpatient mortality rates. Hospital self-reporting of patient safety practices may not be an effective way to assess quality and is of unclear value to the public.

IS CARE CONSISTENT WITH THE CHRONIC CARE MODEL ASSOCIATED WITH MEDICATION ADHERENCE AMONG PATIENTS WITH A CHRONIC ILLNESS? K.W. Bowers[1]; M.L. Parchman[1]; R.L. Romero[1]; M. Robertson[1]. [1]University of Texas Health Science Center at San Antonio, San Antonio, TX. *(Tracking ID # 205562)*

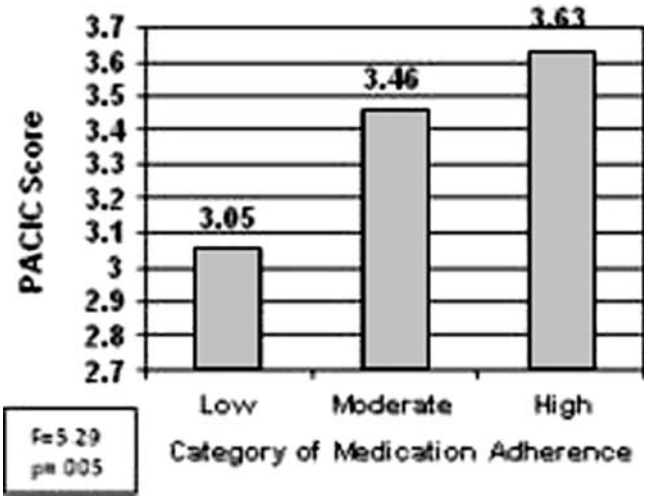
BACKGROUND: Implementing the Chronic Care Model (CCM) is one approach to improve chronic illness care in primary care settings. The Patient Assessment of Chronic Illness Care (PACIC) survey allows patients to rate how consistent their care is with the CCM. Medication adherence is crucial for patients to achieve control of chronic illnesses such as diabetes, hyperlipidemia and hypertension. We examined the relationship between PACIC scores and patient medication adherence in primary care clinics.
METHODS: The ABC Intervention Study is currently collecting data from 40 primary care clinics in San Antonio and South Texas. Patients from each clinic complete a survey including the Morisky scale for

medication adherence and the PACIC questions. At this time, 460 patient surveys from 13 clinics have been collected. Of these, 374 patients stated that they have a chronic illness and completed the PACIC. Consistent with prior studies, Morisky scores were categorized into low, moderate and high level of medication adherence. We evaluated associations between PACIC scores and level of medication adherence with analysis of variance. For the multivariate model, the Morisky score, from 0 to 4, was used as the dependent variable.

RESULTS: An increase in the PACIC score is associated with a higher level of medication adherence as indicated by the Morisky score (p=.005). When subcategories of the PACIC are examined, the same relationship was observed for Decision Support (p=.016), Goal Setting (p=.005), Problem Solving (p=.004), and Coordination of Care (p=.009) but not for Patient Activation (p=.086). In a linear regression model PACIC score was also associated with medication adherence after controlling for patient characteristics such as age, gender, Hispanic ethnicity and education level (p=.008).

CONCLUSION: Patients whose care is more consistent with the CCM also have higher levels of medication adherence. Providing primary care clinics with resources and support to better implement the chronic care model may improve medication adherence and chronic disease outcomes. Final results from this study will test this hypothesis. The PACIC could be a useful tool to find areas of improvement in each clinic that could lead to improved medication adherence.

Figure: Relationship between PACIC Score and Category of Medication Adherence



IS CHANGE IN SELF-RATED HEALTH A BETTER PREDICTOR THAN A SINGLE MEASURE FOR PREDICTING DEATH AND HOSPITALIZATION? K.B. Desalvo[1]; T. Jones[1]; V.S. Fan[2]; J.W. Peabody[3]; S.D. Fihn[2]; P. Muntner[4]. [1]Tulane University, New Orleans, LA; [2]University of Washington, Seattle, WA; [3]Tulane University, San Francisco, CA; [4]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 204917)*

BACKGROUND: A person's response to a single general self-rated health (GSRH) question, "In general, would you say your health is Excellent, Very Good, Good, Fair or Poor?" is a robust tool for risk stratification and prediction. However, it is not known whether including change in GSRH is a better method for identifying at risk patients. We compared a single assessment of GSRH with longitudinal changes in GSRH for the prediction of hospitalization and mortality.

METHODS: We analyzed data from the nationally representative 2000–2005 National Health Interview Survey (NHIS) and Medical Expenditure Panel Survey (MEPS) Panels 5 through 9 in a linked data set (n= 46,275). GSRH was assessed 12 months apart. For analytic purposes, we collapsed the 5 response options in to 3 categories: Excellent/Very Good, Good and Fair/Poor. Participants were followed a median of 18 months (range 12 to 24 months) after the second assessment of GSRH. Hospitalization and mortality were assessed through a standardized review of participants' insurance records.

RESULTS: GSRH did not change over the 12 month period for 64% of study participants, while 12% experienced an improvement in GSRH and 24% experienced a decline in their GSRH. After age and sex adjustment, those with Fair/Poor health at both intervals had 4.6 (95% CI: 4.1, 5.2) times the risk of hospitalization and 10.1 (95% CI: 6.6, 15.5) times the risk of mortality compared to their peers with Excellent/Very Good health at both intervals. Among those with Fair/Poor Health at the 12 month assessment, individuals whose GSRH in the prior year was Excellent/Very Good experienced a 40% lower risk of hospitalization (relative risk=0.6; 95% CI: 0.4, 0.8) and mortality (relative risk= 0.6; 95% CI: 0.5, 0.7), compared to their peers whose GSRH was Fair/Poor at in the prior year. The prediction of future hospitalizations and mortality was similar using a model including only cross-sectional GSRH measurement and one that added change in GSRH measurement (AUC: 0.76 and 0.76, respectively for hospitalization and AUC: 0.89 and 0.89, respectively for mortality).

CONCLUSION: Change in GSRH is strongly associated with the risk for future hospitalization and mortality and performs well in risk stratification. Adding one-year change in GSRH to a cross-sectional GSRH assessment does not improve the already strong performance in risk prediction suggesting a single assessment of GSRH is sufficient.

IS CYSTATIN C A RISK FACTOR FOR INCREASED ALL-CAUSE AND CAUSE-SPECIFIC MORTALITY? A POPULATION-BASED EVALUATION OF US ADULTS D.N. Panagiotou[1]; A.D. Parikh[1]; S. Lipstz[2]; S. Natarajan[1]. [1]New York University School of Medicine, New York, NY; [2]Harvard Medical School, Boston, MA. *(Tracking ID # 205844)*

BACKGROUND: Cystatin C is considered a good surrogate marker for kidney function. In addition, Cystatin C has been reported to be a predictor of mortality in certain populations, particularly in the elderly and in patients with ischemic heart disease. To evaluate the effect of Cystatin C in unselected free living adults, we investigated the relationship between Cystatin C levels and all-cause or cause specific mortality in the non-institutionalized US adult population.

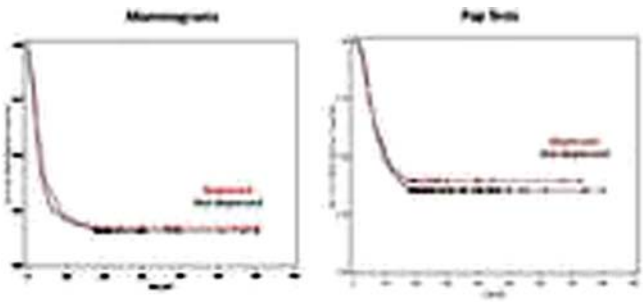
METHODS: We used baseline data from the Third National Health and Nutrition Examination Survey (NHANES-III) and follow-up data from the NHANES III linked mortality file. Cystatin C was measured from stored samples using particle-enhanced nephelometric assay. Mortality information was from the national death index. Our outcomes of interest were time to all-cause and cause-specific [causes include ischemic heart disease (IHD), cerebrovascular accident (CVA), cardiovascular disease (CVD), and cancer (CA)] mortality. CVD mortality includes deaths from IHD, CVA and heart failure. The relationship of Cystatin C to mortality was evaluated using Cox proportional hazards models that controlled for important confounders (age, sex, education, income, race, diabetes, smoking, exercise, hypertension, obesity, hyperlipidemia, and C-reactive protein) while incorporating the weighting and stratification variables to provide population relative risk estimates. The relative risk estimates are reported as hazard ratios (HR) with 95% confidence intervals (CI).

RESULTS: Cystatin C was measured from 7,126 adults (population estimate 69,020,759). The range of serum cystatin C values (in mg/ml) was 0.05–8.5 with a population mean of 0.98 mg/ml (median of 0.91 mg/ml). After adjustment for important confounders, each unit increase in cystatin C was related to increased mortality and increased HR (CI, p-value) as follows: all-cause mortality HR=1.75 (1.49–1.95, p<.0001); IHD mortality HR=1.83 (1.55–2.17, p<.0001); CVA mortality HR=1.61 (1.20–2.17, p=.0017); CVD mortality HR=1.84 (1.61–2.10, p<.0001); and cancer mortality HR=1.29 (1.03–1.61, p=.025). Further, when Cystatin C levels were dichotomized at conventional high or low levels at a cut-off value of 0.98 mg/ml and Cox models were fit using the same aforementioned covariates, the HR for mortality in adults with high Cystatin C (≥.98 mg/dL) were: all-cause mortality HR=1.50 (1.27–1.75, p<.0001); IHD mortality HR=1.83 (1.54–2.17, p=.0135); CVA mortality HR=1.60 (0.92–2.78, p=.098); CVD mortality HR=1.56 (1.22–2.06, p=.0005); and cancer mortality HR=1.35 (0.88–2.06, p=.17).

CONCLUSION: Elevated Cystatin C levels are independently associated with an increase in all-cause mortality, cardiovascular mortality, ischemic, stroke, and cancer mortality in the general population even when common cardiac risk factors are controlled for.

IS DEPRESSION ASSOCIATED WITH DELAYED RESOLUTION OF ABNORMAL CANCER SCREENING AMONG INNER-CITY WOMEN? A.C. Kronman[1]; T. Battaglia[1]; A.S. Ash[1]; M. Flynn[1]; K. Akullian[1]; K.M. Freund[1]. [1]Boston University, Boston, MA. *(Tracking ID # 205526)*

BACKGROUND: Women of low socioeconomic status and racial/ethnic minorities suffer worse cancer outcomes, partially due to delayed follow-up after abnormal cancer screening tests. Patient navigation improves access to timely cancer care in a patient-centered manner, by identifying and helping to overcome barriers to healthcare. Although depression is associated with higher breast cancer mortality, it is not known if it is associated with delays in follow-up to cancer screening.We hypothesize that depression is a barrier to receiving follow-up after abnormal mammograms and pap tests, because following through with subsequent appointments may be difficult for depressed women.
METHODS: Cross-sectional analysis using retrospective chart review of women in the Boston University Patient Navigator Research Program who had an abnormal screening mammogram or pap test in an affiliated community health center 2004–2005. All women with severe abnormalities (BIRADS 4,5; HGSIL/Carcinoma) were included, as well as a random sample of less severe abnormalities (BIRADS 0,3, LGSIL, ASCUS/HPV+) from each health center. Pregnant women or younger than 18 years were excluded. A woman was categorized as "depressed" if depression was recorded in her electronic medical record during the 12 months preceding the screening test abnormality. Abnormal mammograms were analyzed separately from paps. "Timely resolution" was defined as reaching a diagnosis within 180 days. Depressed women were compared to non-depressed women using univariate and bivariate analysis; then Cox proportional hazard analysis compared the "timely resolution" of each group while adjusting for confounders.
RESULTS: Among 512 women with abnormal mammograms, and 468 with abnormal paps, depression prevalence was 19% and 16%, respectively. Most of the women were non-White: 19–27% Hispanic, 33–34% Black, and 11–14% Other. Less than 1/3 had private health care insurance. Depression was associated with health insurance status for abnormal mammograms (P=.06) and paps (P=.05). Depression was not significantly associated with other confounders including race, ethnicity, screening abnormality, language, or health center. The median time to resolution was longer for depressed women with abnormal mammograms (37 vs. 28 days, P=.13) but not paps (93 vs. 104 days, P=.90). After adjusting for confounders, no significant differences were found between depressed and non depressed women in timely resolution for abnormal mammograms (HR=.89,P=.36) or paps (HR=.95,P=.78).
CONCLUSION: Depression is common in women needing diagnostic testing for abnormal cancer screening, and depressed women may have additional barriers to healthcare related to insurance status. Our results suggest that depression may be associated with delayed resolution of abnormal mammograms and paps, though our analysis is limited by the small sample size, as the parent baseline study was not powered to detect differences between depressed and non-depressed groups. If significant findings are validated in the planned future analyses containing 2-fold more women, this would imply that identifying patients with depression and helping them overcome associated barriers could help improve cancer outcome disparities.



Timely Diagnosis After Abnormal Cancer Screening Test

IS FORECLOSURE A HEALTH CRISIS? A COMMUNITY-BASED APPROACH TO ASSESSING HEALTH IN THE PHILADELPHIA REGION C. Pollack[1]; J. Lynch[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 205601)*

BACKGROUND: Despite the magnitude of the current foreclosure crisis, little is known about the relationship between foreclosure and health. We aim to describe the health status of people undergoing mortgage foreclosure in the Philadelphia region.
METHODS: We partnered with a mortgage counseling agency—Consumer Credit Counseling Services (CCCS)—to recruit people undergoing foreclosure. CCCS is a Housing and Urban Development approved agency with 11 offices throughout the Philadelphia region. Surveys were distributed by mortgage counselors following the intake session. Health status and health care utilization is compared to a community sample, the 2006 Southeastern Pennsylvania Household Health Survey and is adjusted for socioeconomic factors (education, poverty, and unemployment). The primary reason for undergoing foreclosure is assessed. Publicly-filed foreclosure records are used to determine response bias.
RESULTS: 250 people undergoing foreclosure were recruited. Compared to the community sample, people undergoing foreclosure had significantly lower socioeconomic status and had higher rates of chronic diseases including hypertension, heart disease, diabetes, and psychiatric conditions. 36.7% met screening criteria for major depression, though nearly half of these individuals (44%) had not been previously diagnosed. Rates of un-insurance (Adjusted Odds Ratio [AOR] 2.31, 95% Confidence Intervals [95%CI] 1.48–3.61) and cost-related prescription non-adherence (AOR 3.91, 95%CI 2.78–5.50) were significantly higher among the foreclosure sample. 8.6% of people reported that their own or a family member's medical condition was the primary reason they were undergoing foreclosure. More than a quarter of foreclosed individuals (29.2%) had medical bills in excess of $1000 that were not covered by insurance, and 27.7% stated that they owed money to medical creditors. Comparisons to publicly-filed foreclosure records showed acceptable response bias from this recruitment strategy.
CONCLUSION: Public health practitioners may be able to leverage current efforts to connect homeowners with mortgage counseling agencies in order to increase awareness of the connection between foreclosure and health and to improve access to health care. In addition, primary care physicians should be made aware of what mortgage counseling resources are available for patients in their community.

IS HOSPITAL LABORATORY TROPONIN REPORTING A NEW QUALITY ISSUE? M.M. Safford[1]; G. Parmar[1]; C. Barasch[1]; J.H. Halanych[1]; T. Brown[1]; D.G. Goff[2]; R.J. Prineas[2]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 205466)*

BACKGROUND: Myocardial infarction (MI) detection relies in part on abnormal cardiac biomarkers, most often troponin (TI). Recent American Heart Association (AHA) guidelines recommend very low "abnormal" thresholds, preferably the 99th percentile for healthy individuals. For assays that lack precision at that very low level, the lowest level with sufficient precision (hereafter called the precision threshold) is acceptable. These recommendations represent a major change, because many cases of very low level TI elevations are not currently classified as MI clinically. We studied the feasibility of implementing this guideline, and the clinical implications of varying levels of "abnormal" TI thresholds.
METHODS: The REasons for Geographic And Racial Differences in Stroke-MI study is an epidemiologic study following 30,229 adult participants across the US for stroke and MI outcomes. We examined TI lab reports for 444 participants admitted for chest pain to 385 hospitals in 38 states from 2003–7. We then examined 1-year mortality for a very low (>0.04) and a commonly used more moderate (twice the upper limit of normal [2xULN]) "abnormal" TI threshold.
RESULTS: The AHA guideline could be applied in only 44 of the 444 cases (10%) because the 99th percentile or precision threshold were rarely available from hospital lab reports; in fact, some higher value than either the 99th percentile or precision threshold was often provided as the ULN. Among all 444 cases, the >2xULN threshold identified 196 potential MI cases; lowering the threshold to >0.04 identified an additional 140 "0.04-only cases". One-year mortality rates were similar for the 0.04-only cases and those detected using >2xULN: 14.3% vs. 15.3%, respectively, p=0.8. Both mortality rates were much higher than the rate for cases meeting neither definition of MI (1.2%, p=0.02). Eight of the 20 (40%) deaths in the 0.04-only group compared with 7 of the 30 (23%) deaths in the >2xULN group were African Americans (p=0.3).

CONCLUSION: Confirming past reports, we found similar 1-year mortality for individuals with very low TI elevations compared with those traditionally considered to have suffered MI. These very low TI cases also had much higher mortality than non-MIs. We found that current hospital laboratory reporting largely prevents implementation of guidelines that could help clinicians to appropriately detect such individuals, leading to as many as 44% being incorrectly risk stratified. Larger studies should examine the robustness of the modest trend for greater numbers of African Americans in the very low TI group we observed. Hospital laboratory reporting may be an appropriate focus for quality improvement efforts.

IS PATIENT ACTIVATION ASSOCIATED WITH BETTER SELF-REPORTED ADHERENCE AND LESS UNDESIRABLE HEALTH CARE UTILIZATION? S. Bolen[1]; T.E. Love[1]; R.D. Cebul[1]. [1]MetroHealth Medical Center, Cleveland, OH. *(Tracking ID # 205362)*

BACKGROUND: Although patient activation is one of the key components of Wagner's chronic care model, little is known regarding the relationship between patient activation and patient outcomes such as adherence and health care utilization(especially in low income populations).
METHODS: From a random digit dial consumer survey conducted from 2007–2008 in Cleveland, we analyzed data on 599 adults with at least one of five chronic conditions (asthma, diabetes, heart disease, depression, and/or hypertension) who also reported visiting a health care provider in the last 2 years. Patient activation was measured using the validated Hibbard Patient Activation Measure (PAM-13), and categorized into high and low patient activation at the median score of 60. We conducted multivariable logistic regression analyses to create final multivariable models evaluating factors associated with patient activation, and evaluating the association between self-reported patient activation, adherence, and health care utilization.
RESULTS: We had a response rate of 73% (599 of the 816 known to be eligible). The majority of respondents were low income (56% with income <125% FPL), female(72%), African American (57%), and had moderate to high patient activation [mean score (SD)=64(14)] using the 0 to 100 scale from the PAM-13. Older age [Odds Ratio (OR) 0.98 per year, 95% confidence interval (CI) 0.97–0.99], being unemployed or disabled (OR 0.58 vs employed/retired, CI 0.36 to 0.94), having less education (OR 0.90 per year, CI 0.84 to 0.97), and having less disease-specific knowledge (OR 0.46, CI 0.29–0.72) were associated with lower patient activation after adjustment for race, gender, insurance type, body mass index(BMI) and number of 5 chronic conditions. In the same model, self report of having a health care professional teach self monitoring of their condition (OR 1.94, CI 1.20–3.13) and help set exercise goals (OR 1.68, CI 1.07 to 2.63) were associated with higher patient activation. Patient activation was not associated with self-reported patient adherence, ER visits or hospitalizations in the last year, or number of outpatient visits in past 3 months($p>0.10$).
CONCLUSION: Having a health care professional teach self-monitoring of their condition and help set exercise goals may be relatively simple ways to improve patient activation. However, it is unclear whether this would translate to better patient outcomes such as adherence and less undesirable health care utilization in low income populations.

IS SMOKING CESSATION ADVICE BY PRIMARY CARE PROVIDERS EFFECTIVE FOR SMOKERS WITH COMORBID ALCOHOL, DRUG, OR MENTAL DISORDERS? M.K. Ong[1]; Q. Zhou[1]; H. Sung[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205277)*

BACKGROUND: Individuals with comorbid alcohol, drug, or mental (ADM) disorders combined make up over 40% of all smokers in the U. S. Primary care providers play an important role in smoking cessation counseling, but their effectiveness with this population is not well known. The purpose of this study was to determine the effectiveness of smoking cessation counseling by primary care providers for smokers with ADM disorders.
METHODS: We examined 1,309 adults who reported that they were current smokers in the 1998–1999 Community Tracking Study survey, and who responded in the follow-up 2000–2001 Healthcare for Communities survey that they had seen a primary care provider in the past year. Past year ADM disorders were defined by self report of disorder and symptoms from the 2000–2001 survey. We conducted multivariate probit regressions that examined the relationship between past year primary care provider smoking cessation counseling and current smoking status in the 2000–2001 survey. Covariates included age, gender, ethnicity, region of residence, education, household income, marital status, employment status, health insurance, body mass index, and physical activity. Past year primary care provider exercise counseling was also used as an instrumental variable for past year primary care provider smoking cessation counseling to account for potential reverse causality between smoking status and receipt of smoking cessation counseling.
RESULTS: Among study individuals, 45.6% (n=619) had an ADM disorder. Those with and without ADM disorders were equally likely to receive smoking cessation counseling (72.9% and 69.8%, respectively). Analyses of both all individuals and only individuals with ADM disorders found that smoking cessation counseling by primary care providers had a positive significant association with current smoking status (coefficient=1.04, $p<0.01$ for all; coefficient=0.93, $p<0.01$ for those with ADM disorders only). Hausman's specification tests could not reject simultaneity ($p<0.01$). When exercise counseling was used as an instrumental variable for smoking cessation counseling, smoking cessation counseling by primary care providers had a negative significant association with current smoking status (coefficient=-0.88, $p<0.01$ for all; coefficient=-1.063, $p<0.01$ for those with ADM disorders). Predicted probabilities of current smoking status without smoking cessation counseling were 90.8% for all smokers, 94.0% for smokers with ADM disorders and 89.5% for smokers without ADM disorders. Predicted probabilities of current smoking status with smoking cessation counseling were 67.3% for all smokers, 68.7% for smokers with ADM disorders and 65.1% for smokers without ADM disorders.
CONCLUSION: The use of an instrumental variable was able to identify that past year primary care provider counseling is associated with smoking cessation among all individuals and individuals with ADM disorders who had been previously identified as current smokers. Smokers with ADM disorders should continue to be targeted for smoking cessation counseling. Future prospective studies should be conducted to verify a causal relationship between smoking cessation counseling and actual smoking cessation in this important population.

IS TELEPHONE PRESCRIBING OF ANTIBIOTICS ASSOCIATED WITH MORE BROAD-SPECTRUM ANTIBIOTIC USE AND LONGER TREATMENT COURSES? M. Drees[1]; X. Xu[1]; R.E. Aubert[2]; B. Fainstein[2]; D.R. Snydman[3]; I.B. Wilson[3]. [1]Christiana Care Health System, Newark, DE; [2]Medco Health Solutions, Inc., Franklin Lakes, NJ; [3]Tufts Medical Center, Boston, MA. *(Tracking ID # 205133)*

BACKGROUND: The overuse of antibiotics, and in particular broad-spectrum antibiotics, is a significant public health problem, and the extent to which "phone medicine" contributes to this overuse problem has not been studied. We used 2003 data from a research database of a nationwide pharmacy benefits manager to compare rates of overall and broad-spectrum antibiotic use in visit-based and non-visit-based encounters.
METHODS: We analyzed de-identified pharmacy and medical claims from a random 40% sample of the national database who were <65 years old. Telephone- or other non-visit-based prescriptions (NVBP) were defined as any new oral antibiotic prescription (Rx) without a medical claim within 7 days of the Rx date. We defined broad-spectrum antibiotics as fluoroquinolones, second & third-generation cephalosporins, amoxicillin/clavulanate, azithromycin and clarithromycin. Comorbid conditions (e.g., diabetes, COPD, asthma) were identified using medical claims. We compared rates of use of broad-spectrum antibiotics and treatment duration in visit-based and non-visit-based encounters, and examined differences in rates of NVBP by gender, age, and comorbid conditions.
RESULTS: Of 1.46 million antibiotic Rx during 2003, 351,567 (23.9%) were NVBP. Among visit-based Rx, 57.6% were broad-spectrum antibiotics, while 37.8% of all NVBP were broad-spectrum. Among visit-based Rx azithromycin (18.6%), amoxicillin (17.2%) and amoxicillin/clavulanate (11.4%) were the most commonly prescribed anti-

biotics, compared with amoxicillin (24.8%), azithromycin (16.5%), and penicillin (9.6%) for NVBP. The median treatment course for all of the broad-spectrum antibiotics was 10 days (except azithromycin [5 days] and ciprofloxacin [7 days]) and did not differ by NVBP vs. visit-based Rx. However, for penicillin, amoxicillin and 1st-generation cephalosporins, NVBP treatment courses were shorter than visit-based Rx courses (7 days for NVBP vs. 10 days for visit-based Rx). Of 2.04 million eligible members, 770,055 (39%) received any antibiotic Rx during 2003, and of those, 257,018 (33%) received ≥1 NVBP. A slightly higher proportion of females received any NVBP compared to males (34.0% vs. 32.7%). A smaller proportion of children and adolescents (19.2%) received any NVBP, while the highest proportion receiving NVBP were among those aged 40–64 years (37.4%). Compared to patients with none of the selected comorbidities (34.5% of whom received NVBP), fewer patients with a comorbidity received NVBP (diabetes 31.6%; COPD 27.5%; asthma 25.1%), with the exception of HIV (37.5%). Compared to patients with only visit-based Rx, those with any NVBP received more total Rx during the study period (mean 2.3 vs. 1.7) but fewer visit-based Rx (mean 0.9 vs. 1.7). All comparisons cited were significant at $p<0.001$.

CONCLUSION: Telephone prescribing of antibiotics was not associated with higher rates of use of broad-spectrum antibiotics or longer courses, but was associated with more total per-patient antibiotic exposure. Appropriately, physicians seem less willing to prescribe by phone to sicker, more complex patients. A limitation of this approach is that clinicians almost certainly are more willing to treat some problems over the phone (e.g., urinary tract infections) than others, and claims data cannot capture diagnoses for Rx not associated with a visit. Nonetheless, we show that the use of broad-spectrum antibiotics, and long courses thereof, is widespread in both telephone and in-person encounters.

"IS THE PAIN REAL?" A QUALITATIVE STUDY OF CLINICIANS APPROACHES TO DETERMINING THE LEGITIMACY OF CHRONIC PAIN IN PRIMARY CARE PATIENTS

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BACKGROUND: Chronic pain is a subjective experience and presents challenges for primary care providers to make treatment recommendations for patients with pain. Complicating the assessment of pain, information from objective tests is frequently inconsistent with the patient's reporting of pain symptoms. This is of particular concern if providers suspect that patients may be exaggerating their pain to obtain opiates, to receive disability payments, or for potential secondary gains. Our objective was to identify primary care provider concerns related to pain assessment and how they justified whether their patient's reports of pain were "real" or legitimate.

METHODS: We conducted 20 semi-structured interviews with primary care providers from the Roudebush VA General Medicine Clinics. Interview questions were designed to identify perceived barriers to initiating or changing pain treatment in patients with chronic severe pain. All interviews were audio-taped and transcribed to facilitate data collection and analysis. Five researchers coded and analyzed provider transcripts for emergent themes using constant comparison methodology. Discrepancies were resolved by consensus.

RESULTS: Providers (N=20) ranged in age from 33 to 54 years with equal numbers of males and females. Length of time in practice ranged from less than 5 years to more than 20 years. Interviewees included four nurse practitioners, one Doctor of Pharmacy, and 15 physicians. Providers' comments regarding pain assessment fell into two categories: 1) inconsistencies between patient accounts and objective measures and 2) provider reliance on intuition from observational impressions of patient demeanor to ascertain "legitimate" pain. With respect to the first category, one provider commented, "There was nothing on his x-rays that went along with all of the pain that he was saying that he had . . . seemed like his complaints were way out of proportion to his presentation." More often, providers relied on observation and intuition with comments such as, "You know, their presentation, the way they interact with me, it's just a feeling." Another provider referred to a patient interaction this way: "She is interesting because she doesn't say, 'well everything is terrible'. . , so it kind of to me adds some legitimacy." Sometimes providers' intuitions about patients related to suspicion of secondary gains: "My take on him is that he wants to be on disability. I don't really believe that he has a lot of pain . . . I feel like he's trying to pull the wool over my eyes."

CONCLUSION: Assessment of pain as the "fifth vital sign" has raised awareness of the problem of chronic pain but has posed particular challenges for providers. At least a third of the time, an underlying etiology to pain is unsubstantiated. As a result, providers must rely on patients' accounts to authenticate patients' subjective reports of chronic pain. Our study found that providers questioned the "legitimacy" of pain in the absence of objective findings and when secondary gain issues were suspected. Understanding providers' assessments and attitudes regarding the legitimacy of pain is crucial to inform effective pain management and avoid the under-treatment of chronic pain.

IS THERE AN ASSOCIATION BETWEEN QUALITY OF OBESITY COUNSELING AND PATIENTS' MOTIVATION AND INTENTION TO CHANGE THEIR BEHAVIORS?

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BACKGROUND: Physicians frequently fail to counsel obese patients, and even those who do often fail to specifically discuss diet, exercise, and other treatment options. The 5A's model (assess, advise, agree, assist, arrange) has been recommended for improving the quality of obesity counseling, but it is unclear whether its use improves patient outcomes. We sought to determine whether increased quality of physician counseling (as measured by the number of 5A's counseling skills demonstrated during a routine medical visit) is associated with increased patient motivation to lose weight and intentions to improve diet and exercise behaviors.

METHODS: We invited 188 English and Spanish-speaking obese patients (body mass index (BMI)≥30) seen by 23 primary care residents at a publically funded ambulatory care center serving an underserved inner city community to participate in a structured interview immediately after their physician visit. The survey measured patients' motivation to lose weight and intentions to exercise and eat a healthier diet using Likert scales and patients' report of which of nineteen 5A's counseling skills the physician used during the visit (e.g. Assess: "Did your doctor ask whether you are currently trying to lose weight?"). We calculated the percentage of 5A's skills performed during the visit (counseling score). We then used three separate hierarchical regression models with motivation to lose weight and intentions to exercise and eat a healthier diet each as dependent variables and counseling score as an independent variable. We controlled for BMI, current exercise habits, use of portion control, health rating, diabetes, arthritis, use of Spanish during visit, health literacy, and whether this was the first visit with the doctor.

RESULTS: We interviewed 156 patients (32 declined to participate). Sixty-one percent of the interviews were done in Spanish. The mean overall counseling score was 34% (SD=27%) For motivation to lose weight, our regression model accounted for 8.8% of the variance with counseling score as the only significant contributor, accounting for 3.4% of the variance (Std B=.21, P=.02). Our model accounted for 15% of the variance in intention to exercise, and counseling score accounted for 2.6% of the variance (Std B=.18, P=.04). Current level of exercise was also a significant independent variable (Std B=.19, p=.02). Finally, our model accounted for 25% of the variance in intention to eat healthier with counseling score accounting for 5.0% of the variance (Std B=.25, P=.002). Other significant variables included health rating (1–6, poor to excellent, Std B=.18, p=.03) and health literacy (adequate vs. low, Std B=.18, p=.03).

CONCLUSION: Physicians' use of the 5A's when counseling obese patients is associated with a small but significant increase in patients' motivation to lose weight and intentions to improve diet and exercise behaviors. Improving the quality of physicians' delivery of obesity counseling based on the 5A's model may be an important way to ultimately impact patient outcomes.

IS THERE NEPHROPROTECTION FOR PATIENTS ON STATINS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION?
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BACKGROUND: Statins are extensively used for treatment of dyslipidemia and CAD prevention. Current controversy exists regarding possible pleiotropic effect of statins with many vascular and nonvascular beds appearing to benefit from their administration. To date, little data exists to support possible nephroprotective effects of the non-lipid effects of statins. Hypothesis: We hypothesize that pre-administration of statins in pts prior to undergoing percutaneous coronary intervention (PCI) may be beneficial in preventing contrast induced nephropathy (CIN).
METHODS: A retrospective study of 4000 pt charts who underwent PCI for standard clinical reasons was performed. Pts were categorized into those who developed CIN (based on serum creatinine (SCr) level elevation by >0.5 mg/dL from baseline) and those with normal renal function after PCI. Pts with CIN were further grouped into statin (-) and statin (+) prior to PCI. Multivariate analysis against HTN, DM, age, sex, baseline SCr, BUN, contrast dose, WBC and lipid levels was performed and related to statin +/- therapy.
RESULTS: SCr was measured within 1 week prior to or on the day of PCI in 806 pts: 516 (64%) male, 289 (36%) female and within 1 week post PCI. Statin therapy was initiated in 328 (41%) pts >1 week prior to PCI. When classified by statin therapy ((+) or (-)), there was no significant difference in the incidence of CIN (29 vs 39, p=0.8). However there was a significant number of pts who had rise to over 2.5 mg/dL in the statin (-) pts ($p<0.05$). When limited to the absolute rise in SCr, the mean rise in SCr was 0.64 in statin (-) vs 0.16 mg/dL in statin (+) subgroup, representing a 3-fold nephroprotective effect of statins ($p<0.001$). Interestingly, HTN, age, sex, baseline SCr or BUN, LDL/total cholesterol/triglceride level, WBC or contrast load were not a significant variable in predicting the rise in SCr; while only statin+ therapy was nephroprotective.
CONCLUSION: Renal pleotropism due to statin therapy to prevent against CIN appears to have important clinical benefits. A strong signal supporting additional statin capability as a nephroprotective agent emerged. Early pre-PCI use of statins therapy was independently reno-protective despite the strong presence of otherwise high risk comorbidities.

IS TRAUMA ASSOCIATED WITH WORSE SOMATIC SYMPTOMS IN WOMEN THAN MEN?
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BACKGROUND: Female trauma survivors are more likely to present with somatic complaints than men who survive trauma. The etiology of this gender disparity may include increased biologic susceptibility due to female sex, gendered differences in response to trauma, or gender-associated confounders. We explore gender differences in the association between trauma and somatic symptoms.
METHODS: Cross-sectional data were collected from 597 primary care patients with chronic pain recruited from an urban primary care clinic. Somatic symptom severity is defined by the PHQ-15, validated to measure the severity of somatic symptoms in clinical and research populations, and categorized as minimal/low (low), medium (med), and high. We examine the association between somatic symptom severity and three trauma types: 1) sexual trauma (ST), 2) intimate partner violence victimization (IPV), and 3) childhood trauma history (>/=3 adverse childhood experiences (3+ACE)). We stratify symptoms by gender and perform tests for trend of the association between trauma and somatic symptom severity. We then examine the effect of gender and trauma on somatic symptom severity in separate multivariable regression models.
RESULTS: 350 (59%) of the respondents were female, with a mean sample age of 47. Women reported significantly more somatic symptoms than men (women high/med/low: 42%/35%/23%, men high/med/low: 24%/29%/47%, $p<.001$). Women were more likely than men to report a history of ST (17% versus 5%, $p<.001$) and IPV (57% versus 42%, $p<.001$), but equally likely to report 3+ACE (41% versus 43%, p=.50.) In gender-stratified, independent analyses of ST, IPV and 3+ACE, subjects with trauma history reported more severe somatic symptoms (all p-values for trend <.05) compared to those without trauma. In all three regression models, the interaction term between gender and trauma was nonsignificant and was thus excluded from the final models. In each of the models, both female gender and trauma history conferred increased odds of greater somatic symptoms. (See Table.)
CONCLUSION: Women have more severe somatic symptoms than men independent of trauma exposure. However, the association between trauma and somatic symptoms is similarly amplified in both men and women. Thus, gender confounds but does not modify the effect of trauma on somatic symptom severity. Further research should elaborate gender-associated confounders that account for this disparity, including potential mediators such post-traumatic stress disorder, and gender difference in trauma type.

Table. Associations Between Trauma Exposure and Somatic Symptom Severity (Odd Ratios (95% CI))

	Somatic Symptom Severity		
Covariates	high vs. low	med vs. low	high vs. med
Model 1			
ST vs. no ST	3.05 (1.91, 4.86)	1.88 (1.17, 3.03)	1.62 (1.06, 2.46)
female vs. male	2.63 (1.70, 4.08)	2.05 (1.34, 3.14)	1.28 (0.82, 2.00)
Model 2			
IPV vs. no IPV	2.47 (1.63, 3.74)	1.55 (1.03, 2.34)	1.59 (1.06, 2.37)
female vs. male	3.25 (2.13, 4.95)	2.32 (1.54, 3.49)	1.40 (0.92, 2.14)
Model 3			
3+ACE vs. 0–2 ACE	2.93 (1.91, 4.49)	1.70 (1.11, 2.60)	1.72 (1.16, 2.57)
female vs. male	3.90 (2.54, 5.98)	2.53 (1.68, 3.82)	1.54 (1.01, 2.35)

"IT SHOWS EVERYTHING": BELIEFS ABOUT THE PAP SMEAR AMONG LATINOS IN OREGON
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BACKGROUND: Latinas are less likely to be screened for cervical cancer and more likely to die from cervical cancer than non-Hispanic white women. It has been suggested that Latinos' knowledge, attitudes, and beliefs about cervical cancer and cervical cancer screening may help account for this disparity. Yet, few studies have examined what Latinos believe about the Pap smear or how those beliefs affect cervical cancer screening behaviors.
METHODS: We conducted in-depth interviews with Latinos from Mexico using a protocol developed in conjunction with Latino community health workers. We used snowball sampling to recruit participants. All interviews were recorded and transcribed. Team members met monthly to review transcriptions and identify emerging themes. JG, LTC, and RA then coded the transcripts in their original language using the initial themes for guidance, identifying additional themes as they emerged.
RESULTS: Participants: We interviewed 28 women and 23 men of Mexican origin. Ages ranged from 18 to 63 and family incomes from $500/ month to 8,000/month. All spoke Spanish or English, though 4 cited an indigenous language as their primary language. Thematic Analysis: Questions elicited beliefs about the Pap smear and explored potential relationships between beliefs about the Pap smear, cervical cancer and the HPV vaccine. Many of the dominant themes highlighted confusion about the complicated relationship between STIs, cervical cancer, and cervical cancer prevention. For the purposes of this presentation, we have limited our focus to discussion of those themes. Over half (28/51) of all individuals suggested that the Pap smear screens for sexually transmitted infections such as Gonorrhea, Syphilis, and HIV. Furthermore, while nearly half (23/51) identified the Pap smear as a screening test for cancer, most of those respondents considered the cancer

screen to be only one part of a more comprehensive check-up for STIs: "[A woman should get a Pap smear] because they say that a person can get cancer of the uterus .. no? Also, for infections, AIDS, it shows everything." (female, 25) Most respondents had never heard of the HPV vaccine. Only eight individuals were able to identify it as a vaccine to prevent a virus, warts, and/or cancer. Five women considered it a vaccine to prevent STIs generally. Finally, individuals also linked the development of cervical cancer itself to STIs and higher risk sexual behaviors.

CONCLUSION: This research highlights the confusion that exists among Latinos in our sample regarding the relationship between sexually transmitted infections, cervical cancer, and the Pap smear. This is problematic because Latinos who consider the Pap smear as a test for infections may conceptualize it less in terms of a preventive exam to be performed at regular intervals, and more as a diagnostic tool to be used on an ad hoc basis. Latinas may also be less likely to be screened if they feel that doing so would be potentially stigmatizing. In addition, the belief that a normal Pap smear indicates that a woman is free of STIs may have ramifications in terms of Latnos' safe sex behaviors and motivation to seek STI screening. Thus, if these findings are replicable on a larger scale, it will be critical to explore how these beliefs affect both cervical cancer prevention and the prevention of STIs among Latinos from Mexico.

IT'S THE WRITING ON THE WALL: WHITEBOARDS IMPROVE INPATIENTS SATISFACTION WITH PROVIDER COMMUNICATION.
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BACKGROUND: Although experts agree that keeping inpatients informed is an important part of quality hospital care, patients often report they are not well informed. Therefore, we studied patient satisfaction with professional communications before and after whiteboards were placed in patient rooms on certain wards of a large teaching hospital.

METHODS: Whiteboards were placed on 4 general medicine wards on July 1, 2006. Nurses and physicians were asked to use them to improve communication with inpatients, but no particular approach was specified. For patients discharged from these wards we examined responses to 3 items on a commercial survey administered to a random subset of patients discharged from our hospital. As a comparison group, we used patients discharged from 7 surgical wards where no whiteboards were placed. The survey items asked patients to rate their agreement with the following statements on a 5 level Likert scale: 1) nurses kept you informed; 2) physicians kept you informed; 3) staff included me in decisions about my care. Responses were converted to a 0 to 100 numeric score. We used simple t-tests to compare satisfaction scores of patients discharged during 6 month periods before and after the whiteboards were placed (Jan-June 2006 vs. Jan – June 2007). We selected these periods to ensure house staff were at comparable levels of experience, and to minimize transient effects of the novelty of whiteboards. Scores for a year prior to Jan 2006 were also examined to check for continuation of secular trends that may have preceded the intervention. Patient satisfaction scores with food quality and room temperature (which whiteboards should not affect) were examined to exclude a trend in overall patient satisfaction.

RESULTS: As shown in the table, patient satisfaction with communication improved significantly on medicine wards: nurse communication (+6.4); physician communication (+ 4.0); involvement in decision making (+ 6.3). Patient satisfaction scores did not change significantly on surgical wards. There was no secular trend to account for these changes. Scores for food quality and room temperature were unchanged.

CONCLUSION: We found that whiteboards modestly increased patient satisfaction with communication. This simple and effective tool may increase the involvement of hospitalized patients in their care. However, our findings should be confirmed in other settings, preferably using randomized assignment of the intervention.

Patient satisfaction scores-means

MEDICINE	Jan–Jun 2006	Jan–Jun 2007	p- value (t-test)
Nurses kept you informed	82.2	88.6	0.0002
Physician kept you informed	81.0	85.0	0.04
Staff included me in decisions	78.8	85.1	0.002
Food quality	71.5	74.4	0.13
Room Temperature	75.4	77.7	0.18
SURGERY			
Nurses kept you informed	86.2	86.5	0.79
Physician kept you informed	85.1	85.7	0.64
Staff included me in decisions	83.2	84.3	0.39

KEYS TO SUCCESSFUL IMPLEMENTATION OF A QI BASED, GERIATRIC EDUCATION INTERVENTION FOR PRIMARY CARE
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BACKGROUND: Generally, quality of care for common geriatric conditions is poor. Changing provider behavior through educational interventions is challenging. We describe a new educational intervention, Advancing Geriatrics Education through Quality Improvement (AGE QI), based on core components of the PRECEDE/PROCEED implementation model.

METHODS: Primary care clinics (n=21) from three institutional settings, the University of Utah, Intermountain Healthcare and the VA Salt Lake City Health Care System, were invited to participate. The intervention consisted of an initial 2-hour presentation on geriatric assessment essentials conducted onsite for the entire clinic staff, followed one month later by a 1-hour QI presentation when their projects were selected. The key predisposing factors include: 1) established electronic medical records; 2) institutional experience with QI programs; and 3) support and involvement of institutional leaders and IT managers. Reinforcing factors include incentives for participation, e.g. providing 20 hours of free Category 1 CME credits that also meet maintenance of certification and CMS Pay for Performance requirements. Enabling factors include regular support calls over the 6-month period, provision of performance feedback and development of computerized reminders and templates.

RESULTS: To date, 91 providers and 159 clinic staff from 19 clinics who have been offered the program have either completed their projects or are in progress (a 90% participation rate). Of the nine clinics that have completed their projects, average performance improvement on targeted QI outcomes (e.g. screening for fall risk, completion of advance directives) averaged 41% and ranged from 22% to 100%. All pre/post comparisons were statistically significant. 72% of the providers in the 9 completed clinics received all 20 available CME credits. Formative evaluation results demonstrate the importance of flexible clinic-specific strategies, supportive contact and congruence with institutional goals.

CONCLUSION: An educational intervention based on the PRECEDE/PROCEED model that includes key predisposing, enabling and reinforcing factors resulted in demonstrable changes in provider behavior. Keys to success include using a QI approach, offering CME and having institutional support.

KIDNEY FUNCTION DECLINE AND INCIDENT CHRONIC KIDNEY DISEASE IN INDIVIDUALS WITH HYPERTENSION BY RACE AND ETHNICITY
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BACKGROUND: African Americans and Latinos have rates of incident end stage renal disease (ESRD) 3.6 and 1.5 times higher than non-Hispanic white populations, despite similar rates of prevalent chronic kidney disease. This discrepancy has been attributed to faster decline in kidney function or a survival advantage of these minority groups resulting in a greater opportunity to develop ESRD. Little is known about rates of incident chronic kidney disease (CKD) and rates of decline of kidney function in patients with normal kidney function at baseline by race and ethnicity. Our objectives were to identify predictors of incident CKD, to estimate the rate of decline in kidney function among individuals who had not developed CKD and to compare these rates by race and ethnicity.
METHODS: We performed a retrospective cohort study of patients in a hypertension registry in an inner-city health care delivery system in Denver, Colorado. Adults with hypertension and normal kidney function at baseline, who had a minimum of 3 serum creatinines and at least one year of follow up were included in analysis. The primary outcome was development of incident CKD, defined as estimated glomerular filtration rate (eGFR) <60 mL/min/1.73 m2 for at least 3 months. The secondary outcome was change in eGFR over time (slope).
RESULTS: There were 10,420 patients with hypertension who met our inclusion criteria. After a mean follow up of 44 months, 429 (4.1%) had developed CKD. In multivariate models, baseline age (odds ratio (OR) 1.13, 95% confidence interval (CI), 1.03–1.24), baseline eGFR (OR 0.69, 95% CI 0.65–0.73), presence of diabetes (OR 3.66, 95% CI 2.97–4.51) and vascular disease (OR 1.67, 95% CI 1.32–2.10) independently predicted incident CKD. We found no independent association between age, gender or race/ethnicity with eGFR slope. The slope for the patients who did not have diabetes or vascular disease at baseline was a decline of 1.52 mL/min/1.73 m2 per year. Presence of diabetes at baseline was associated with an additional decline of 1.38 mL/min/1.73 m2, for an overall decline of 2.9 mL/min/1.73 m2 per year. There was a significant interaction of diabetes with baseline vascular disease that resulted in patients with both diabetes and vascular disease having an additional 0.62 mL/min/1.73 m2 per year decline compared to patients with either diabetes or vascular disease alone.
CONCLUSION: We found no difference by race/ethnicity in rates of incident CKD or in decline of kidney function as defined by GFR slope over time in this diverse cohort of hypertensive patients in an inner-city, integrated delivery system. Diabetes was the strongest predictor of both incident CKD as well as eGFR slope. Presence of vascular disease at baseline was additive.

KNOWLEDGE AND ATTITUDES OF TUBERCULOSIS MANAGEMENT IN SAN JUAN DE LURIGANCHO DISTRICT OF LIMA, PERU
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BACKGROUND: Peru was one of the first high-burden tuberculosis (TB) countries to successfully implement Directly Observed Therapy, Short-Course (DOTS), resulting in a sharp decline in TB incidence from 1991 to 1999. Despite these efforts, a resurgence of TB and multi-drug resistant TB (MDRTB) occurred during the last years of this decline. With the expansion of TB health care workforce, there is increased recognition in Peru that less is known regarding the TB knowledge and attitudes of professional health care providers (HCPs) such as doctors and nurses, and non-professional HCPs such as community health workers. We conducted a comprehensive survey of knowledge and attitudes of HCP staffing health centers in Lima, Peru, in order to better inform Peru's efforts to combat TB and to identify modifiable barriers for improvement.
METHODS: We developed a Spanish language TB cross-sectional survey based on guidelines developed by the Peruvian Ministry of Health, the Estrategia Sanitaria Nacional de Prevención y Control de la Tuberculosis (ESN PCT), and published surveys of HCPs in developing countries. In February 2007, we surveyed HCPs in 31 health care facilities (hospitals, community health centers, and community health posts) in the San Juan de Lurigancho district of Eastern Lima, Peru. HCP included doctors, nurses, community health workers, health technicians, and students. The survey consisted of 14 multiple choice questions on TB knowledge including diagnosis, transmission, and treatment. Correct answers were as per established ESN PCT guidelines. Attitudes were assessed with a five-item Likert scale, indicating level of agreement with statements concerning the clinic environment, quality of staff education and resources, and attitudes toward social factors and programs.
RESULTS: 73 HCPs were surveyed, of which 15% were professionals (doctors or nurses). The remaining 85% were health technicians, community health workers or students. In general, knowledge of the cause of TB, contagious nature of disease, symptoms, initial diagnosis, and drug regimens to treat TB was quite high among all HCPs. The mean knowledge score was 10.0±1.9 (maximum 14) with professional HCPs scoring higher than other HCPs (11.7±1.1 vs. 9.7 ±1.9), p<.01). The difference in scores between professional HCPs and non-professional HCPs remained robust even after adjusting for age, gender, practice type and having taken a TB educational course (p<.01). Knowledge gaps included identification of patients at high risk for TB, assessment of treatment outcomes, and consequences of treatment failure. We did not find significant differences in attitude statements between professional and non-professional HCPs, or by education level, age quartiles, or practice type. The most commonly cited modifiable barriers were structural, including insufficient laboratory facilities and staffing of TB clinic. 52% and 62% of HCPs respectively, cited these as problematic. Providers also expressed lack of support and differing opinions about treatment implementation.
CONCLUSION: Efforts to combat the resurgence of tuberculosis in Peru should include educational interventions addressing the knowledge gaps we have identified, increased resources for laboratory facilities and clinic staffing, and increased HCP voice and participation in TB treatment programs.

LABELING DEATH: THE LINK BETWEEN RACE, HYPERTENSION PREVALENCE AND HYPERTENSION RELATED DEATH
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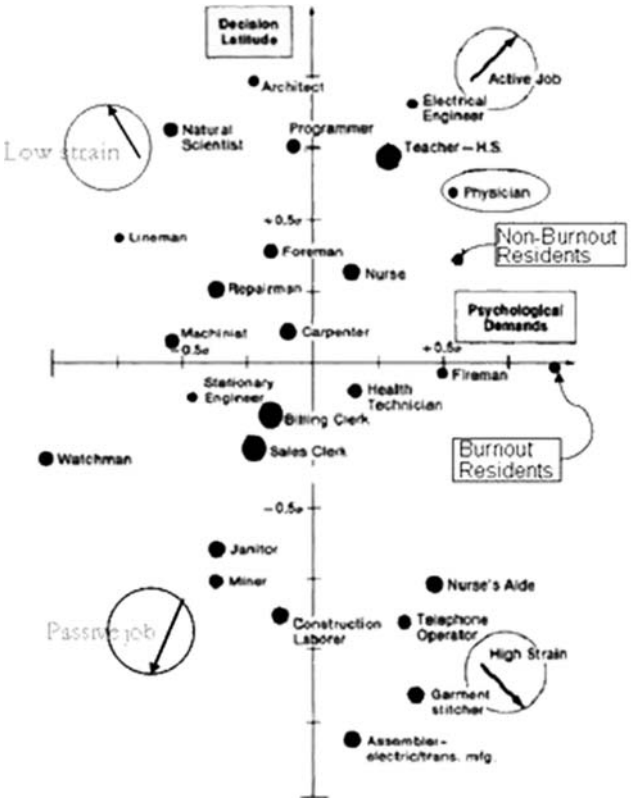
BACKGROUND: Racial disparities in mortality are significant and widely documented. The greatest contributor to racial mortality disparities is heart disease, the leading cause of death in the U.S. accounting for 652,091 deaths in 2005. Racial disparities in hypertension, one of the principal modifiable risk factors leading to heart disease, stroke and renal failure, embody one mechanism leading to the excess mortality reported among blacks. This paper examines the link between racial disparities in hypertension prevalence and disparities in diagnosing—or labeling—deaths as hypertension related—a key component of the widely cited hypertension disparities.
METHODS: More specifically, we use data from the National Center for Health Statistics Multiple Cause of Death File (MCD) and the National Health Interview Survey Linked Mortality File (NHIS) to analyze the relationship between race, the probability of having ones death reported as hypertension, and various social, economic and health-related characteristics.
RESULTS: Our results reveal that: 1) blacks are two times more likely than whites to have their deaths labeled as hypertension across the adult life course (OR=1.784 for females and OR=2.159 for males), 2) the increased likelihood of a black person's death being labeled as hypertension is unrelated to group differences in education, place of death, number of multiple-causes on death certificate, diabetes as a related cause and county fixed effects, and 3) the increased odds of labeling a black death as hypertension is independent of subjective health status, BMI, socioeconomic status and region of occurrence, and finally, 4) the addition of pre-existing reports of high blood pressure to models caused minimal change in the magnitude or significance of the impact of race on reported hypertension mortality (OR=2.025 for males, decreased to OR 1.970 after adding premortem hypertension diagnosis to the model, for females OR=1.721, was identical after adding pre-existing hypertension to the model).
CONCLUSION: We conclude with a discussion of the mechanisms whereby black deaths may be more likely to be labeled as hypertensive than white deaths, and of the implications of our results for policies designed to curb racial disparities in health and vitality.

LACK OF DECISION LATITUDE AND HIGH PSYCHOLOGICAL DEMANDS ARE ASSOCIATED WITH INTERNAL MEDICINE RESIDENT BURNOUT. R.K. Gopal[1]; T.E. Yamashita[2]; J. Campbell[2]; A.V. Prochazka[1]. [1]VAMC, Denver, CO; [2]University of Colorado Denver School of Medicine, Denver, CO. *(Tracking ID # 204091)*

BACKGROUND: High stress helping professionals are at risk for burnout, hence burnout is very common in internal medicine residents. The most common features are a combination of emotional exhaustion and depersonalization.
METHODS: We administered a postal survey in May 2008 to first, second and third year internal medical residents, at the University of Colorado Denver School of Medicine. The survey contained the Maslach Burnout Inventory, a 22-item questionnaire organized into three subscales: emotional exhaustion (EE), depersonalization (DP), and personal accomplishment. We defined burnout as either high EE or DP. We screened for depression using the two question PRIME-MD and assessed psychosocial job characteristics with the 14-item Job-Content Questionnaire (JCQ). The JCQ is based on the demand-control model with z-scores plotted as demands (x-axis) and decision latitude (y-axis). Professionals in the upper right quadrant experience good stress while the lower right quadrant indicates high job strain.
RESULTS: The response rate was 66% (97/148) (32% PGY1, 35% PGY2, 33% PGY3). Three-fourths of the respondents were in the 26 to 30 year old age group with 53% female gender.Fifty-two (54%) of the residents met criteria for high EE, 65 (67%) residents met criteria for high DP, and 74 residents (76%) met criteria for burnout while 45% of residents screened positive for depression. The JCQ resident z-scores were .79 for psychological demands and .05 for decision latitude, placing them in the active behavior quadrant. Burned out residents had higher demands (z-score .87 vs .52, p=.01) and lower decision latitude (z-score -.04 vs .36, p=.01) placing them into the job strain quadrant.
CONCLUSION: Burnout continues to be a major problem in medical residency training program. High levels of psychological demands and low levels of autonomy are associated with burnout. Since work-hour reduction has not decreased burnout, increasing decision latitude may be a target for interventions.



JCQ normative plot of decision latitude and psychological demands with resident data.

LANGUAGE BARRIERS, SYSTEMS OF CARE AND DELAYS IN FOLLOW-UP OF ABNORMAL MAMMOGRAMS L. Karliner[1]; L. Ma[1]; M. Hofmann[1]; K.M. Kerlikowske[1]. [1]University of California, San Francisco, CA. *(Tracking ID # 205245)*

BACKGROUND: Breast cancer is frequently diagnosed after an abnormal screening or diagnostic mammography result. Language barriers for a growing population of U.S. women with limited English proficiency can complicate communication of those results. We evaluated the association of non-English language with delay in follow-up of an abnormal mammography result; additionally, we investigated whether that association is altered by education level or system of care.
METHODS: Prospective cohort study of women in the San Francisco Mammography Registry (SFMR) with an abnormal mammography result between 1997–2006 from three clinical sites for which we had primary language information. We included the first abnormal mammography examination for each woman. We investigated differences in time to the next appropriate follow-up examination stratified by primary language (English vs non-English) and BI-RADS category (3, 0, 4 or 5) and adjusted for education (high school, >high school, unknown) and education and clinical site/system of care (community hospital, county hospital, academic cancer center).
RESULTS: Of 11,551 women with an abnormal screening or diagnostic mammography result, 3,593 (31%) had a non-English primary language. Forty percent of non-English speakers had not graduated from high school, whereas 8% of English-speakers had not. Clinical sites differed in the proportion of women who were non-English-speakers, ranging from 17% at an academic cancer center to 51% at the county hospital. The majority (83%) of mammography was done for routine screening, and most (82%) results were BIRADS 0 (need additional imaging evaluation); 14% were BIRADS 4 or 5 (suspicious or highly suggestive of malignancy), and 4% were BIRADS 3 (requiring 6-month imaging follow-up). Non-English-speakers with a BIRADS 0 examination had a 2-fold odds of a delay in timely follow-up imaging (>30 days) compared to English-speakers (OR 2.21; CI 2.02–2.43). This association persisted after adjustment for education (OR 1.67; CI 1.51–1.85) and for education and system of care (OR 1.14; CI 1.01–1.29). Likewise, non-English speakers with a BIRADS 4 or 5 examination had an increased odds of a delay in timely follow-up imaging or biopsy (OR 1.84; CI 1.44–2.36). This trend persisted, but was no longer significant after adjustment for education (OR 1.31; CI 1.00–1.73), and for education and system of care (OR 1.36; 0.96–1.93). There was no difference by language group in rates of timely follow-up for women with BIRADS 3 examination.
CONCLUSION: Non-English-speakers are more likely than English-speakers to experience delays in follow-up after an abnormal mammography result. This finding is not fully explained by differences in education or clinical site, indicating language barriers present communication challenges across systems of care. Future research should investigate system's improvement approaches to ensure non-English-speakers with an abnormal mammography result receive timely evaluation and diagnosis.

LEG SYMPTOM TYPE PREDICTS THE RATE OF FUNCTIONAL DECLINE IN PATIENTS WITH PERIPHERAL ARTERIAL DISEASE: A FIVE-YEAR FOLLOW-UP STUDY M.M. Mcdermott[1]; K. Liu[1]; J.M. Guralnik[2]; L. Ferrucci[2]; L. Tian[1]; M.H. Criqui[3]. [1]Northwestern University, Chicago, IL; [2]National Institute on Aging, Bethesda, MD; [3]University of California, San Diego, La Jolla, CA. *(Tracking ID # 204726)*

BACKGROUND: Intermittent claudication (IC) is the most classic symptom of lower extremity peripheral arterial disease (PAD). However, most men and women with PAD are asymptomatic or have atypical leg symptoms other than IC. This study determined whether specific types of leg symptoms are associated with the rate of functional decline at five-year follow-up among persons with PAD, compared to a reference group of persons without PAD.
METHODS: Participants included 377 men and women with PAD and 243 without PAD identified from Chicago-area medical centers. All participants were age 55 or older at baseline. PAD was defined as an ankle brachial index (ABI) <0.90. Absence of PAD was defined as ABI=0.90–1.30. Participants performed a six-minute walk test at

baseline and at annual follow-up visits. Medical history was confirmed with medical record review. At baseline, patients were categorized into groups according to their leg symptoms. Leg symptom categories for PAD participants included IC (exertional calf pain that does not begin at rest and resolves within ten minutes of rest), pain on exertion and rest (exertional leg symptoms that sometimes begin at rest), pain/carry on (exertional leg symptoms that did not stop the participant from walking), always asymptomatic (no exertional leg symptoms and the participant did not develop leg symptoms during the six-minute walk at baseline) and sometimes asymptomatic (no exertional leg symptoms, but the participant developed leg symptoms during the six-minute walk). Outcomes were assessed annually for up to five years. Mobility loss was defined as loss of the ability to walk 1/4 mile or walk up and down one flight of stairs without assistance among those without baseline mobility impairment. Becoming unable to walk for six minutes continuously was defined as stopping during the six minute walk at follow-up among those who walked for six minutes continuously at baseline.

RESULTS: The Table below shows hazard ratios for associations of baseline leg symptoms with functional outcomes at five year follow-up, adjusting for age, sex, race, comorbidities, smoking, body mass index, and other confounders. The Table shows associations of each leg symptom category with mobility loss, becoming unable to walk for six minutes continuously without stopping, and a six-minute walk decline of 20% or more.

CONCLUSION: Among persons with PAD, those who are always asymptomatic, those with IC, and those with pain on exertion and rest are at highest risk of functional decline at five-year follow-up

Adjusted hazard ratios for associations of baseline leg symptoms with functional decline at five year follow-up in persons with PAD.

	Mobility loss	P value	Stop during six-minute walk	P value	>20% decline in six-minute walk	P value
IC (n=202)	0.92	0.83	2.24	<0.01	2.46	0.04
Pain on exertion and rest (n=65)	3.20	<0.001	2.08	0.02	1.82	0.01
Pain/carry on (n=38)	0.95	0.94	1.00	0.99	1.21	0.58
Always asymptomatic (n=42)	2.90	<0.01	1.13	0.77	1.39	0.31
Sometimes asymptomatic (n=30)	1.08	0.89	1.30	0.57	1.28	0.46
No PAD (n=243)	1.0	NA	1.0	NA	1.0	NA

LIFESTYLE PREDICTORS OF 14-YEAR CHANGE IN HIGH-DENSITY LIPOPROTEIN CHOLESTEROL IN MALE PHYSICIANS

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BACKGROUND: Large increases in high-density lipoprotein cholesterol (HDL-C) have been associated with decreased coronary heart disease (CHD) risk. However, there are few well-tolerated effective medications that increase HDL-C. We sought to determine lifestyle predictors of 14-year HDL-C change a cohort of male physicians.

METHODS: The Physicians' Health Study I (PHS I) began in 1982 and includes a cohort of 22,071 male physicians who have been followed with annual health questionnaires. For this analysis we included men who had both HDL-C and total cholesterol measured at baseline and after 14 years, and who did not develop CHD in the interim. Categories of alcohol consumption were defined as consuming <1 alcoholic beverage daily at baseline and follow-up (reference), >1 alcoholic beverage daily at baseline and follow-up, increasing alcohol intake from <1 to >1 beverage daily, or decreasing alcohol intake from >1 to <1 beverage daily. Categories of body mass index (BMI) were defined as overweight at baseline and follow-up (BMI >25 kg/m2, reference), BMI ≤ 25 kg/m2 at baseline and follow-up, decreasing from BMI >25 kg/m2 to ≤25 kg/m2, or increasing from BMI ≤25 kg/m2 to >25 kg/m2. Categories of physical activity were defined as exercising to sweat <1 time weekly at baseline and follow-up (reference), exercising to sweat ≥1 time weekly, increasing exercise from <1 time weekly to ≥1 time weekly, or decreasing exercise from ≥1 time weekly to <1 time weekly. Categories of cigarette use wee defined as smoking at baseline and follow-up (reference), never smoking, taking up smoking between baseline and follow-up, or quitting smoking between baseline and follow-up. We used linear regression to calculate parameter estimates and partial R2 describing model fit for predictors of HDL-C change adjusting for age, hypertension, diabetes mellitus, parental history of myocardial infarction, cholesterol modifying therapy, and baseline HDL-C.

RESULTS: Mean HDL-C change was an increase of 0.88 (11.2) mg/dL. Subjects who maintained BMI<25 kg/m2 at baseline and follow-up, or who decreased BMI from >25 kg/m2 to ≤25 kg/m2, achieved average HDL-C increases of 3.3 and 4.1 mg/dL, respectively (both p<0.0001). Subjects who consumed ≥1 alcoholic beverage daily at baseline and follow-up, or who increased their alcohol intake to ≥1 beverage daily, achieved average HDL-C increases of 2.9 and 2.3 mg/dL respectively (both p< 0.0001). Subjects who decreased their alcohol intake from ≥1 beverage daily to <1 beverage daily experienced an average HDL-C decrease of 2.5 mg/dL (p 0.002). For all lifestyle predictors, R2 was <1%. Baseline HDL-C was most predictive of subsequent change HDL-C (partial R2 of 14.9%), with a parameter estimate of -0.32 mg/dL (p<0.0001).

CONCLUSION: Subjects who maintained a stable low BMI or who lost weight during the study, or who consumed moderate alcohol or increased their alcohol consumption during the study, achieved statistically significant, though modest increases in HDL-C. The partial R2 for each change in lifestyle predictor was small. Baseline HDL-C was most predictive of subsequent HDL-C change.

LINGUISTIC ACCESS SERVICES IN THE UNITED STATES: DO THEY MEASURE UP TO THE NATIONAL CULTURALLY AND LINGUISTICALLY ACCESSIBLE SERVICES (CLAS) STANDARDS?

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BACKGROUND: Federal regulations require health care organizations to provide language services to patients with limited English proficiency (LEP). Four of the National Standards on Culturally and Linguistically Appropriate Services (CLAS) in Health Care address provision of linguistically accessible services: (1) Timely provision of interpreter services, (2) Patient notification of their right to receive language services, (3) Utilization of competent interpreters, and (4) Availability of written materials in languages commonly encountered within a hospital. It is not known how US hospitals have incorporated the CLAS Standards into practice. The objective of this study was to evaluate compliance with these 4 standards in a national sample of hospitals.

METHODS: The sample was selected from all US hospitals based on demographic and geographic characteristics; 239 hospitals were selected randomly from within these counties. Interpreter services managers from 221 of the 239 (93%) hospitals were identified and they received a link to the survey by email. The survey asked for information about demographics of the patient populations served, the types of language services available, barriers to providing services that hospitals have encountered, and adherence to the 4 language related CLAS standards.

RESULTS: One hundred and thirty-five interpreter services managers responded to the survey (61% response rate). Seventy-eight percent of hospitals were able to provide interpreters for their most common language within 15 minutes during business hours, but only 48% could provide interpreters in that time frame for their third most common language. Hospitals were more challenged to inform patients of their right to linguistically accessible services. Less than 50% did so via

Patients' Bill of Rights forms and posters in other languages and in English (48% and 44%), forms or brochures in other languages and in English (40% and 29%), multilingual "I speak" posters (32%), verbally in other languages (33%), through interpreter services outreach (4%) and media campaigns (2%). Most hospitals did not meet the standard regarding use of competent interpreters either: 62% reported that family members or friends of patients were used as interpreters, even though 70% of these hospitals also reported having a policy prohibiting this practice. Most hospitals required that staff (79%) and contract (63%) interpreters undergo interpreter training, but ad-hoc interpreters, such as volunteers and bilingual staff usually did not. Finally, hospitals made the following translated documents available in their most commonly requested language: Advance directives (65%), patients' rights (61%), discharge instructions (58%), informed consent (57%) and hospital signage (51%). Less than a third of hospitals had these written documents available in two or more non-English languages. Very few hospitals could provide all of these forms in their most common language (17%). Cost and lack of insurance reimbursement for interpreter services was identified as the biggest challenge hospitals face in providing adequate language services for their patients with LEP.
CONCLUSION: Many hospitals are not in compliance with the CLAS standards, and risk violations of federal laws requiring linguistically accessible care for patients with LEP. This data provides insight into which standards should be targeted for intervention and enforcement in order to improve the care provided to LEP patients across the nation.

LIPID RE-SCREENING FOR HEALTHY ADULTS; WHAT IS THE BEST INTERVAL AND MEASURE? O. Takahashi[1]; R. Perera[2]; R. Stevens[2]; T. Shimbo[3]; J. Suwa[1]; T. Fukui[1]; P. Glasziou[2]. [1]St.Luke's International Hospital, Tokyo, Japan; [2]University of Oxford, Oxford, ; [3]International medical center of Japan, Tokyo, Japan. *(Tracking ID # 205527)*

BACKGROUND: Cholesterol level screening is important for healthy adults to identify those at risk of cardiovascular disease, but an optimal monitoring interval and measures for re-screening are currently uncertain. We aim to estimate the variation in long-term change of cholesterol level ("signal") and short-term within-person variation ("noise") of the different lipids measures (total cholesterol (TC), low-density lipoprotein cholesterol (LDL), high-density lipoprotein cholesterol (HDL), and lipid ratios (TC/HDL and LDL/HDL)) in re- screening.
METHODS: A retrospective cohort study. In healthy adults not taking cholesterol-lowering medication, we measured annually TC, LDL, and HDL at the Center for Preventive Medicine in St.Luke's International Hospital. Tokyo, form 2005 to 2008. We used the direct method to detect the siganl and noise and calculated the signal-noise ratio, which was used to estimate the optimal interval and the best measure for re-sereening.
RESULTS: At baseline, 7989 people (55% female) with a mean age of 50.4 years old (range: 22 to 92) and a mean TC level of 5.3 mmol/L (205.0 mg/dl) (SD: 0.87 mmol/L, 33.6 mg/dl) had annual check-ups over 4 years. Within-person variation of TC, LDL, HDL, TC/HDL, and LDL/HDL were 0.11 (coefficient of variation (CV): 6.4%), 0.08 (CV: 9.4%), 0.016 (CV: 7.9%), 0.07 (CV: 11.0%) and 0.04 mmol2/L2 (CV: 8.0%) respectively. The signal-noise ratios at one year and three years was largest for TC/HDL (0.6 at one year and 1.8 at three years), followed by LDL/HDL (0.55 and 1.7, respectively), LDL (0.34 and 1.0, respectively), TC (0.30 and 0.87, respectively), and HDL (0.32 and 0.81, respectively), suggesting ratios are more sensitive re-screening measures.
CONCLUSION: The signal-noise ratios of lipid measures for re-screening are weak. Decisions placed on annual measures are potentially misleading. The optimal interval for re-screening healthy adults should be more than 3 years and the best measure is a ratio (TC/HDL or LDL/HDL).

LONGITUDINAL NEIGHBORHOOD-LEVEL VARIATION IN BODY MASS INDEX IN THE FRAMINGHAM OFFSPRING COHORT J.P. Block[1]; J. O'Malley[2]; N. Christakis[2]; S. Subramanian[1]. [1]Harvard School of Public Health, Boston, MA; [2]Harvard Medical School, Boston, MA. *(Tracking ID # 205333)*

BACKGROUND: Environmental causes, such as the rising availability of fast food, are emerging as likely contributors to the obesity epidemic. Studies have shown that people living in low-income and minority neighborhoods have higher BMIs even after controlling for individual risk factors, but all studies to date have been cross-sectional. We used the Framingham Offspring Cohort to determine how much of the variation in BMI over time was explained by neighborhood of residence and which neighborhood characteristics were associated with higher BMI.
METHODS: 5124 subjects were enrolled in 1971 and had follow-up assessments up to six additional times through 2001. After excluding observations with relevant missing data, our final sample included 5108 individuals and 27,195 observations. BMI was the dependent variable and was calculated from measured height and weight. Each subject's residential address was geocoded at each wave, and census tracts were our model of a neighborhood. A three-level multilevel model was constructed to determine how much of the variance over time in BMI was explained by the individual and the neighborhood of residence (level 1 - observation occassion; level 2 - individual; level 3 - neighborhood). To account for moving over time, a repeated measures model with changing group membership was utilized, and fixed and random effects for time were included in the model. The final model controlled for individual risk factors for weight gain – age, education, sex, marital status, smoking status, alcohol consumption, and active cancer diagnosis – and neighborhood-level characteristics that might influence weight gain – % of census tract population living in poverty, % Black, and % Hispanic.
RESULTS: The mean number of observations per individual was 5.32 (SD 2.09). Mean BMI was 25.19 kg/m2 (SD 4.33) at Wave 1 and 28.15 kg/m2 (SD 5.32) by Wave 7. 57.2% of subjects moved at least once during the course of the follow-up period, and 10.9% moved at least three times. In the base model, controlling for time as a random and fixed effect, the neighborhood-level variance in BMI was 0.57 (95% CI 0.41–0.75). The proportion of the total variance in BMI comprised by the neighborhood level, the intra-class correlation coefficient (ICC), was 0.025. The variance and ICC remained unchanged with the addition of the individual-level and neighborhood-level covariates. Covariates that were positively associated with BMI were age, male sex, alcohol consumption, a high school education (compared to < high school), and being married. Covariates that were negatively associated with BMI were smoking and a diagnosis of cancer. None of the neighborhood-level characteristics was significantly associated with BMI.
CONCLUSION: Most of the variation in BMI is at the individual level though neighborhood of residence explains 2.5% of the variation in BMI over time. This variance magnitude is similar to what has been found in other neighborhood effects studies on health outcomes The impact of this variance also is important because its value is not dimished by the addition of the individual-level covariates and is more likely to be systematic. In contrast, most of the individual-level variance appears to be stochastic – only 5.5% of the variance at the individual level is explained by the individual-level covariates. Further research is needed to determine which neighborhood characteristics, especially those measuring the environment, can explain the neighborhood-level effect.

LOW LITERACY PREDICTS UTILIZATION OF TOTAL KNEE ARTHROPLASTY IN OLDER ADULTS WITH KNEE PAIN: FINDINGS FROM THE HEALTH, AGING AND BODY COMPOSITION STUDY. M.K. Bautista[1]; C.W. Garvan[2]; R.J. Beyth[1]; K. Kwoh[3]; T.B. Harris[4]; M.C. Nevitt[5]; R.I. Shorr[1]. [1]NF/SGVHS GRECC, University of Florida Department of Aging, Gainesville, FL; [2]University of Florida College of Education, Gainesville, FL; [3]CHERP, VA Pittsburgh Healthcare System, University of Pittsburgh, Pittsburgh, PA; [4]National Institute of Health (NIH), Chevy Chase, MD; [5]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 203941)*

BACKGROUND: Literacy is an important determinant of healthcare utilization and outcomes. This is thought to be related to inability for an individual with limited literacy to advocate for his/her healthcare needs. This study aims to determine whether lower literacy is associated with a reduced use of total knee arthroplasty (TKA), an effective surgical procedure to palliate knee osteoarthritis (OA) pain in older adults.
METHODS: A longitudinal cohort study of community-dwelling adults aged 70–79 years from the Health, Aging, and Body Composition

(Health ABC) Study. This analysis included Health ABC participants who had persistent knee pain lasting for more than 30 days and no history of previous total knee arthroplasty (TKA). Literacy was assessed by the Rapid Estimate of Adult Literacy in Medicine (REALM), and was dichotomized into adequate literacy (REALM>60) and limited literacy (REALM 60). The primary outcome was time to TKA.

RESULTS: Among 3075 participants enrolled in Health ABC, 1157 (38%) were included in this analysis. Cohort participants were 58% white and 42% black; 43% were male and 40% reported excellent or very good health at the initial examination. After a mean follow-up of 6.4 years, 90 (8%) participants underwent TKA. Among 872 participants with adequate literacy, 79 (9%) underwent TKA; whereas among 285 participants with limited literacy, 11 (4%) underwent TKA. Adequate literacy was significantly associated with an increased utilization of TKA [Hazard Ratio (95%CI)=1.85 (1.20–2.87)]. In multivariate analyses, controlling for site, race, body mass index, and severity of knee pain, literacy remained a predictor of time to TKA. [Hazard Ratio (95% CI)=1.59 (1.00–2.53)].

CONCLUSION: In this cohort of well-functioning older adults with knee pain, limited literacy was associated with a reduced utilization of TKA. Future interventions to prevent disability in older adults via procedures such as TKA may be more successful if the role of literacy in healthcare settings is better understood. ACKNOWLEDGMENT: This research was supported in part by the Intramural Research Program of the NIH, National Institute on Aging, (N01-AG-6-2101, N01-AG-6-2103, N01-AG-6-2106), the Department of VA NF/SGHVS GRECC, and University of Florida Claude D. Pepper Older Americans Independence Center (P30-AG-028740).

LOWER EXTREMITY PERONEAL NERVE FUNCTION IS ASSOCIATED WITH THE DEGREE OF FUNCTIONAL IMPAIRMENT IN PERIPHERAL ARTERIAL DISEASE PARTICIPANTS WITHOUT DIABETES MELLITUS

M.M. Mcdermott[1]; K. Liu[1]; J.M. Guralnik[2]; L. Ferrucci[2]; L. Tian[1]; M.H. Criqui[3]. [1]Northwestern University, Chicago, IL; [2]National Institute of Health (NIH), Bethesda, MD; [3]University of California, San Diego, La Jolla, CA. *(Tracking ID # 205138)*

BACKGROUND: Severe lower extremity ischemia is associated with impaired lower extremity peroneal nerve function. However, associations of peroneal nerve function with functional impairment among persons with PAD are unknown. We studied associations of peroneal nerve function with the degree of functional impairment among persons with PAD, independently of confounders. Associations were studied separately in PAD participants with vs. without diabetes mellitus.

METHODS: Participants were 436 men and women with PAD identified from Chicago-area medical centers. PAD was defined as an ankle brachial index (ABI) <0.90. Peroneal nerve conduction velocity (NCV) was measured using standard electrodiagnostic techniques. Functional performance measures were the six-minute walk test, usual four meter walking velocity, and the short physical performance battery (SPPB). The SPPB is a composite measure of lower extremity performance that incorporates usual paced walking velocity, standing balance, and time for five repeated chair rises. The SPPB is scored on a 0–12 scale (12=best).

RESULTS: Among 436 PAD participants, 130 had diabetes mellitus. The average age (standard deviation) of participants was 76.0 (8.2) among PAD participants without diabetes and 73.2 (8.1) among PAD participants with diabetes. PAD participants without diabetes included 50% women and 13% African-Americans, while PAD participants with diabetes included 60% women and 24% African-Americans. Average (standard deviation) ABI values were 0.63 (0.16) among those without diabetes vs. 0.62 (0.16) among those with diabetes. Average peroneal NCV was higher in PAD participants without diabetes compared to those with diabetes (43.8 m/sec (4.8) vs. 41.1 meters/sec (5.5)). The Table shows associations of quartiles of peroneal nerve function with lower extremity functional performance measures among participants with and without diabetes mellitus, adjusting for age, sex, race, body mass index, alcohol consumption, smoking, the ABI, history of coronary and cerebrovascular disease and other confounders.

CONCLUSION: Poorer peroneal NCV is associated with poorer lower extremity functioning among persons with PAD who do not have diabetes mellitus. However, poorer peroneal NCV is not associated with poorer lower extremity performance among persons with both PAD and diabetes mellitus.

Table. Adjusted Associations of Peroneal Nerve Conduction Velocity with Lower Extremity Performance Among Peripheral Arterial Disease Participants with and without Diabetes Mellitus.

	Quartiles of Peroneal Nerve Conduction Velocity				
	Quartile 1 (poorest)	Quartile 2	Quartile 3	Quartile 4 (best)	P trend
PAD Participants without Diabetes Mellitus (n=306)					
Six-minute distance (feet)	999.5	1,159	1,183	1,195	0.003
Four-meter walking velocity (meters/sec).	0.79	0.87	0.89	0.90	0.005
SPPB (0-12 scale, 12=best)	8.79	9.57	10.18	10.21	0.003
PAD Participants with Diabetes Mellitus (n=130)					
Six-minute distance (feet)	1,013	1,122	1,060	1,173	0.414
Four-meter walking velocity (meters/sec).	0.79	0.86	0.89	0.82	0.227
SPPB (0-12 scale, 12=best)	8.18	9.01	9.60	8.69	0.234

LUNG CANCER DIAGNOSIS IN THE ERA OF ELECTRONIC MEDICAL RECORDS

H. Singh[1]; K. Hirani[2]; H. Kadiyala[2]; O. Rudomiotov[3]; T. Davis[4]; M.M. Khan[4]; T. Wahls[3]. [1]Houston VA HSR&D, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX; [2]Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX; [3]Iowa City Veterans Administration Medical Center and University of Iowa Carver College of Medicine, Iowa City, IA; [4]Houston VA HSR&D , Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX. *(Tracking ID # 204466)*

BACKGROUND: Integrated electronic medical records (EMRs) facilitate the availability of diagnostic information at the point of care and have potential to reduce missed and delayed diagnoses. For instance, they may improve recognition of clinical or radiologic clues for lung cancer and management of test results and consultations through better communication. We evaluated the diagnostic process for lung cancer in a health care system using an advanced EMR to understand where missed opportunities for early diagnosis occur.

METHODS: We retrospectively identified new cases of primary lung cancer diagnosed at two tertiary care VA hospitals and their 11 satellite clinics from July 1, 2004 to June 30, 2007. We excluded patients with recurrent lung cancer (within five years) and patients whose diagnosis was made outside the VA provided they had not presented to the VA earlier with any predefined diagnostic clues for lung cancer. Using a pretested, standardized data collection form, trained reviewers evaluated the EMR to identify: 1) Type I missed opportunities, defined as episodes of care when no evaluation for possible lung cancer was undertaken within seven days of appearance of certain predefined clinical clues (hemoptysis, hoarseness > two weeks, recurrent bronchitis or pneumonia, abnormal chest x-ray, abnormal CT imaging, abnormal sputum cytology, unexplained effusion, clubbing, new onset paraneoplastic syndrome, Superior Vena Cava obstruction, new or worsening persistent cough > eight weeks, unexplained weight loss >10 lbs in presence of respiratory symptoms, unexplained chest or rib pain); 2) Type II missed opportunities defined as failure to complete diagnostic work-up (ordered in response to the predefined clues) within 30 days; and 3) Type III missed opportunities defined as patient related (e.g. non-adherence to tests or appointments). We also evaluated the frequency of contribution of provider and system factors to Type I and II missed opportunities.

RESULTS: Of 633 cases reviewed, 585 met inclusion criteria and of those 279 (48%) had at least one missed opportunity. The median time from appearance of the first clue to pathologic diagnosis in cases with any missed opportunity was 74 days longer than those without a missed opportunity (92.5 vs.18.5 days; p<0.001). Type I and II missed opportunities were present in 145 (25%) cases and 149 (26%) cases, respectively. Among cases with Type I missed opportunities, the following clues were most frequently present: abnormal chest x-ray (85%), abnormal CT (88%), unexplained weight loss >10 lbs in presence of respiratory symptoms (29%), and new or worsening persistent cough > eight weeks (20%). Among the 233 cases with either Type I or II missed opportunity, 169 contained evidence of failure at the provider level, 118

had evidence of system failure and 93 cases had evidence of both. Type III missed opportunities were found in 159 (27%) cases.
CONCLUSION: Missed opportunities for early lung cancer diagnosis occur relatively frequently in the VA health care system despite the use of an advanced EMR and involve cases with classic clues for lung cancer. A substantial proportion of cases had more than one missed opportunity and many involved patient related factors. Multifaceted interventions are needed to address provider, system and patient related factors leading to such missed opportunities.

MAMMOGRAPHY RESULT NOTIFICATION LETTERS: CAN MOST WOMEN UNDERSTAND THEM? E.N. Marcus[1]; Y. Del Toro[1]; M. Pereyra[1]; A. Romilly[2]; M.V. Velasquez[1]; M.M. Yepes[1]; L. Sanders[1]. [1]University of Miami Miller School of Medicine, Miami, FL; [2]Jackson Health Systems, Miami, FL. *(Tracking ID # 205615)*

BACKGROUND: To prevent patients from being lost to follow-up, the 1998 Mammography Quality Standards Reauthorization Act requires that all licensed mammography facilities mail each patient a written summary of her mammogram report "in terms easily understood by a lay person." Lack of timely mammography follow-up remains problematic, however, especially in safety-net systems serving low-income women. It is possible that communication failures contribute to this lack of follow-up, and it is therefore important to assess whether mammography notification letters are written at a level that most patients can understand. This project's goal is to assess the readability of the sample notification letters that many mammography centers use as a template for the letters they send patients about their results.
METHODS: We analyzed the sample mammography result notification letters made available on the American College of Radiology (ACR) website, as well as those provided to imaging centers by the two most widely used mammography transcription services, the MRS and Penrad systems. To assess text readability, we used the Flesch Kincaid reading ease and grade level scales, which incorporate total words per sentence and total syllables per word. A Flesch reading ease score of 60 or above and grade level score of 4th to 6th grade are usually considered acceptable for health materials. To assess document suitability, we used the Suitability Assessment of Materials (SAM), which measures content clarity, layout, graphics and typography. A score of >40% is considered adequate. Two independent observers completed the SAM on each document, and mean scores were used for analysis. One-way analysis of variance with Bonferroni multiple comparison tests was used to assess differences in the primary outcomes by diagnostic category (as indicated by BI-RADS level) or by the source of the letter (ACR, MRS or Penrad).
RESULTS: 55 letters were analyzed: 8 from the ACR, 10 from the Penrad system, and 37 from the MRS system. The Flesch reading ease ranged from 25 to 61, with a mean of 42 (S.D., 7.9). The Flesch Kincaid grade level score ranged from 6.7 to 13.5, with a mean of 10 (S.D., 1.2). The mean SAM score was 29% (S.D., 2%), with a range of 24% to 38%. Reading ease, grade level, and SAM score did not vary significantly by diagnostic category. Mean reading ease, grade level, and SAM scores did differ by source of letter ($p<0.05$), but none were in acceptable readability or suitability range.
CONCLUSION: The letters evaluated in this analysis were written at readability and suitability levels that are too difficult for many patients to understand. These findings suggest there is a need to develop means of communicating mammography results in a way that accounts for low health literacy. More research is needed to assess patient understanding of mammography result notification letters and the role this understanding plays in appropriate follow-up.

MARITAL STATUS IS AN IMPORTANT PREDICTOR OF ADHERENCE TO COLONOSCOPY S. Sultan[1]; C. Newlin[2]; B. Tracey[3]; P. Shah[4]; D. Provenzale[2]; R.J. Beyth[5]. [1]NF/SGVHS and University of Florida, Gainesville, FL; [2]Durham Veterans Affairs Medical Center, Durham, NC; [3]University of Florida, Gainesville, FL; [4]NF/SGVHS, Gainesville, FL; [5]NF/SGVHS GRECC and University of Florida, Gainesville, FL. *(Tracking ID # 205981)*

BACKGROUND: Few studies have examined predictors of adherence to colonoscopy among veterans. Our objective was to determine the predictors of adherence to colonoscopy among veterans at high risk for colorectal cancer (CRC).
METHODS: In this prospective, observational cohort study, subjects referred for diagnostic colonoscopy of heme-positive stool, hematochezia, anemia, or a family history of CRC, were recruited from the Durham VA Gastroenterology Clinic. The following demographic data was obtained: Age, race, health literacy, marital status, educational level, family history of CRC, and personal history of any cancer. Subjects also completed a validated CRC knowledge questionnaire (total knowledge score ranged from 0–100). Health Literacy was assessed using a validated instrument (Rapid Estimate of Adult Literacy in Medicine-REALM), a 66-item word pronunciation test. The primary endpoint was adherence to colonoscopy, defined as an individual having undergone a complete colonoscopy. Chi-square statistic and T-test were used to evaluate differences between groups. Logistic regression was used to determine independent predictors of adherence.
RESULTS: A total of 619 subjects completed the study. Mean age was 57.9 years and 91% of subjects were male; 54% of subjects were White and 43% were Black. Forty-four percent (274/619) of subjects had low health literacy. The mean knowledge score of the cohort was 78.5 +/- 1.8. Overall adherence rate was high: 527 (85%) completed their diagnostic colonoscopy. In univariate analysis, marital status ($p=0.001$) and race ($p=0.06$) were significant predictors of adherence to colonoscopy. In multivariate analysis, however, marital status was the only significant predictor of adherence (OR 2.06, 95% CI 1.30–3.06).
CONCLUSION: Marital status was a significant predictor of adherence to colonoscopy in this cohort of veterans at high risk of having CRC. This may be due to increased instrumental support (and emotional support) that may help patients negotiate the logistics of undergoing an invasive procedure. Further studies should investigate the role of caregiver support in increasing adherence to colonoscopy. In providing optimal care, more efforts may need to be targeted towards involving caregivers or significant others

MEASURING PATIENTS' SELF-EFFICACY IN UNDERSTANDING AND USING PRESCRIPTION MEDICATION K.A. Cameron[1]; E. Ross[1]; M. Clayman[1]; A.R. Bergeron[1]; A.D. Federman[2]; S.C. Bailey[1]; M.S. Wolf[1]. [1]Northwestern University, Chicago, IL; [2]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205639)*

BACKGROUND: Medication errors and injuries often result from patients' unintentional misuse of or non-adherence to prescription medication. Such errors may result from a lack of initial understanding of medication instructions, and may be attenuated by low self-efficacy. We sought to create a brief tool to assess patient's self efficacy regarding understanding and using prescription medication.
METHODS: The Medication Understanding Self-Efficacy scale (MUSE) measures an individual's perceived ability to seek out and understand information about his or her prescribed medicines, and also to follow instructions for appropriate use. An existing scale (Communication and Attitudinal Self-Efficacy Scale; CASE) was modified and piloted using 21 potential items among 359 primary care patients with varying levels of literacy in Chicago, New York City, and Shreveport, LA. Patients were then given 14 common prescription medication bottles with instructions for use and asked to state when and how they would take their medicine. Verbatim responses were documented and three general internist raters blindly coded responses as correct or incorrect.
RESULTS: Using principal components analysis (with varimax rotation), two scales emerged: 1) learning about medication (Eigenvalue= 1.92, 24% variance explained) and 2) taking medication (Eigenvalue= 2.46, 31% variance explained).The full eight-item scale demonstrated high internal consistency (Cronbach's=0.77); differential item functioning (dif) analyses suggest scale items did not perform differently by literacy level. Higher scores on the MUSE were associated with higher rates of demonstrated understanding of prescription medication instructions (=0.3, 95% Confidence Interval 0.03 – 1.3, $p=0.04$).
CONCLUSION: The MUSE is a valid and reliable tool that may support the evaluation of future medication education interventions. This scale differs from existing medication specific self-efficacy scales due to the fact that it addressed both learning about one's medications and adherence to the prescribed regimen. Further, based on our results, the MUSE is an effective research tool as it can be utilized regardless of the literacy level of participants.

MEDICAL STUDENT ENGAGEMENT: PERSPECTIVES FROM STUDENT LEADERS. M. Bicket[1]; S. Misra[1]; S. Wright[1]; R. Shochet[2]. [1]Johns Hopkins University, Baltimore, MD; [2]Society of General Internal Medicine, Baltimore, MD. *(Tracking ID # 205316)*

BACKGROUND: Learning communities within medical schools are understood to be valuable entities, offering a structure that welcomes students to take on leadership roles that will promote their professional growth. The Johns Hopkins Colleges Program began in 2005, establishing a learning community focused on students' career development, while consciously fostering camaraderie, student-centeredness, and professionalism. Many inspired medical students volunteered to join the leadership ranks to actively shape this learning community. This study's objective was to understand the rationale and motivation of students who elected to become engaged leaders in a new program.
METHODS: In this observational cohort study, 40 students meeting criteria for 'leadership roles' within the Colleges Program were queried electronically between April and June 2008 with open-ended questions about their engagement. The written responses were independently coded by two investigators and compared for agreement. Content analysis identified major themes.
RESULTS: Thirty-nine students (98%) completed the questionnaire. Mean age of respondents was 24.4 years (SD 1.7); 19 (49%) were female. Respondents were distributed across class years (MS1: 12, MS2: 12, MS3: 7, MS4: 8). From the narrative responses, the following themes emerged as reasons for getting involved: endorsing the need for the program, excitement with the start-up, wanting to give back, commitment to institutional excellence, and collaborating with talented peers and faculty. Cited benefits included: connecting with others, mentoring, learning new skills, and recognition. Drawbacks included: lack of time and opportunity costs. Ideas provided for drawing in medical students included: creating defined roles, offering a breadth of opportunities, empowering students with responsibilities, and making them feel valued. The following representative quotes highlight some of the abovementioned themes: "I think the Colleges program is a great idea. I personally benefited from the system – peer & faculty advising has been great. In its incipient stages, I have enjoyed the opportunity to shape a future legacy at the school." "I think the Colleges program has a great potential of playing a very constructive, uniting, and functional role in students' lives. I felt that by participating, I could contribute toward that goal."
CONCLUSION: Students identified a wide range of motivators prompting their decisions to commit to leadership in this new medical school program. This study provides insight into medical students' decisions to become engaged leaders in both curricular innovation and community. Student perspectives on leadership may prove helpful to those hoping to augment student involvement in their medical school programs. Learning communities within medical schools may be an ideal venue to explicitly promote leadership as a core value of the medical profession.

MEDICAL STUDENT PERSPECTIVES ON THE HIDDEN CURRICULUM T.R. Moreen[1]; B.L. Raik[1]. [1]New York Presbyterian Hospital Weill Cornell, New York, NY. *(Tracking ID # 204895)*

BACKGROUND: Medical schools have formal curricula designed to cultivate patient-centered care. However, much transmission of professional values occurs informally during clinical clerkships. This informal training has been referred to as the "hidden curriculum." The hidden curriculum has an impact on patient-centered attitudes and behaviors, and is fundamental to medical students' transformation into clinicians and professionals. Numerous studies have described the discordance between what is formally taught and what is modeled in actual clinical situations. Few have investigated the opinions of students themselves about the hidden curriculum. Paul Haidet and colleagues at Baylor University developed and validated a study tool for surveying medical students about the hidden curricula at their own institutions. However, the use of their tool beyond their own study has not been published. We therefore employed a modified version of Haidet's study tool to investigate medical students' perspectives on the hidden curriculum at our institution, with the goals of informing curriculum development and further validating a potentially powerful study tool.
METHODS: We surveyed a convenience sample of third and fourth year medical students attending required clerkship lectures. Students were eligible to participate if they had completed at least six months of clinical clerkships. The survey was distributed to students during a two-week period at the end of one clerkship rotation and start of the next rotation. The study was approved by the Institutional Review Board of Weill Cornell Medical College.
RESULTS: 90 subjects completed the survey of 95 eligible students (95% participation). 52% of respondents were men and 48% were women; 53% third year students and 47% fourth year students participated. Most had completed the core medicine and surgery clerkships (77% and 80%, respectively). 85% of students reported that at least half the time residents communicated concern and interest in patients as unique individuals. Similarly, 81% were encouraged by residents to develop good rapport with patients at least half the time. While students felt that residents usually took patients' concerns seriously, they more rarely observed residents exploring the emotional aspects of illness. Attending physicians were often observed referring to patients as diagnoses or talking about cases in front of patients as if they were not there. Amongst themselves, students were more likely to tell stories about how patient relationships affected them personally than they were to stress the importance of communication skills as a key to success.
CONCLUSION: These results suggest that at our institution, residents often model patient-centered behaviors. Residents may be better role models for students than attending physicians. The data also uncovered unexpected dichotomies between different aspects of patient care. For example, students reported that residents took patient concerns seriously, but did not explore emotional aspects of patient care. Perhaps residents were primarily focused on medical issues and failed to address patients' emotional needs. Furthermore, third year students appear to have more positive impressions than fourth years. While the current study has limitations, additional investigation employing student focus groups is planned, which will provide rich qualitative data about student experiences that can then be correlated to their answers in this survey.

MEDICAL STUDENTS' WILLINGNESS TO ENGAGE IN PROMOTIONAL ACTIVITIES N.J. Farber[1]; J.F. Kerkow[1]; M. Devereaux[1]. [1]University of California, San Diego, La Jolla, CA. *(Tracking ID # 204468)*

BACKGROUND: Medical students may have their values and decisions regarding ethical issues influenced by the tremendous financial burdens placed upon them. Since they have frequent contacts with the pharmaceutical firms via representatives, and often view these interactions in a positive light, they may be willing to promote products on television if given the opportunity. Anecdotal reports indicate that students and residents have engaged in these activities. In order to determine the likelihood that medical students would agree to endorse pharmaceutical and herbal remedies on television for payment, we developed and administered a survey instrument to all students at the University of California, San Diego School of Medicine.
METHODS: All medical students of UCSD were given a survey instrument which asked how likely they would be to promote various products on television. The hypothetical scenarios varied according to whether they had proven to be of benefit or not (pharmaceutical products with rigorous testing vs. herbal remedies without such testing), whether they had shown to have the potential for serious harm or not, and how much money was offered to the student for the promotion ($10,000, $50,000, or $100,000). Students indicated their likelihood to promote the items via a 4 point Likert type scale (very likely, likely, unlikely, or very unlikely). The variable for the scenarios (benefit, harm, and promotional fee) were compared via ANOVA. The total number of scenarios that were indicated to be likely to be promoted was calculated as a separate variable. Demographic variables such as indebtedness, perceived impact of the debt, knowledge of guidelines at UCSD or in the AMA or AMSA, and medical school year associated with the number of scenarios likely to be promoted were analyzed via ANOVA and logistic regression analyses.
RESULTS: Sixty-one percent of students have returned completed questionnaires. Of those students responding, 74% were likely to promote at least one of the products on television for remuneration. A total of 40% of the students were likely to endorse one or more of the FDA approved medications, compared with 7% for herbal remedies ($p<0.001$). There was no significant difference of likelihood to endorse based on the amount of remuneration for the endorsements. Students who had higher debt levels ($p=0.05$) or who felt that their debt was currently a burden ($p<0.01$) were more likely to endorse products on television.
CONCLUSION: A majority of students at the University of California, San Diego are willing to endorse products on television for compensa-

tion, despite a University rule about avoiding such affiliations. The amount of debt and perceived burden of the debt affected the likelihood of students' likelihood of endorsing such products. Medical schools need to inform students about the conflict of interest of caring for patients while advocating for pharmaceutical and/or herbal remedy firms. Moreover, the impact of student debt and its relationship to professional behavior needs to be addressed at a national level.

MEDICARE PART D COVERAGE GAP LEADS TO LOWER TERIPARATIDE ADHERENCE L. Tamariz[1]; C. Uribe[2]; J. Luo[2]; J. Hanna[2]; D.E. Ball[3]; K. Krohn[3]; E. Meadows[3]. [1]University of Miami, Miami, FL; [2]University of Miami-Humana Health Services Research Center, Miami, FL; [3]Eli Lilly and Company, Indianapolis, IN. *(Tracking ID # 205511)*

BACKGROUND: The Medicare Part D prescription drug benefit was introduced in 2006 and included provisions for a coverage gap ("donut hole") for standard beneficiaries, which was implemented by most, but not all, Part D health plans. Teriparatide, a self-injectable parathyroid hormone analog for the treatment of severe osteoporosis, is relatively expensive compared to other treatment options for osteoporosis. The presence of a coverage gap in Part D can result in patients experiencing fluctuations in their out-of-pocket expenses over the duration of their therapy with teriparatide. In an effort to assess the impact of out-of-pocket expenses on refilling behavior, we compared adherence with teriparatide between Medicare patients with and without a coverage gap.
METHODS: We performed a retrospective analysis in Medicare Part D plans from a single large provider covering services between January 1 and December 31, 2006. Teriparatide (National Drug Code 54868540600) subjects were identified in the pharmacy file and grouped by the presence (2 plan options) or absence (1 plan option) of a coverage gap. Beneficiaries of Low Income Subsidy or Medicaid were excluded. Descriptive results are reported as means±standard deviations. We calculated adherence by medication possession ratio (MPR), defined as the sum of the days' supply of teriparatide divided by the number of days between the first fill in 2006 and the last refill in 2006 plus the days' supply of the last refill. Logistic regression was used to calculate the odds ratio (OR) of lower adherence (defined as an MPR<80%).
RESULTS: We identified 3,712 teriparatide users without and 1,390 with a coverage gap. The ages (in years) were similar between teriparatide patients without (76±8) and with (77±8) a coverage gap. Teriparatide patients without a coverage gap had higher chronic disease score (CDS: 4,547±2,983 vs. 4,362±2,714, p=0.0354) when compared to teriparatide users in the plan with a coverage gap. In 2006, the mean MPR of teriparatide users in the plan without a coverage gap was 0.65± 0.48 compared to 0.43±0.50 in the plan with a coverage gap (p<0.01). The OR of lower adherence in 2006 for those subjects with a coverage gap was 2.9 (95% C.I: 2.5–3.3, p<0.01) when compared to those without a coverage gap after adjustment for demographics, Medicare plan type, CDS score, pill burden and time of enrollment.
CONCLUSION: In this one provider of Part D plans, 73% of patients initiating teriparatide in 2006 had selected a plan without a coverage gap. Teriparatide users in the Medicare Part D plan with a coverage gap were more likely to have lower adherence than those without a coverage gap.

MEDICARE SPENDING FOR PREVIOUSLY UNINSURED ADULTS J.M. Mcwilliams[1]; E. Meara[1]; A.M. Zaslavsky[1]; J.Z. Ayanian[2]. [1]Harvard Medical School, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204701)*

BACKGROUND: After acquiring Medicare coverage at age 65, previously uninsured adults use more health services than previously insured adults and report improvements in health trends. Medicare spending may be higher for previously uninsured adults with treatable conditions if poor disease control leads to irreversible complications before age 65 or persistently elevated clinical needs after age 65. Uninsured adults may also delay elective procedures until they gain coverage. However, the effect of uninsurance in the near-elderly population on subsequent Medicare spending has not been estimated with Medicare claims.
METHODS: Using the nationally representative Health and Retirement Study (HRS), we compared Medicare spending for beneficiaries ages 65–75 who were continuously insured (N=2951) or continuously or intermittently uninsured (N=1616) before age 65. Longitudinal survey data from 1992–2006 were used to assess coverage patterns and other sociodemographic and clinical characteristics before age 65. Linked Medicare claims data from 1996–2005 were used to assess utilization and spending after age 65. We used an inverse probability of treatment weighting technique to adjust for observed baseline differences between comparison groups and account for survey non-response that led to missing claims data. Using this method, we also adjusted for time-varying confounders such as health declines that could have caused or resulted from uninsurance before age 65. We estimated the contribution to differences in Medicare spending for previously uninsured and insured adults from hospitalizations for complications of cardiovascular disease or diabetes, joint replacements, and COPD exacerbations.
RESULTS: Adjusted annual total Medicare spending after age 65 was significantly higher for previously uninsured ($4521) than previously insured ($3589) adults (difference: $932; P=0.04), particularly among adults with cardiovascular disease or diabetes (difference: $1398; P= 0.04). Descriptive plots suggested spending differences persisted through age 71 and diminished thereafter. Relative to other service types, differences in annual spending were largest for inpatient services ($524; P=0.07). Previously uninsured adults with cardiovascular disease or diabetes were more likely to be hospitalized for related complications (adjusted annual rates: 7.3% vs 5.3%; P=0.04) and those with arthritis tended to be hospitalized more often for joint replacement surgery (2.4% vs 1.2%; P=0.08). Together these condition-specific admission rates accounted for 68.6% of the difference in total annual Medicare spending between all previously uninsured and insured adults. In contrast, previously uninsured adults who reported lung disease or active smoking tended to be hospitalized less often for COPD exacerbations than previously insured adults (1.0% v. 1.7%; P=0.08).
CONCLUSION: Adjusted Medicare spending was significantly higher for previously uninsured than previously insured adults, suggesting the costs of expanding coverage before age 65 may be partially offset by subsequent reductions in Medicare spending after age 65. Differences in spending were explained largely by complications of cardiovascular disease or diabetes and greater use of joint replacements, but not by exacerbations of COPD, a condition for which few treatments alter disease progression. These differences appeared to narrow after 7 years, suggesting persistent effects of being uninsured before age 65 that were eventually attenuated.

MEDICATION CONTRACT VIOLATIONS: 6-YEAR OUTCOMES IN A PRIMARY CARE CHRONIC PAIN PROGRAM P. Chelminski[1]; K. Hayes[1]; T.J. Ives[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 204426)*

BACKGROUND: The expansion of opioid use for chronic pain has been accompanied by an epidemic of prescription opioid abuse. Epidemiologic studies have linked the epidemic to physician prescribing. Substance misuse is common in chronic pain patients treated with opioids(20 to 30%), and clinicians often use medication contracts to monitor for substance misuse. Little is known about the performance of contracts over time and the characteristics of violators. We describe medication contract violations over a 6-year period in a cohort of opioid-treated patients enrolled in a primary care disease management program for chronic pain.
METHODS: The UNC General Medicine Pain Service manages opioid-treated patients with chronic pain referred by their primary care provider. Patients sign a medication contract that stipulates conditions for receiving opioids and lists violations that will result in discontinuation of opioids. These include: urine toxilogic screen (UTS) positive for cocaine; UTS negative on 2 occasions for prescribed opioid (negative UTS), UTS positive for opioid non-prescribed (inconsistent UTS); doctor collecting; prescription alteration; diversion; threatening behavior. Key demographic and medical information are entered into a patient registry. We asked the following research questions: · What are the 2-year period prevalences of violations? · What percentage of violators are polysubstance abusers? · Does marijuana use predict violation? · Do contract violators continue to follow up for primary care?
RESULTS: One-hundred and thirteen of 488 patient (23%) violated the medication contract. The average age was 52 years, 59% were women, and 72% were white. There was substantial variation among the 2-year period prevalences. The highest percentage of violations occurred in the first period(Table). Violations levelled off over the next two periods. Polysubstance abuse occurred in 41 (36%) of violators. Twenty-three

percent of all patients had at least one UTS positive for marijuana. Violators were more likely than non-violators to use marijuana (34 vs. 21%, RR=1.6 [1.2–2.3]). Only 27% of violators had 3 or more follow-up appointments for primary care over an 18-month period compared to 54% of non-violators. In 2007–8, the 10 doctor collecting violations equalled the number of such violations in the preceeding 4 years. The increase coincided with the implementation of an online controlled substances surveillance system which led to the detection of 7.
CONCLUSION: Contract violations were highest at program inception, but violations occured frequently in subsequent periods and mandate ongoing vigilance. Cocaine and polysubstance abuse are common. Marijuana use is a weak predictor of contract violation. Violators are less likely than non-violators to receive regular primary care. Surveillance systems can mitigate the negative public health impact of opioid prescribing.

Contract Violations by 2-Year Period

	2003–4	2005–6	2007–8	Total
N	172	273	307	488
Violators (%)	51(30)	29(11)	33(11)	113(23)
Violations (%, violations)				
Cocaine UTS	24(47)	20(69)	9(27)	53(47)
Doctor Collecting	8(16)	2(7)	10(30)	20(18)
Negative UTS	13(26)	3(10)	1(3)	17(15)
Inconsistent UTS	5(10)	4(14)	8(24)	17(15)
Threatening Behavior	0	0	2(6)	2(2)
Diversion	1(2)	0	1(3)	2(2)
Rx Alteration	0	0	2(6)	2(2)

MEDICATION COST-RELATED BURDEN AND COST-REDUCING STRATEGIES AMONG ELDERLY CANCER SURVIVORS L. Nekhlyudov[1]; J.M. Madden[1]; A.J. Graves[1]; D. Ross-Degnan[1]; F. Zhang[1]; S. Soumerai[1]. [1]Harvard Medical School/Harvard Pilgrim Health Care, Boston, MA. *(Tracking ID # 204227)*

BACKGROUND: Cancer is common among the elderly and the percentage of elderly patients surviving cancer is growing. Cancer survivors may face high costs related to treatment and subsequent surveillance and particular challenges in meeting the out-of-pocket costs of cancer and non-cancer medications.
METHODS: Using the 2005 Medicare Current Beneficiary Survey and Medicare claims, we compared cost-related medication burden, including cost-related non-adherence and spending less on basic needs to afford medicines, as well as cost-reduction strategies reported by elderly beneficiaries with and without cancer. Descriptive statistics with weighted percentages and logistic regression models were used.
RESULTS: In a nationally representative sample of 10,285 non-institutionalized elderly Medicare enrollees with no managed care surveyed in 2005, 1,191 had at least one Medicare claim for malignant cancer during the year of the survey. While 9.8% of enrollees with and 11.2% without cancer reported cost-related non-adherence to medications, enrollees with cancer were less likely to report spending less on basic needs in order to pay for their medications (5.8% cancer versus 8.9% no cancer, $p<0.001$). The latter effect was statistically significant in adjusted analyses; OR 0.64 (95% CI 0.47–0.87). Use of most cost-reducing strategies among enrollees with and without cancer was similar, including asking for sample medications (51.9% cancer versus 50.9% no cancer), using generic medications (49.6% versus 50.3%), comparing prices for medications (21.5% versus 23.1%) and obtaining non-US medications (6.0% versus 7.5%). Enrollees with cancer were more likely to report using mail-order prescriptions (36.6% versus 30.8%). The latter effect was statistically significant in adjusted analyses; OR 1.24 (95% CI 1.09–1.41).
CONCLUSION: While cancer diagnosis is associated with high costs, it appears that enrollees with cancer have few differences in cost-related medication burden and cost-saving strategies compared to Medicare enrollees without cancer. It is possible that because most cancer therapies are not subject to out-of-pocket costs for Medicare patients, cancer may not have more deleterious effects on cost-related medication burden compared to other chronic medical conditions of the elderly.

MEDICATION PRESCRIBING PRACTICES FOR GERIATRIC PRISONERS IN A LARGE STATE PRISON SYSTEM B.A. Williams[1]; J. Baillargeon[2]; L.C. Walter[1]; K.E. Covinsky[1]; M.A. Steinman[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Texas Medical Branch at Galveston, Galveston, TX. *(Tracking ID # 205705)*

BACKGROUND: Geriatric prisoners are a rapidly growing segment of the U.S. correctional population and contribute disproportionately to correctional healthcare costs. Despite safety concerns and high costs associated with inappropriate medication use in older adults, little is known about the quality of pharmaceutical care given to geriatric prisoners. Our goal was to assess medication prescribing quality among geriatric prisoners in Texas, the largest state prison system with a unique prison-academic affiliation.
METHODS: In this cross sectional study of all 13117 prisoners (≥55 yrs) incarcerated in the Texas Department of Criminal Justice for any duration between September 1, 2006 and August 31, 2007, we assessed "inappropriate medication use" using Zhan criteria and compared our results to prior studies of community prescribing (Veteran Affairs medical system - 123633 patients and private HMO systems - 157517 patients). We also assessed "use of indicated medications" using 6 ACOVE indicators.
RESULTS: Overall, 32% of all geriatric prisoners (≥55yrs) and 36% of prisoners ≥65 yrs were prescribed a potentially inappropriate medication based on the Zhan criteria, approximately half of which was attributable to the use of over-the-counter antihistaminic drugs. After excluding antihistamines to facilitate comparison with non-prison health systems, 14% of prisoners ≥65 yrs were prescribed a potentially inappropriate medication, equivalent to rates in VA (approximately 17%) and lower than rates in private sector HMOs (approximately 26%). The median rate of indicated medication use for 6 ACOVE indicators was 80% (range 12% - 95%); gastrointestinal prophylaxis for patients on nonsteroidal anti-inflammatories at high risk for gastrointestinal bleed constituted the lowest rate (12%).
CONCLUSION: Medication prescribing for geriatric prisoners in Texas was similar to the community. However, the need for improvement in geriatric-focused prescribing, including overuse of antihistamines and underuse of gastrointestinal prophylaxis, suggests a need for education in Texas prisons focused on specialized medication prescribing in older adults. This has important implications for the quality of U.S. prison healthcare in general. As the nation struggles to improve its costly prison healthcare systems, our findings give hope that medical care in prisons can be improved. However, as in the community, the rising number of geriatric patients should prompt further efforts to bring geriatric-oriented healthcare education to providers in all settings who are caring for increasing numbers of vulnerable older adults.

MEDICATION RECONCILIATION AND HYPERTENSION CONTROL S.D. Persell[1]; B.C. Stacy[1]; J.W. Tang[2]; T.C. Davis[3]; M.S. Wolf[1]. [1]Northwestern University, Chicago, IL; [2]University of Chicago, Chicago, IL; [3]Louisiana State University Medical Center at Shreveport, Shreveport, LA. *(Tracking ID # 205131)*

BACKGROUND: While discrepancies between the medical record and patient medication list are common, the relationship of these discrepancies to chronic disease control has not been established. We sought to determine the frequency and type of antihypertensive medication discrepancies and the association of these discrepancies with hypertension control.
METHODS: We performed a cross-sectional observational study of 315 adults with medically treated hypertension receiving care in 6 safety-net clinics in three states. All patients reported that they took medication for their blood pressure. The primary study measures were (1) the prevalence of patients with a discrepancy between their self-reported list of antihypertensive medications and their medical record, and (2) the prevalence of uncontrolled blood pressure (>=140/90 mm Hg or >=130/80 mm Hg if diabetic). We further classified patients with discrepancies as (a) those patients who provided no recognizable names of antihypertensive medication and (b) those who could name one or more antihypertensive medication but whose list was not in full agreement with the medical record. We used multivariable logistic regression to determine the association between having medication discrepancies and uncontrolled blood pressure controlling for demographic characteristics, health literacy, duration of hypertension and number of comoribid conditions.
RESULTS: Discrepancies were present for 74.3% of patients. 24.8% of patients could not provide the name of any antihypertensive medication they took. 49.5% could name 1 or more antihypertensive medications but

had discrepancies between patient reported antihypertensive medications and those listed in the medical record. Among the 237 patients who named at least one antihypertensive medication they took, 66% had at least one discrepancy present between the patient-reported medication list and the medical record. Patients named drugs not included in the medical record (20.3%), the chart contained medication the patient did not report (35.4%), the patient referred to a medication by a non-specific name (20.2%) (e.g. the water pill, the small round one, the one that starts with "L", an unrecognizable drug name, or provided a dosage but no name), or referred to a non-antihypertensive medication as a medicine for blood pressure (10.1%). Twenty-seven (8.6%) patients reported taking an antihypertensive medication that altered potassium metabolism that was not included in their medical record. Four (1.7%) patients took two versions of the same medication or same class of medication. Both patients who were unable to name any of their antihypertensive medications and patients with discrepancies between patient-named medications and the medical record were much more likely to have uncontrolled blood pressure than patients who named the same medications as the medical record in adjusted analyses, adjusted odds ratios 3.4 (95% confidence interval 1.8–6.4, p< 0.001) and 3.0 (1.3–7.2, p=0.01), respectively.
CONCLUSION: Among adults with hypertension treated at safety-net clinics, inability to names one's antihypertensive medications and discrepancies between patient-reported medications and the medical record were very common. Both types of error were strongly associated with inadequate hypertension control. Performing medication reconciliation at the point of care may be an important way to identify patients at high risk for inadequate disease control or safety problems.

METHODS TO EXAMINE RACIAL DIFFERENCES IN PHYSICIAN-PATIENT COMMUNICATION H.S. Gordon[1]; R.L. Street[2]. [1]Jesse Brown VA and University of Illinois at Chicago, Chicago, IL; [2]Texas A&M University, College Station, TX. *(Tracking ID # 205777)*

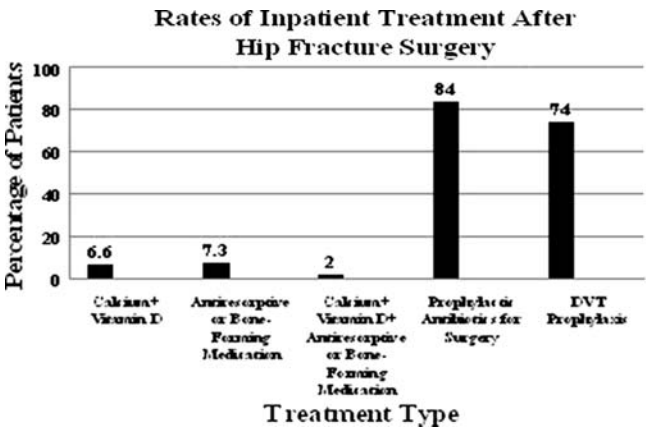
BACKGROUND: A growing literature identifies gaps in physician-patient communication particularly between black patients and their physicians. Studies indicate that black patients ask fewer questions than and are less active participants in medical interactions compared with white patients. Methods to measure communication include patients' and physicians' perceptions of communication, and external observers' qualitative and quantitative assessments of audio recorded medical consultations. Few studies have compared these measures.
METHODS: Eligible patients had pulmonary nodules or lung cancer and were seen in thoracic surgery or oncology clinic for initial treatment recommendations at a large southern VA hospital. Questionnaires were completed after the visit to determine patients' demographics, self-identified race, and health status. Patients' ratings of their own active participatory behaviors (questions, concerns, requests) and physicians' ratings of patients' active participation were collected after the visits with a questionnaire. Observers used the same questionnaire after listening to an audio-recording of the visit. Ratings were completed with multiple items and are on a 10 point scale. Independent observers coded patients' active participation from audiotapes that were transcribed and unitized into utterances. Utterances were coded into categories including patients' active participation (questions, concerns, requests). Data were compared by using correlations, t-tests or chi-square tests as appropriate.
RESULTS: Complete data were obtained for 105 patients (24% black, 76% white). Age, gender, marital status, education, clinic site, and health status did not statistically (P>0.05) differ by race. Black patients had lower self efficacy about communication with physicians (mean score 8.5 vs. 9.5; P= 0.03) than white patients. Compared with white patients, blacks patients demonstrated fewer active participatory behaviors (22.5 vs 35.5 utterances; P=0.02), but black patients' perceptions of their use of active communication did not differ statistically from white patients' perceptions (7.4 vs 8.2; P=0.13). Physicians' perceptions of patients' active communication did not differ for black compared with white patients (4.2 vs. 4.1; P=.80). Observers' coding of patients' active communication behaviors was not statistically correlated with patients' or physicians' perceptions of patients' active communication (r=0.14; P=0.15, and r=0.09; P=0.36, respectively. Moreover, correlation analyses of patients' and physicians', patients' and observers', and physicians' and observers' perceptions of patients' active communication were not significantly correlated (P>0.20). However, observers' perceptions were highly significantly correlated with independent observers' coding of patients' active communication behaviors (r=0.59; P=.001).
CONCLUSION: Physicians' and patients' perceptions of communication do not seem to measure the same construct as external observers' qualitative perceptions or quantitative coding of patients' active communication in audio-recorded medical consultations. Observers' qualitative and quantitative assessments of patients' active communication are highly correlated. Studies that evaluate interventions to improve communication and to reduce racial disparities in communication should use audio-recordings or both, but not questionnaires alone to measure communication.

MISMATCH BETWEEN TREATMENT ENROLLMENT AND DRUG USE PATTERNS AMONG HEROIN AND PRESCRIPTION OPIOID USERS IN NEW YORK CITY J. Mcneely[1]; M.N. Gourevitch[1]. [1]New York University School of Medicine, New York, NY. *(Tracking ID # 205648)*

BACKGROUND: There is widespread concern among physicians and the general public about growing nonmedical use of prescription opioid drugs, an issue which has been highlighted in recent years by media reports of skyrocketing OxyContin use and prescription analgesic-associated overdose deaths. The National Survey on Drug Use and Health (NSDUH), an annual household survey conducted by the U.S. Department of Health and Human Services, indicates that past year nonmedical prescription opioid use is four times more prevalent than heroin use among the general population of New York City (NYC) residents (SAMHSA, 2005, 2006). Yet substance use research has largely focused on heroin using populations, and much less is known about prescription opioid users. Our study describes the demographics and drug use characteristics of heroin and prescription opioid users entering drug treatment services in NYC.
METHODS: Cross-sectional descriptive analysis of the Client Data System, an administrative data system maintained by the New York State Department of Health that collects self-reported sociodemographic and drug use information on all clients entering licensed drug treatment programs or inpatient medical detoxification services in New York State. Analysis is limited to unique adults (18 years or older) residing in the five counties of NYC, for the year 2006.
RESULTS: Opioid use, defined as any use of heroin or nonmedical use of prescription opioids, was reported by 26,938 individuals entering drug treatment or inpatient detoxification in 2006. Among those reporting opioids as their primary drug of abuse, 20,980 (96%) were primary heroin users and 843 (4%) were primary prescription opioid users. Heroin and prescription opioid users were similar in age (mean age 41 in both groups), but prescription opioid users were more likely to be female (33% vs. 24%) and white (62% vs. 19%). Prescription opioid users had higher rates of post-secondary education (41% vs. 18%) and paid work (30% vs. 10%), and lower rates of homelessness (7% vs. 24%). Drug use characteristics also differed significantly between the two groups of primary opioid users. Opioid injection was reported by just 23 (3%) prescription opioid users, but by 8,316 (40%) heroin users. Secondary use of cocaine was common in both groups, but rates were lower for prescription opioid users (22%) than for heroin users (77%). Rates of alcohol use were similar between prescription opioid and heroin users (21% and 25% respectively). Among prescription opioid users, 161 (19%) reported illicit methadone and 20 (2%) buprenorphine as their primary drug; secondary heroin use was reported by 90 (11%).
CONCLUSION: Though nonmedical use of prescription opioids is much more commonly reported than heroin use among the general population in NYC, prescription opioid users represent a small fraction of all opioid users actually entering treatment services, and they differ from heroin users in their demographic and drug use characteristics. These findings prompt the question of whether prescription opioid users are seeking treatment outside the traditional drug treatment system, (through private physicians and other treatment providers), or whether they are simply failing to access care. Further research is needed to define the treatment needs and utilization of this population.

MISSED OPPORTUNITIES FOR OSTEOPOROSIS TREATMENT IN PATIENTS HOSPITALIZED FOR HIP FRACTURE L. Jennings[1]; A.D. Auerbach[1]; J. Maselli[1]; P. Pekow[2]; P. Lindenauer[3]; S.J. Lee[1]. [1]University of California, San Francisco, San Francisco, CA; [2]Baystate Medical Center, Springfield, MA; [3]Tufts University, Springfield, MA. *(Tracking ID # 204061)*

BACKGROUND: Although osteoporosis treatment with a combination of calcium, vitamin D and an antiresorptive or bone-forming drug can dramatically reduce fracture risk, rates of treatment following hip fracture remain low. Inpatient initiation of recommended medications has improved outcomes in studies of acute coronary syndromes and heart failure; hospitalization for hip fracture may represent a similar opportunity for intervention. Thus, we examined rates of in-hospital treatment with 1) calcium and vitamin D and 2) antiresorptive or bone-forming medications in a large cohort of patients hospitalized with osteoporotic hip fractures and identified factors associated with non-treatment.
METHODS: Using pharmacy and discharge records from Perspective, a database developed to measure quality and health care utilization, we performed a cross-sectional study of the in-hospital treatment of osteoporosis with 1) calcium and vitamin D and 2) antiresorptive or bone-forming medications in 51,346 patients over age 65 hospitalized for osteoporotic hip fracture at 318 hospitals between October 2003 and September 2005.
RESULTS: 3,405 patients (6.6%) received calcium and vitamin D anytime after a procedure to correct femoral fracture. 3,763 patients (7.3%) received antiresorptive or bone-forming medications. Only 1023 patients (2%) were prescribed ideal therapy, receiving calcium, vitamin D and an antiresorptive or bone-forming medication. Treatment rates remained low across virtually all patient, provider, and hospital level characteristics. The strongest predictor of treatment with calcium and vitamin D was the receipt of an antiresorptive or bone-forming medication (Adjusted OR=5.50, 95% CI: 4.84–6.25); however, only 27% of patients who received antiresorptive or bone-forming medications also received calcium and vitamin D.
CONCLUSION: Despite proven therapies for osteoporosis, rates of in-hospital initiation of treatment for osteoporosis are very low. The hospital setting represents a unique opportunity to initiate treatment and improve rates of guideline-concordant care for the secondary prevention of osteoporotic fractures.



MISTAKES IN THE AMBULATORY CARE SETTING: A SURVEY OF PATIENT PERCEPTIONS C.E. Kistler[1]; L. Walter[1]; C.M. Mitchell[2]; P.D. Sloane[2]. [1]University of California, San Francisco, San Francisco, CA; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205957)*

BACKGROUND: Patients' perceptions of medical mistakes impact the patient-physician relationship. Though the majority of patient care is delivered in the ambulatory setting, little is known regarding how often patients perceive medical mistakes occurring in ambulatory care and whether certain patient factors are associated with these perceptions.
METHODS: We conducted a cross-sectional survey of 1,754 adults in 7 primary medical care practices as part of the 2008 North Carolina Health Project (response rate=64%). Respondents were asked whether they had ever had a physician make a mistake in their care, whether they had experienced any incorrect diagnoses or medical treatment in the prior ten years, and whether they had changed doctors because of these mistakes. Potential predictors included socio-demographic factors, comorbidities, health status, and disability. The subset of respondents (n=57) who perceived an incorrect diagnosis or medical treatment participated in a follow-up mixed method telephone interview.
RESULTS: Mean age of the 1,754 respondents was 46 years; 68% were female; 36% were African-American; and 51% had <12 years of education. 15% of respondents reported they had experienced a mistake in their care. In the prior ten years, 13% perceived having a misdiagnosis; 13% perceived a wrong medical treatment; and 14% had changed doctors because of these perceived mistakes. In adjusted analysis, independent predictors of reporting mistakes were fair to poor overall health (OR 1.7, 95% CI 1.2, 2.2), frequent physician visits (OR 1.7, 95% CI 1.2, 2.3), and higher levels of education (OR 1.9, 95% CI 1.4, 2.6). African-American race was independently associated with decreased perception of mistakes (OR 0.7, 95% CI 0.5, 0.9). When the subset of 57 respondents was asked how their physicians responded to a perceived mistake, 51% reported that those perceptions had not been acknowledged and 30% reported never returning to the physician they felt had made the mistake.
CONCLUSION: Patient perceptions of mistakes are common in ambulatory care settings and can result in patients changing physicians. Individuals with poor health, frequent physician visits, and higher educational status were more likely to report experiencing a medical mistake, while African-Americans were less likely. In addition, concerns of patients who perceived mistakes were rarely addressed by providers.

MORTALITY AMONG VA PATIENTS PRESCRIBED METHADONE AND MORPHINE E.E. Krebs[1]; W.C. Becker[2]; J. Zerzan[3]; K. Mccoy[1]; J. Sutherland[4]; M.J. Bair[1]. [1]Roudebush VA Center of Excellence on Implementing Evidence Based Practice, Indianapolis, IN; [2]Philadelphia VA Medical Center, Philadelphia, PA; [3]University of Colorado, Aurora, CO; [4]Dartmouth Medical School, Hanover, NH. *(Tracking ID # 206019)*

BACKGROUND: Methadone has been a mainstay of opioid addiction treatment for decades. More recently, it has become a common treatment for chronic pain. Recent reports indicate that opioid-related deaths are rising in parallel with increasing use of these medications for chronic pain. Some evidence suggests that increased use of methadone for pain may be responsible for a disproportionate share of the rise in opioid-related mortality; possibly explained by methadone's unique pharmacologic properties that may lead to respiratory depression or cardiac arrhythmia. Within the Veterans Affairs system, guidelines recommend sustained release morphine and methadone as first-line opioids for chronic pain; thus, they are the two most commonly prescribed long-acting opioids within the VA. Our objective was to compare all-cause mortality among veterans prescribed methadone and sustained release morphine to look for evidence of excess mortality with methadone.
METHODS: We conducted a retrospective cohort study using linked data from VA Pharmacy Benefits Management, Medical, and Vital Status File databases. The study cohort included veterans who received at least one prescription for a medication of interest from a VA pharmacy between 2000 and 2007. We excluded those enrolled in an opioid addiction treatment program. We developed Cox proportional hazard models to compare mortality rates, adjusting for age, sex, race, Charlson comorbidity score, and substance use disorder (not including tobacco) and used a Kaplan Meier curve to assess the proportionality assumption. For analytic purposes, the risk period for a drug began on the dispensing date for the first prescription and ended 30 days after the last fill of that prescription or at any gap in drug coverage exceeding 30 days. If a patient switched drugs, we censored the risk period for the first drug on the date of the new drug fill. To account for correlation among patients prescribed both methadone and morphine, we used robust sandwich estimates of the covariance matrix. We reserved 40% of the sample for a validation cohort.
RESULTS: A total of 270,820 patients received methadone or sustained release morphine between 2000 and 2007. Ninety-three percent of those receiving methadone were male, compared with 95% of those receiving morphine. On average, those receiving methadone were younger (56 vs. 60 years), had a lower Charlson comorbidity score (2 vs. 4), and more often had a substance use disorder (33% vs. 25%). Overall, 12% died during follow-up. In the adjusted model, methadone was associated with lower mortality than sustained release morphine (HR=0.40, 95% CI 0.38, 0.41).
CONCLUSION: Contrary to our hypothesis, we did not observe greater mortality among veterans receiving methadone; however, our findings should be considered preliminary. Study strengths include a large sample, extensive drug exposure data, and high quality outcome assessment. Study limitations included incomplete data on clinical status and comorbidity severity. We also lacked data on the specific

cause of death. Pre-specified sensitivity analyses to further assess potential confounding by comorbidity and end-of-life care are ongoing.

MORTALITY ASSOCIATED WITH DIABETES MELLITUS IN COMPARISON WITH HISTORY OF CARDIOVASCULAR DISEASE IN OLDER WOMEN
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BACKGROUND: Women with diabetes mellitus have an increased risk of cardiovascular disease (CVD) mortality and current treatment guidelines consider diabetes to be equivalent to existing CVD, but few data exist about the relative importance of these risk factors for total and cause-specific mortality in older women.
METHODS: We studied 9704 women aged ≥65 years enrolled in a prospective cohort study (Study of Osteoporotic Fractures) during a mean follow-up of 13 years and compared all-cause, CVD and coronary heart disease (CHD) mortality among non-diabetic women without and with a prior history of CVD at baseline and diabetic women without and with a prior history of CVD. Diabetes mellitus and prior CVD (history of angina, myocardial infarction or stroke) were defined as self-report of physician diagnoses. Cause of death was adjudicated from death certificates and medical records when available (>95% deaths confirmed). Ascertainment of vital status was 99% complete. Log-rank tests for the rates of death and multivariate Cox hazard models adjusted for age, smoking, physical activity, systolic blood pressure, waist girth and education were used to compare mortality among the four groups with non-diabetic women without CVD as the referent group. Results are reported as adjusted hazard ratios (HR) with 95% confidence intervals (CI).
RESULTS: At baseline mean age was 71.7±5.3 years, 7.0% reported diabetes mellitus and 14.5% reported prior CVD. 4257 women died during follow-up, 36.6% were attributed to CVD. The incidence of CVD death per 1000 person-years was 9.9 and 21.6 among non-diabetic women without and with CVD, respectively, and 23.8 and 33.3 among diabetic women without and with CVD, respectively. Compared to non-diabetic women without prior CVD, the risk of CVD mortality was elevated among both non-diabetic women with CVD (HR=1.82, CI: 1.60–2.07, P<0.001) and diabetic women without prior CVD (HR=2.24, CI: 1.87–2.69, P<0.001). CVD mortality was highest among diabetic women with CVD (HR=3.41, CI: 2.61–4.45, P<0.001). Compared to non-diabetic women with CVD, diabetic women without prior CVD had a significantly higher adjusted HR for total and CVD mortality (P<0.001 and P<0.05 respectively). CHD mortality did not differ significantly between non-diabetic women with CVD and diabetic women without prior CVD.
CONCLUSION: Older diabetic women without prior CVD have a higher risk of all-cause and CVD mortality and a similar risk of CHD mortality compared to non-diabetic women with pre-existing CVD. For older women, these data support the equivalence of prior CVD and diabetes mellitus in current guidelines for the prevention of CVD.

MORTALITY RISK OF CHARCOT ARTHROPATHY IN VETERANS WITH DIABETES
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BACKGROUND: Charcot arthropathy (CA) frequently results in disability and poor quality of life. However, its mortality risk implication is unclear; hence it will be the focus of this abstract. The objective is to compare mortality risks of CA to those with diabetic foot ulcer (DFU) and with diabetes (DM) alone without DFU or CA.
METHODS: This is a retrospective cohort study conducted in 886,154 veterans with diabetes who were cared by the Veteran Health Administration (VHA) in fiscal year (FY) 2003. VHA in- and outpatient administrative data sets were used to identify VHA users with DM (ICD-9-CM 250.xx, N=868,884), incident DFU (ICD-9-CM-707.1x or 707.9, N=16,260) and incident CA (ICD-9-CM-713.5, N=1,050). The mortality risk of CA patients was compared to that for patients with DFU and for those with DM. The mortality event was determined during a 5-year FY (2003–2008) follow-up period, and was identified by death dates in the VHA Vital Status File. CA patients were matched in 1:2 ratios to individuals in the other two groups (DFU, N=2100 and DM, N=2100) using propensity score matching based on patient age, sex, race, marital status, diabetes duration, and diabetes control. Thus the study sample consisted of 5250 patients. Cox Propotional Hazard Regression model was conducted to estimate relative mortality risks of the CA and DFU groups compared with the DM group.
RESULTS: At baseline, CA subjects mean age was 63 years with a standard deviation of 9.7 years, forty percent had diabetes, for 6 years or longer, 31% had an average A1c below 7%. Pertinent co-morbidities expressed in percent included peripheral vascular disease (26.9), congestive heart failure (12.6), ischemic heart disease (34.8), stroke (7.8) and chronic obstructive pulmonary disease (9.8),the percentages were higher in DFU and less in DM compared to that of CA. Of the overall sample (N=5250), 1468 (28.0%) died during follow-up. Group mortality rates in percent were 18.8 for DM, 37.0 for DFU and 28.3 for CA. Compared to mortality risk of CA, DFU was associated with 28% higher mortality risk (Hazard Ratio (HR)=1.28) and DM with 29% lower risk (HR=0.71). Among the CA group, 431 (65.3%) had concurrent ulceration and 229 (34.7%) developed ulcer after the CA onset. Stratified analyses suggest that CA is associated with significantly increased mortality risk independently of the presence of foot ulceration and other co-morbidities. Additionally, mortality risks were also increased with older age, male gender and being unmarried.
CONCLUSION: Charcot arthropathy was significantly associated with higher mortality risk, second only to DFU, compared to DM. These findings accentuate the need for early detection of diabetic foot pathology among diabetes patients and engaging patient participation in daily foot self examination.

MULTIPLE UNCONTROLLED COMORBID CONDITIONS AND MEDICATION INTENSIFICATION
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BACKGROUND: Multiple uncontrolled comorbid medical conditions (MUCC) in the same patient may act as competing demands for clinical decision-making. We hypothesized that MUCC decreases the likelihood of blood pressure (BP) medication intensification among uncontrolled hypertensive patients.
METHODS: After each encounter made by 946 patients in a VA Medical Center primary care clinic, clinicians recorded whether BP medications (meds) were intensified (new med added or existing med titrated). Research assistants recorded patient age, sex, BP, and last HbA1c and low density lipoprotein cholesterol (LDL-C) levels. “Uncontrolled” was defined for BP as >140/90 mmHg or >130/80 if diabetic; for diabetes as HbA1c>7%; and for lipids as LDL-C >130 mg/dl or >100 if diabetic. Hierarchical regression models examined factors associated with BP med intensification, accounting for clustering.
RESULTS: Patients had mean age 62±SD13, 3.1% were female, 424 (45%) presented with uncontrolled BP, 158 (17%) with uncontrolled diabetes, and 210 (22%) with uncontrolled lipids; intensification rates for the 424 patients with uncontrolled BP are in the Table. Among the 424 patients, adjusting for patient age, BP level, and clustering by clinician, odds of BP med intensification increased as MUCC rose (odds ratio of med intensification for BP+1 was 1.40 (95%CI: 0.97, 2.02) and for BP+2 was 2.72 (1.32, 5.58), compared with BP+0). Stratifying on median SBP revealed similar MUCC effects in both groups.
CONCLUSION: Providers appropriately managed hypertension more aggressively in patients with MUCC. Contrary to our hypothesis, MUCC actually enhanced guideline-concordant hypertension care. Performance measures must advance beyond simple dichotomous thresholds to examine appropriate decision-making, especially among complex patients.

Table. BP med intensification rates by number of MUCC and SBP

Uncontrolled conditions	Patients, n	Intensification rates (all)*	Intensification rates, SBP> >142^	Intensification rates, SBP≤ 142#
BP+0 (BP only)	245	30%	46%	10%
BP+1 (BP + [DM or lipids])	148	34%	55%	18%
BP+2 (all 3)	31	45%	75%	26%

*p for trend= 0.11. ^p= 0.04;142 mmHg was median SBP. #p= 0.03.

NATIONAL HEALTH CARE FINANCING STRATEGIES AND IMPLEMENTING ELECTRONIC HEALTH RECORDS IN 3 EAST AFRICAN COUNTRIES W.M. Tierney[1]; M.C. Were[1]; A.M. Siika[2]; K. Wools-Kaloustian[1]; W.M. Nyandiko[2]; J.E. Sidle[1]; P.K. Braitstein[1]; B.W. Mamlin[1]; B. Mckown[3]; C. Yiannoutsos[1]; S.N. Kimaiyo[4]. [1]Indiana University School of Medicine, Indianapolis, IN; [2]Moi University School of Medicine, Eldoret, ; [3]Regenstrief Institute, Inc., Indianapolis, IN; [4]Moi University, Eldoret. *(Tracking ID # 205887)*

BACKGROUND: Ministries of Health (MOHs) in developing countries have limited resources for health care. Providing the maximum quality care depends on timely clinical data. By paying $ billions for such countries' HIV care, the U.S. and other donors are transforming health care systems, including data management. We report implementing OpenMRS, an open-source comprehensive EHR, into US-supported HIV clinics in Kenya, Tanzania, and Uganda.
METHODS: We placed OpenMRS in 18 HIV clinics in Kenya (1 national and 12 district hospitals, 5 rural health centers), 3 in Tanzania (1 regional, 1 district, 1 national cancer hospital), and 3 in Uganda (all regional hospitals). Each country's MOH helped choose sites. Kenyan and Ugandan clinicians developed paper encounter forms to serve their care need. Tanzania's MOH computerized its paper registries, dictating the data collected and provided to clinicians. Clinicians completed encounter forms for all new and return visits for adults and children. Clerks hand-entered forms into OpenMRS. On-site trained data managers generated reports and patient summaries for clinicians. EHR development and computer support were provided in Kenya by Indiana and Moi Universities (IU/MU) and in Tanzania and Uganda by local academic computing centers in consultation with IU/MU. In Kenya, IU and MU receive HIV funds directly from U.S. funding agencies and create and manage all HIV care budgets. The Tanzanian MOH directly runs HIV clinics, manages budgets, and bought, installed, and maintains OpenMRS as its national HIV data system. Ugandan intermediary national health care organizations and NGOs receive U.S. HIV care funds and create budgets for other clinics; no funding was earmarked for EHRs.
RESULTS: OpenMRS implementation is shown in the Table. Kenya was first in 2001. That experience guided subsequent OpenMRS installation in Tanzania and Uganda in 2007–8. Patient enrollment in Kenya increased greatly beginning in 2004 with direct funding of care by the U.S. Presidential Emergency Plan (Figure, arrow). OpenMRS has been sustained in Kenya by direct HIV care funding; its data are used to oversee and improve care and report progress to funders. In Tanzania, regimentation among the sites allowed implementation to go smoother and faster than in Uganda. The Tanzanian MOH sustains and runs OpenMRS itself as its primary data source for program management. In Uganda, the MOH did not support OpenMRS nor rely on its data: OpenMRS would have failed without research funds from partner U.S. universities to install and run it.
CONCLUSION: EHRs were successfully implemented at all sites. When both health care and financial control are local (as in Kenya) or national (as in Tanzania), gains in efficiency and quality from EHRs can offset their costs, and EHRs are thus sustainable. When costs and benefits of EHRs are disconnected, EHRs are difficult to implement and sustain without outside funding, creating unhealthy dependencies. For EHRs to expand to support primary care – in East Africa and the U.S. – both costs and benefits must accrue to those using EHRs to provide and improve health care.

EHR Use In East Africa

Country	HIV Funding	Clinics	Patients Enrolled	Visit Records Stored
Kenya	Local care organization	18	84,650	1,427,951
Tanzania	National MOH	3	8,673	57,199
Uganda	Intermediary organizations	3	14,566	115,950

NEIGHBORHOOD DISADVANTAGE, RACE, AND PROSTATE CANCER PRESENTATION, TREATMENT, AND MORTALITY J.A. Long[1]; N. Lurie[2]; J. Escarce[3]; C. Montagnet[4]; K. Armstrong[4]. [1]VA Center for Health Equity Research and Promotion, Philadelphia, PA; [2]RAND, Arlington, VA; [3]RAND, Los Angeles, CA; [4]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 205262)*

BACKGROUND: The burden of prostate cancer is substantially greater among African American (AA) men than White men in incidence, stage of presentation, and mortality. Although most prior research has focused on the contribution of individual biological, behavioral and socioeconomic characteristics to prostate cancer disparities, these individual characteristics comprise only one part of the picture. Each of these individuals is nested within a social and physical environment and because neighborhood characteristics differ by race in the US, these pathways may also contribute to racial disparities in prostate cancer presentation and survival. In this study we investigate the relationship between neighborhood disadvantage, race, and prostate cancer presentation, treatment, and mortality.
METHODS: We used SEER-Medicare data from 1991–1999 for data on prostate cancer presentation, treatment, and mortality. Neighborhood disadvantage was defined at the census tract level using a composite index developed by RAND. The index uses interpolated census data assigning each individual a neighborhood disadvantage index value for the year they were diagnosed. We used logistic regression to evaluate stage at presentation (metastatic versus non-metastatic), multinomial logit models to evaluate treatment received among those without metastatic disease (prostatectomy or radiation versus no treatment), and cox regression to determine the hazard of death among those without metastatic disease. The main predictors of interest were the neighborhood disadvantage index quartile and race. Other covariates included age, marital status, comorbidities, grade at presentation, block group income, and SEER site.
RESULTS: Our sample included 5,952 AA and 47,639 White men with prostate cancer. The mean age was 74 years, and the mean block group income was 56 k. Of those living in neighborhoods with greatest disadvantage, 38% were AA compared to only 1% in neighborhoods with least disadvantage. Both greater neighborhood disadvantage and AA race were independently associated with worse stage at presentation, less active treatment, and and higher mortality (see Table). In stepped analyses, neighborhood disadvantage did little to explain racial disparities in stage at presentation and mortality but did explain to some extent treatment disparities (10% for radiation versus no treatment and 17% for prostatectomy versus no treatment).
CONCLUSION: Neighborhood disadvantage is associated with prostate cancer stage of presentation, treatment, and mortality and helps to explain racial disparities in prostate cancer treatment for AA men. It is possible that patients from disadvantaged neighborhood and AA men may be receiving cancer care from providers or sites of care where less aggressive treatment is pursued. If this is the case targeting care at these sites may be a means to ameliorating disparities in prostate cancer care.

Neighborhood Disadvantage, Race, and Prostate Cancer Outcomes

	Odds of Mestastic Dx	Odds of Radiation Vs No Tx	Odds of Prostatectomy Vs No Tx	Hazard of Death
Most Disadvantaged Versus Least	1.18 (1.05–1.09)	0.74 (0.65–0.83)	0.70 (0.58–0.82)	1.29 (1.07–1.54)
African American Race	1.45 (1.31–1.40)	0.79 (0.70–0.88)	0.61 (0.49–0.73)	1.18 (1.01–1.37)

NEIGHBORHOOD SES AND INCIDENT CHD AMONG WOMEN
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BACKGROUND: We assessed the relationship between neighborhood socioeconomic status (NSES) and incident coronary heart disease (CHD) among women, adjusting for individual sociodemographic characteristics, baseline health status and health behaviors. Data came from the Women's Health Initiative Clinical Trial (WHI CT), a longitudinal study of women ages 50 to 79 baseline, enrolled between 1993 and 1998 and followed until at least March 2005. Participants were recruited at 40 clinical centers and 36 satellite locations. The sample (n=68,132) was 81.7% nonHispanic white, 10.3% nonHispanic black, 4.2% Hispanic, and 3.8% other; 60.9% were married at baseline, 94.3% had at least a high school education, and 66% had household incomes between $20,000 and $75,000 (categories ranged from <$10,000 to $150,000).
METHODS: Using 2-level hierarchical Cox proportional hazard regression models (e.g. shared frailty models), we analyzed the WHI CT data merged with tract-level Census data on neighborhood sociodemographic characteristics. We examined 3 outcomes: time until first CHD event (myocardial infarction (MI), revascularization, and hospitalized angina), time until CHD death or first MI, and time until CHD death. The NSES index included 6 educational and economic measures at the Census tract-level.
RESULTS: After controlling for a number of key individual-level sociodemographic characteristics including age, race, education, income, martial status, region, family history of MI, and study arm, we found that women residing in lower NSES census tracts experienced higher risk for each of the outcomes and shorter time to first CHD event or death by CHD. The relationship between NSES and incident CHD was mediated by baseline health status (BMI, waist hip ratio, self-reported history of diabetes, hyperlipidemic medication use and/or self reported high cholesterol, hypertension) and health behaviors (smoking pack-years, alcohol use, hormone use). After controlling for these baseline measures in addition to sociodemographic variables, the effect of NSES decreased but remained statistically significant for all outcomes except time to CHD death. To illustrate the effect size of NSES on our outcomes, we compared the hazard ratios for our outcomes for a woman living in Anacostia and northwest DC (neighborhoods which represent the bottom and top quartiles of NSES in the US), controlling for both demographics and baseline health measures. Compared to the same woman living in northwest DC, one living in Anacostia has a 1.20 times greater risk for first CHD event (CI:1.01,1.42) and 1.28 times greater risk for CHD death or MI (CI:1.02,1.62). There is no significant difference between the risk of these two women for CHD death (HR 1.28, CI:0.86,1.92). Propensity analyses confirmed that these effect sizes were not sensitive to selection on observed characteristics.
CONCLUSION: Living in a lower NSES neighborhood was independently associated with greater CHD risk, above and beyond individual-level baseline characteristics. Our findings suggest that the observed effects operate in part through health behaviors and diseases which increase cardiovascular risk. This study is part of a larger effort aimed at assessing whether and how neighborhood characteristics affect women's health and understanding whether changing neighborhood features could improve health and reduce health disparities.

NOVEL IMPLEMENTATION OF ROUTINE SUICIDAL IDEATION ASSESSMENT IN HIV PRIMARY CARE: A LIFESAVING TECHNOLOGY.
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BACKGROUND: Several chronic diseases, including HIV/AIDS, are associated with an under-recognized risk for ideation, attempts and completed suicide. As many as 2/3 of individuals who commit suicide are seen by a healthcare provider in the month prior to their death. We sought to standardize routine screening of suicidal ideation (SI) and other associated conditions by the computerized administration of a battery of validated self-reported questionnaires in an HIV primary care clinic.
METHODS: A single academic HIV clinic enrolled patients attending scheduled visits from 4/01/08 to 12/01/08. During routine visits, participants completed web-based computerized questionnaires via touch screen in examination rooms while awaiting providers. The self-reported questionnaires screened for substance abuse (ASSIST), alcohol consumption (AUDIT-C), depression (PHQ-9) and anxiety (PHQ-A). The PHQ-9 asks over the last two weeks if a patient has experienced SI. If a response of "nearly every day" was recorded, a licensed mental health professional was alerted via pager. A more detailed self harm assessment was completed and a plan for action was established and implemented.
RESULTS: A total of 597 patients utilized the web-based questionnaires during the study period. Mean age was 43.5±10.3; 74% were male (n=442); 53% were Black/other minority (n=321); and 19% were uninsured (n=112). Most patients were on antiretroviral therapy 88% (n=529), mean CD4 was 468±296 and 45% (n=270) had an undetectable (< 50 copies/mL) HIV viral load. Overall, 27% (n=159) reported mild to severe depression; anxiety was found in 14% (n=83);12% (n=69) were at-risk for alcohol consumption and substance use in the past 3 months was reported by 8% (n=48). A total of 12 patients (2%) had self reported SI. Of these, 11 patients completed a self-harm assessment and were categorized in low (n=5); moderate (n=4) and high (n=2) SI risk groups. High risk patients were escorted to the emergency department for psychiatric evaluation and all other patients had follow up mental health visits within 7 days. Univariate comparison of the characteristics between the SI and non-SI groups revealed no statistically significant differences in demographic variables. A statistically significant difference in mean CD4 values ($p<0.001$) was seen between the SI (242±133) and the non-SI (474±298) groups. Suicidal patients had higher mean depression (SI 23±5 vs. non-SI 3±5; $p<0.001$); and anxiety (SI 4±2 vs. non-SI 1±1; $p<0.001$) scores. Rate of substance use was also greater in the SI (33%, n=4) vs. non-SI group (8%, n=44) ($p<0.001$).
CONCLUSION: In accordance with previous studies in the general population, SI was related to depression, anxiety, and substance abuse in HIV-infected patients. Our experience supports the use of novel technologies and user friendly interfaces (ex: touch screens) to facilitate the collection of self reported information in busy clinical settings. Such interventions augment the detection of SI and other important mental health co-morbidities, allowing for timely diagnosis and intervention for these potentially life threatening conditions.

OPIOID CONTRACTS FOR CHRONIC PAIN: FACTORS ASSOCIATED WITH CONTRACT ADHERENCE IN A GENERAL MEDICAL CLINIC
J. A. Town[1]; E.R. Feller[1]; P. Hirway[1]; M.J. Fagan[1]. [1]Brown University, Providence, RI. *(Tracking ID # 205301)*

BACKGROUND: Chronic non-malignant pain (CNMP), a common clinical problem, is complicated by high background rates of psychiatric disorders and substance abuse. Increasingly, signed "contracts" are used to codify chronic opioid treatment to limit drug misuse and identify possible substance abuse. These contracts, signed by patient and physician, enumerate mutual expectations, treatment goals and adherence criteria. We studied outcomes after formal drug contracts to define patient demographics and determine associations with contract adherence.
METHODS: We conducted a retrospective review of charts from June 2000-October 2008 of patients in an urban general medicine clinic receiving opioids to treat chronic non-malignant pain (CNMP) under the clinic's opioid contract. Consecutive patients were selected from our clinic's controlled substance database if they signed a contract to receive opioids. Opioids are withheld (pre- or post-contract) from patients at high risk of misuse as determined by behavioral factors (e.g. strong substance abuse history, multiple physicians prescribing opioids, misrepresentation) and/or discordant urine toxicology (e.g. presence of cocaine, heroin, unanticipated controlled substances) or due to medical reasons (e.g. lack of medical indication, drug interactions.) We tabulated the demographic and clinical characteristics of this cohort, rate of opioid contract adherence and reason for discontinuation of opioids. We used logistic regression models to calculate adjusted odds

ratios for associations between clinical or demographic factors and contract adherence.
RESULTS: We evaluated 196 patients for chronic opioid therapy for CNMP over the study period: 169 patients signed contracts to receive chronic opioid therapy and 27 were deemed to be poor candidates for chronic opioids. A majority of patients was male (61.5%), white (60.4%) and single (42.6%); average age was 51.5 years. There was a high lifetime history of mood disorders (61.5%) and substance abuse (62.1%.) The vast majority (85.8%) was already receiving opioid therapy when first evaluated for chronic opioid therapy by our clinic. Over a mean contract length of 722 +/- 53 days, 101 patients (59.8%) were non-adherent and had opioids discontinued. Contract non-adherence was due to aberrant urine toxicology (45.5%), behavioral reasons (32.7%), both behavioral and toxicological reasons (17.8%) and medical reasons (4.0%). Marriage (OR 2.5, p=0.047), older age (OR 1.05/yr increase, p=0.016) and the use of physical therapy (OR 2.6, p=0.012) were all significantly associated with contract adherence in the multivariate regression model. Alcohol abuse (OR 3.0, p=0.010) was significantly associated with non-adherence but ethnicity, history of mood disorder and marijuana use were not. 69 (68.3%) of the contract non-adherent patients returned for follow up care after discontinuation of chronic opioids.
CONCLUSION: We found high lifetime rates of substance abuse, psychiatric disorders and contract non-adherence in this CNMP cohort. Identifying demographic and clinical factors associated with opioid contract adherence may aid in optimizing treatment of chronic pain and detecting substance abuse risk. The association of physical therapy use with contract adherence may reflect patient factors or indicate clinical improvement due to adjunctive treatments. The high follow up rate after stopping opioids is an opportunity to address substance abuse risk as well as the dilemma of CNMP treatment without opioids.

OPIOID RISK MANAGEMENT IN A COHORT OF PRIMARY CARE PATIENTS WITH CHRONIC NON-CANCER PAIN J.L. Starrels[1]; W.C. Becker[2]; X. Li[1]; M.G. Weiner[3]; B.J. Turner[3]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Philadelphia VA Medical Center, Philadelphia, PA; [3]University of Pennsylvania School of Medicine, Philadelphia, PA. *(Tracking ID # 205994)*

BACKGROUND: Professional pain societies, expert consensus panels, and regulatory agencies recommend that physicians perform opioid risk management practices for patients prescribed opioid analgesics (OAs) for chronic non-cancer pain (CNCP). Recommended practices include: urine drug testing, regular office-based monitoring, and limiting early refills. How frequently these practices are performed in primary care is unknown. The objectives of this study were (1) to determine how frequently these practices are currently performed and (2) to determine whether patients with known risk factors for prescription opioid misuse are more likely to receive these practices.
METHODS: Using electronic medical record data of a university health system, we analyzed a retrospective cohort of primary care patients on long-term OA treatment for CNCP, during 4.5 years of observation (1/1/04 to 7/1/08). Long-term OA treatment was defined by 3 prescriptions within 6 months. Data extracted from the electronic medical record included outpatient prescriptions, laboratory data, encounter data, ICD-9 diagnoses, and demographic characteristics. We evaluated 3 recommended practices: (1) urine drug testing (1 test performed while on OA treatment); (2) regular office-based monitoring (1 office visit within every 6 months on OA treatment and within 30 days of every opioid medication change); and (3) limited early refills (1 refill prescribed >7 days prior to the expected end date for the previous prescription). Independent variables of interest were known risk factors for opioid misuse: young age (40) or the diagnosis of a non-opioid drug use disorder, alcohol use disorder, tobacco use disorder, or a mental health disorder. We determined the proportion of patients for whom recommended practices were performed. To evaluate the association of known risk factors for opioid misuse with receipt of the recommended practices, we used non-linear mixed effects models to adjust for clustering of patients within practices. Patient sex, race, and duration of time on OA treatment were included as covariates.
RESULTS: We identified 1,646 primary care patients on long-term OAs for CNCP. Of these, 7.5% received urine drug monitoring, 50.1% had regular office-based monitoring, and 76.9% obtained limited early refills. Known risk factors included young age (17.4%), non-opioid drug use disorder (7.1%), alcohol use disorder (4.4%), tobacco use disorder (15.8%), and mental health disorder (48.6%). In multivariate models, patients receiving urine drug testing were more likely to be young (AOR 2.18; CI 1.34, 3.57), and to have a diagnosis of non-opioid drug use disorder (AOR 3.70; CI: 2.10, 6.55), or a mental health disorder (AOR 1.81; CI: 1.14, 2.88). Regular office-based monitoring and limited early refills were not significantly associated with known risk factors for opioid misuse. None of the recommended practices was significantly associated with a diagnosis of tobacco or alcohol use disorder.
CONCLUSION: The performance of opioid risk management practices in this population on long-term OAs was poor. The lack of regular office-based monitoring and urine drug testing are particularly concerning, given the potential risks of OAs not only to patients, but to the general public through diversion. Although risk factors were associated with urine drug testing, high-risk patients were not more likely to be closely monitored in the office or limited in early refills.

OPTIMISM, DEPRESSION, AND RE-HOSPITALIZATION FOLLOWING CORONARY ARTERY BYPASS SURGERY H.A. Tindle[1]; B. Herbeck Belnap[1]; S. Mazumdar[1]; D. Singhabahu[1]; B.L. Rollman[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205128)*

BACKGROUND: Trait optimism, defined as the general expectation that good, rather than bad, things will happen in the future, has been associated with favorable cardiac outcomes. However, little is known about the impact of optimism following coronary artery bypass graft (CABG) surgery. We conducted a secondary analysis of data collected as part of a randomized clinical trial of collaborative care for treating post-CABG depression to evaluate associations between trait optimism and: 1) socio-demographics, cardiac risk factors, health-related quality of life (HRQoL), mental health, and adherence to doctor's advice; and 2) post-CABG re-hospitalization and recovery from depression.
METHODS: 430 post-CABG patients completed the 10-item Life Orientation Test-Revised (LOT-R), including 284 who screened positive for depression prior to discharge home on the Patient Health Questionnaire (PHQ-2) and scored >9 on the Patient Health Questionnaire (PHQ-9) at 2 weeks follow-up , and 146 who screened negative for depression at both time-points (PHQ-2 negative and PHQ-9<5). Using the LOT-R, we classified "optimists" as those scoring in the top quartile and "pessimists" as those scoring in the bottom quartile. We assessed demographic and clinical measures by interview and chart abstraction; HRQoL with the SF-36; mood symptoms with the Hamilton Rating Scale for Depression (HRS-D); and adherence to physician advice with the Ziegelstein Healthy Lifestyle Questionnaire. We defined response to depression treatment as a 50% improvement in HRS-D score from baseline. Then, we used Chi-square analyses and t-tests to evaluate the relationship between optimism and our baseline variables, and Kaplan-Meier curves and Cox proportional hazard models to assess the univariate and adjusted relationships of optimism to post-CABG re-hospitalization and response to depression treatment.
RESULTS: Overall, 19% of all post-CABG patients scored as optimists and 30% scored as pessimists. Optimists (vs. pessimists) were more likely to report education beyond high school (67 vs. 47%); be married (78 vs. 62%); have higher levels of mental and physical HRQoL (SF-36 MCS: 56 vs. 46; SF-36 PCS: 45 vs. 40); were less likely to be depressed (60 vs. 84%); and were more likely to self-report adherence to their physician's advice (77 vs. 57%) (all p<0.05). Optimists and pessimists were similar on other baseline measures. By 8 month follow-up, optimists (vs. pessimists) experienced fewer mean re-hospitalizations (1.7 vs. 2.3, p=0.10), and lower rate of re-hospitalization (22 vs. 32%, (HR 0.64; 95% CI: 0.37 – 1.12 p=0.12)). Among the 150 depressed patients randomized to our depression intervention, 18% were optimists and 33% were pessimists. While optimists were more likely than pessimists to respond to depression treatment (67 vs. 44%, (HR 1.48; 95% CI: 0.78 – 2.79)), these differences were not statistically significant and were attenuated further after controlling for education, marital status, and depression.
CONCLUSION: Optimists report higher levels of HRQoL, mental health, increased adherence to physician advice, and may be less likely to be rehospitalized by 8-months following CABG surgery. Depressed post-CABG patients who are optimists (vs. pessimists) may also respond better to depression treatment. Further research is needed to explore the long-term impact of optimism on post-CABG outcomes.

ORGANIZATIONAL CHARACTERISTICS ASSOCIATED WITH CO-LOCATION OF GENERAL MEDICAL SERVICES IN MENTAL HEALTH PROGRAMS FOR VETERANS WITH SEVERE MENTAL ILLNESS P.A. Pirraglia[1]; D. Greenwald[2]; D. Welsh[3]; A. Kilbourne[3]. [1]Providence VA Medical Center, Providence, RI; [2]VA Pittsburgh Healthcare System, Pittsburgh, PA; [3]VA National Serious Mental Illness Treatment Research and Evaluation Center, Ann Arbor, MI. *(Tracking ID # 203836)*

BACKGROUND: Schizophrenia, bipolar disorder, and schizoaffective disorder, collectively referred to as severe mental illness (SMI), are prevalent among veterans. The quality of the medical care of SMI patients is suboptimal. The effectiveness of co-location and coordination of primary care services to veterans with SMI in the outpatient mental health setting was demonstrated in a randomized trial at a single VA site, but this arrangement is not widely employed. We sought to examine the organizational characteristics of mental health programs with co-located mental health services and to determine if aspects of general medical care differed at such sites.
METHODS: We used data from a survey of VA Mental Health Programs conducted in fiscal year 2007. Programs were eligible if they were a geographically distinct VA site in the US that provided mental health outpatient services. We considered a VA station to have co-located general medical care only if they reported having such an arrangement. All other stations were assumed not to have co-located medical services. The organizational characteristics we examined, all of which were represented by a score, were practice autonomy, use of information technology (IT), communication within the mental health program, communication with general medicine, provider notification, and financial incentives. We also examined the reporting on specific aspects of care that described how general medical care for veterans with SMI was handled, including how general medical services were accessed, how tests and non-psychiatric medications were ordered, and how laboratory results were followed-up.
RESULTS: Nine percent of the surveyed mental health programs had co-located general medical services. The only organizational characteristic score that neared statistical significance for differing between co-located and not co-located programs was communication with general medicine (5.5±3.1 vs. 3.9±2.7, p=.08). However, many aspects of care differed between co-located and not co-located programs (Table).
CONCLUSION: Our findings suggest that organizational characteristics do not appear to be markedly different between mental health programs with co-located general medical services and those without co-located general medical services. However, many aspects of care, including those related to high quality primary care, are reported to occur more frequently in programs with co-located general medical services. Future work will examine the impact of co-location on primary care, mental health, hospital, and emergency room utilization as well as whether quality of care is improved by medical services co-located in mental health.

Aspects of Care (GM=General Medical, MH=Mental Health)

	Co-located	Not Co-Located	p-value
Walked to GM provider by MH provider	50	6	<.0001
MH call/email GM provider for appointment	56	19	.02
MH call/email GM clinic for appointment	40	17	.10
MH arrange GM via consult	20	51	.10
Refill of non-MH med	50	11	.006
Order lipid panel	30	6	.10
Follow-up for abnormal lipid panel	60	8	<.0001
Prevention screening	60	9	<.0001

ORGANIZATIONAL OUTCOMES ASSOCIATED WITH ADVANCED CLINIC ACCESS IMPLEMENTATION U. Subramanian[1]; R.T. Ackermann[1]; C. Saha[2]; J. Nyugen[3]; D. Willis[4]; D.G. Marrero[1]. [1]Diabetes Translation Research Center; Indiana University School of Medicine, Indianapolis, IN; [2]Division of Biostatistics, Indiana University School of Medicine, Indianapolis, IN; [3]Division of Biostatistics; Indiana University School of Medicine, Indianapolis, IN; [4]Indiana University Purdue University Indianapolis, Indianapolis, IN. *(Tracking ID # 204751)*

BACKGROUND: Open ("advanced") access (OA) scheduling is an emerging organizational strategy intended to improve access, reduce missed appointments, and improve patient satisfaction. However, few studies have thoroughly evaluated the impact of OA on these organizational outcomes in large samples of patients, especially those needing chronic care. Objective: To assess the impact of OA implementation among diabetes patients in a large primary care practice group in greater Indianapolis on: 1) Missed appointments; 2) Perceived access to care; and 3) Patients satisfaction
METHODS: We used a pre-post retrospective cohort study design to assess diabetes patients' missed appointments, perceived access, and satisfaction with their primary care provider before and 1 year after OA implementation. Participants were adults with diabetes who received primary healthcare in 6 clinics that newly adopted an OA scheduling approach and 10 control clinics that maintained a traditional scheduling format. 'No show' rates were calculated as the ratio of scheduled patient visits to missed patient visits. Perceived access was based on patient reported availability of appointment within 24 hours, and within 2 weeks of requested call for appointment. Patient satisfaction with their provider was measured by a visit specific questionnaire, conducted quarterly by the provider group on a random sample of patients from each clinic. We restricted the sample to diabetes patients. Dichotomous outcomes (for missed appointments) and Patient satisfaction ordinal responses were analyzed using simple and cumulative logistic regression models along with GEE, respectively. To compare improvement in outcomes during post OA implementation from pre OA implementation between the two clinic types, models included an interaction term between clinic type and period of OA program. Comparisons adjusted for patient and clinic level covariates. Patients and clinics were considered as nesting factors.
RESULTS: For analysis of missed appointments, the sample included 4,691 diabetes patients in OA clinics and 3426 patients in control clinics. Mean age was 56 (SD 13.4) years, with 39% women, 38% African-American, and 42% white. After 1 year, OA clinics had a 3% significant improvement in show rate (p<0.0001), while no changes were noted in the control clinics. Patient satisfaction and perceived access analyses included 254 diabetes patients from control and 612 patients from OA clinics. Mean age was 58 (SD 11.7) years, with 67% women, 45% African-American, and 41% white. Patient perceptions of appointment availability (within 24 hours and within 2 weeks) significantly increased over 1 year in OA clinics (p<0.0001), but not for the control clinics (p>0.20). The odds ratios of 24-hour and 2 week appointment availability during post OA versus pre OA implementation were 1.67 vs. 4.98 and 0.77 vs. 4.83 for the control and OA clinics respectively. There were no differences in patient satisfaction with provider between control and OA clinics.
CONCLUSION: OA implementation had a modest effect on improved patient perceived access and decrease in overall missed appointments for patients with diabetes, without any change in overall patient satisfaction. Future studies should add to this evaluation and assess impact of OA on diabetes related visits and assess outcomes over longer duration.

OSTEOARTHRITIS IN YOUNG PATIENTS PREDICTS ELEVATED RISK OF METABOLIC SYNDROME R. Puenpatom[1]; T.W. Victor[2]. [1]Endo Pharmaceuticals Inc., Chadds Ford, PA; [2]Endo Pharmaceuticals, Chadds Ford, PA. *(Tracking ID # 204336)*

BACKGROUND: Osteoarthritis (OA) and cardiovascular (CV) disease share age and obesity as risk factors. Advanced age and increased body mass produce wear and tear on joints, but OA and CV disease may be linked by less obvious associations such as pathogenic mechanisms involving metabolic abnormalities and systemic inflammation. Metabolic syndrome (MetS) is defined by 5 CV risk factors, 4 of which are not risk factors for OA. This study compared the prevalence of MetS in patients with OA vs the general population without OA, to determine if having OA predicts an increased risk of having MetS.
METHODS: National Health and Nutrition Examination Survey (NHANES) III data were used as a representative sample of the US general population. Subjects included were 18 years or older, and had an 8-hour or longer fasted-morning examination to allow diagnosis of MetS. Patients with OA were identified by history, radiographic records, or recorded diagnosis. Descriptive statistics were computed for all variables. Logistic regression was used to examine the association

between MetS and population-weighted variables including age, sex, ethnicity, marital status, education, geographic location, and OA.
RESULTS: The general population sample consisted of 7714 surveyed subjects, whose weighted observations represented a population of 174.9 million. OA was present in 975 surveyed subjects (weighted observations=17.5 million). The prevalence of MetS was 55% in patients with OA and 24% in the general population without OA. Each of the 5 MetS risk factors was more prevalent in the OA population vs the general population without OA: high blood pressure (75% vs 38%), abdominal obesity (63% vs 38%), elevated fasting glucose (30% vs 13%), elevated triglycerides (47% vs 32%), and low level of high-density lipoprotein cholesterol (44% vs 38%). An increased prevalence of MetS with OA was present equally in men and women, and among all races. However, patient age influenced the relationship of OA and MetS, such that the increased risk of MetS was greater in younger patients with OA, and became less significant with age, with no effect of OA on the prevalence of MetS observed in patients older than age 78. At the mean general population age of 38 years, having OA was associated with a 5.26-fold (SE=1.58, P<0.001) increased prevalence of MetS vs the general population without OA.
CONCLUSION: Our findings indicate that young patients with OA have an increased prevalence of MetS. For a 38-year-old patient with OA, the risk of having MetS is increased more than 5-fold. The clinical implication of these findings is that the presence of OA in a young patient predicts a heightened risk of CV disease. Therefore, assessment of global CV risk in all patients younger than age 78 presenting with OA would be prudent.

OVERLOOKING CONTEXTUAL INFORMATION WHEN INDIVIDUALIZING CARE: A SOURCE OF MEDICAL ERROR AND AVOIDABLE COST S.J. Weiner[1]; A. Schwartz[2]; F. Weaver[3]; M. Schapira[4]; E. Jacobs[5]; J. Goldberg[2]; R. Yudkowsky[2]; N. Jordan[6]; S. Persell[7]; R. Abrams[8]. [1]Jesse Brown VA Medical Center and University of Illinois at Chicago, Chicago, IL; [2]University of Illinois at Chicago, Chicago, IL; [3]Hines VA Medical Center, Hines, IL; [4]Medical College of Wisconsin, Milwaukee, WI; [5]John H. Stroger, Jr. Hospital, Chicago, IL; [6]Northwestern University Feinberg School of Medicine, Chicago, IL; [7]Northwestern University, Chicago, IL; [8]Rush University Medical Center, Chicago, IL. *(Tracking ID # 204825)*

BACKGROUND: A "contextual error" is a medical error that occurs when a physician fails to take into account information that is expressed outside of a patient's physical boundaries – i.e. their context – that is essential to planning appropriate care. All other medical errors may be classified as "biomedical." In this study incognito standardized patients were trained to present with a common complaint, plus additional biomedical or contextual information that must also be addressed by their physician in order to avoid a medical error. We examined the propensity of physicians to make both biomedical and contextual errors, and measured their avoidable direct costs to patient care.
METHODS: Using coding instruments developed for 4 cases, each with 4 variants, we scored 286 notes written by 96 internal medicine attending physicians who believed they were seeing new real patients in their primary care practice. To avoid making an error, a physician had to elicit and attend to essential biomedical or contextual information planted in each case. For each error identified, we tabulated each inappropriately ordered test, medication, or other medical service that was a direct consequence of the error and, using Medicare cost-based reimbursement data summed the overall costs of each error.
RESULTS: At least one error was made in 61% of cases where only a biomedical error was possible, 73% of cases where only a contextual error was possible, and 89% of cases where physicians could make both types of errors. This trend was statistically significant (p=0.05). Averaged across all 16 case variants, the cost of error making to patient care was $326 in unnecessary or inappropriate care. For variants in which only contextual errors were possible, error making added $725 to the per visit cost of care.
CONCLUSION: Inattention to contextual information, such as patients' transportation, economic situation, or caretaker responsibilities can be even more costly than inattention to laboratory values, medication dosages, and patient identifiers when delivering care. Whether contextualizing care is art or science, its implications for quality and cost are measurable and significant. This study suggests a need for greater prioritization of contextual information in planning patients' care to reduce medical errors and costs.

PAIN IS COMMON IN INDIGENT ADULTS WITH HIV INFECTION: FINDINGS FROM A COMMUNITY-BASED REPRESENTATIVE SAMPLE M. Kushel[1]; J. Penko[1]; D. Guzman[1]; C. Miaskowski[2]. [1]University of California, San Francisco/San Francisco General Hospital, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 206108)*

BACKGROUND: The prevalence and severity of chronic pain is associated with low-socioeconomic status, HIV infection and substance use, but most pain studies are not population-based. We analyzed rates, severity, type and correlates of pain in a community-based, representative sample of indigent adults with HIV infection.
METHODS: We conducted a cross-sectional study as part of a larger prospective study of pain in a cohort of HIV-infected indigent adults. Participants underwent structured interviews to determine demographic and behavioral characteristics (including Beck Depression Inventory), functional status (SF-36) and pain (Brief Pain Inventory). Trained interviewers administered the Diagnostic Interview Schedule IV substance abuse modules. Participants underwent phlebotomy to assess CD4 count. We categorized pain as mild (0–4), moderate (5–7), or severe (8–10) based on the self-report of worst pain in the past week. We analyzed the data using contingency tables with Chi-Squared and Fisher's Exact Test.
RESULTS: Of the 296 participants, 72.0% were male and 41.2% were African-American. One-third met criteria for a lifetime history of methamphetamine abuse, 42.8% for lifetime cocaine abuse, and 22.1% for lifetime heroin/opiate abuse. Nearly one-half (46.3%) qualified for a diagnosis of lifetime alcohol abuse. Over a quarter (28.1%) met Beck Depression Index criteria for moderate or severe depression. Over a quarter (27.8%) had a CD4 count below 200. The vast majority (90.9%) reported experiencing pain in the prior week. Almost half (49.0%) of the entire sample reported severe pain, 34.8% reported moderate pain and 7.1% reported mild pain. Over half (52.0%) of all participants and 59.7% of those with moderate or severe pain reported taking an opioid analgesic prescribed by a physician in the past month. In bivariate analyses comparing those with moderate or severe pain to those with none or mild pain, pain severity was associated with sex (females 92.8% versus males 80.3%) (p<0.001)), race (African-American 87.7% versus non-African American 81.0% (p<0.05)), depression (moderate or severe depression 95.2% versus none or mild depression 79.2% (p<0.01)) and poor functional status (SF-36 PCS mean 40.0 for moderate or severe pain versus 50.4 for none or mild pain (p<0.01) and MCS 44.4 versus 49.3 (p<0.05)). Pain severity was not associated with lifetime or current substance abuse disorders or CD4 count <200. The prescription of an opioid analgesic was not associated with lifetime or current abuse of methamphetamine, cocaine, heroin or alcohol.
CONCLUSION: In this community-based representative sample of indigent adults with HIV infection, we found that over three-quarters of participants reported moderate or severe pain, which is similar to clinic-based samples of patients with metastatic cancer. Pain was negatively associated with both functional status and depression. Of those with moderate or severe pain, forty percent were not prescribed an opioid analgesic. While physicians may have chosen to not prescribe opioid analgesics based on concerns about misuse in light of the high rate of substance abuse, substance abuse was not associated with the prescription of an opioid analgesic. The high rates of both pain and substance abuse disorders underscore the need for strategies to safely manage pain in this population.

PALLIATIVE CARE MANAGEMENT AND ITS IMPACT ON END OF LIFE RESOURCE USE K.E. Rosenfeld[1]; M. Steckart[1]; D. Riopelle[1]; K. Lorenz[1]; M.L. Magner-Perlin[1]; G. Wagner[2]. [1]Veterans Administration Greater Los Angeles Healthcare System, Los Angeles, CA; [2]RAND Corporation, Santa Monica, CA. *(Tracking ID # 205708)*

BACKGROUND: Research suggests that hospital-based palliative care (PC) can improve seriously ill patients' well-being and patient and family satisfaction with care, and can reduce end-of-life resource use. However, PC consultative and inpatient care, the most prevalent PC delivery models, may not fully address patient and family needs for longitudinal access to symptom management expertise and psychosocial support, or continuity and coordination of PC services. Models for chronic illness care using collaborative case management have improved care for a range of chronic illnesses, and preliminary studies

suggest similar benefit in PC settings. We conducted a trial of prognosis-based PC case management, and assessed its impact on patient symptoms, quality of life, and resource use, compared with standard PC services.
METHODS: Between August 2004 and November 2006 at the VA Greater Los Angeles, 400 consenting medical inpatients meeting study eligibility criteria (>25% resident-estimated one-year mortality, cognitively intact, not in hospice or nursing home) were randomized to usual care (standard PC consultative care on request) or to an intervention employing palliative care consultation followed by longitudinal PC case management targeting care coordination, symptom management, treatment preference clarification, and patient and family practical support, or to usual care. Patients were followed until death or a minimum of one year following enrollment. Symptoms and quality of life were assessed at baseline and Months 1 and 6 using the C-MSAS and the QUAL-E, respectively. Resource use outcomes included hospital and ICU days overall, and for patients who died, hospital and ICU days overall and in the final 30 and 60 days of life.
RESULTS: Of 1355 prognostically eligible patients, 559 (41%) were eligible and 400 (72%) enrolled. Patients randomized to intervention (n=200) and control (n=200) were similar with regard to demographics, diagnosis, resident-estimated mortality risk, baseline functional status and symptoms other than pain, and overall mortality and survival duration. One-year mortality was 50%, and overall mortality was 65%; median enrollment duration was 362 days. In bivariate analysis, there were no significant differences between intervention and usual care groups in C-MSAS or QUAL-E domain or total scores at 1 or 6 months. In multivariate analyses among the 259 patients who died, intervention patients were less likely to be admitted to the ICU overall (OR=0.47, p=.018) or in the final 30 days (OR=0.17, p=.000) or 60 days (OR=0.21 p=.002) of life. Intervention patients who died had fewer hospital and ICU days in both the final 30 days (6.2 days vs. 9.0 days and 1.2 days vs. 2.0 days respectively, p=.04 for both) and 60 days of life (8.9 days vs. 13.9 days, p=.02, and 1.0 days vs. 3.0 days, p<.05, respectively). Among all patients, there were no significant differences between groups in total hospital days or ICU days following study entry (25.7 vs. 29.1 days and 3.3 vs. 3.0 days, p>.05).
CONCLUSION: Compared with standard PC consultative care, prognosis-based PC case management reduced end-of-life resource use among seriously ill veterans at one large VA medical center.

PAP SMEAR SCREENING PRACTICES OF PRIMARY CARE PHYSICIANS: ARE THEY EVIDENCE-BASED? B.E. Sirovich[1]. [1]VA Medical Center, White River Junction, VT. *(Tracking ID # 205909)*

BACKGROUND: Most American women need not undergo annual Pap smear screening, and may stop screening in their older years, according to evidence-based consensus recommendations by the major guideline-issuing organizations. It is unknown to what extent physicians – in particular, primary care physicians – have incorporated these guidelines into their screening practices. **OBJECTIVE:** To determine whether Pap smear screening practices of primary care physicians conform to current guidelines.
METHODS: We conducted a mail survey of a nationally representative random sample of primary care physicians (internists and family practitioners) in 2004 (response rate 62%). All physicians were asked to estimate for what proportion of their female patients they performed routine screening Pap smears. Unless the response was "none", they were then asked for their screening recommendations for 3 different women presented in clinical scenarios. We also used the 2000–2002 National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) to estimate what proportion of Pap smears in the United States are performed by primary care physicians. P values are based on the chi squared test.
RESULTS: Primary care physicians (PCP's) perform an estimated one third of Pap smears in the United States. The large majority (82%) of PCP's report performing Pap smear screening on at least some of their patients; over half (56%) do so for most or all of their female patients. Overall, about half physicians (who perform screening) reported performing more Pap smear screening than recommended for each of the three scenarios presented. For a monogamous 35-year-old woman with no history of abnormal Pap smears, just over half (53%) recommend an annual screening interval; 47% recommend continuing screening for a 75-year-old woman with a history of normal Pap results; and 49% advise continued screening of a 55-year-old woman who had undergone a total hysterectomy for uterine fibroids. Overall, half (52%) recommend more intensive screening than is proposed by current guidelines in at least 2 out of the 3 scenarios described above. Intensive screening (in 2 out of 3 scenarios) was more likely to be recommended by physicians in solo or 2-person practice (65% v. 45%, p<0.001) and international medical graduates (65% v. 49%, p<0.001). Physician sex, specialty (family practice v. internal medicine), years in practice, board certification, and managed care arrangements did not influence aggressiveness of screening in multivariate analyses.
CONCLUSION: Half of U.S. primary care physicians report performing Pap smear screening more intensively than is recommended by current guidelines. Physician awareness or acceptance of screening guidelines may be related to exposure through professional networks.

PARTICIPANT CHARACTERISTICS AND COMPONENTS OF A LIFESTYLE INTERVENTION AS PREDICTORS OF SUCCESS IN A CLINIC-BASED, COMMUNITY-SUPPORTED, INTERVENTION TO IMPROVE DIET J.L. Kraschnewski[1]; T.C. Keyserling[1]; C. Samuel-Hodge[1]; L. Johnston[1]; B. Garcia[1]; Z. Gizlice[1]; M.D. Gross[2]; A.S. Ammerman[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of Minnesota, Minneapolis, MN. *(Tracking ID # 205839)*

BACKGROUND: Diet plays a key role in the development of coronary heart disease (CHD) – the number one killer in the United States. Lifestyle intervention approaches have been shown to be efficacious in improving CHD risk factors. The North Carolina enhanced WISEWOMAN project is a clinic-based, community-supported, multi-component lifestyle intervention that led to an improvement in dietary intake in a randomized controlled trial. The direction of future interventions and their appropriate target populations can be aided by identifying intervention components and participant characteristics associated with successful dietary change. The objective of this study was to identify such characteristics and components associated with improved dietary outcomes in the North Carolina enhanced WISEWOMAN project.
METHODS: The North Carolina enhanced WISEWOMAN project was conducted from May 2003 to December 2004. A total of 236 women, ages 40–64, were randomized to receive an enhanced intervention (N=118) or usual clinical care plus a one-time mailing of pamphlets on CHD risk factors (N=118). The intervention consisted of a 6-month intensive phase, including 2 individual counseling sessions, 3 group sessions, and 3 phone calls from a peer counselor followed by a maintenance phase. Data from the intervention participants who had follow-up dietary intake measures at 6 months were used in this analysis: N=102 for the Dietary Risk Assessment (DRA), a brief validated food frequency questionnaire and N=107 for serum carotenoids, which reflect fruit and vegetable intake. A change in DRA score of $\geq$4 was considered to represent meaningful change in dietary intake. Serum carotenoids were analyzed as log-transformed, continuous data because they were not normally distributed. Participant characteristics (demographics and baseline measurements) and intervention components (such as group session attendance, receipt of peer counselor phone calls, and use of the fruit and vegetable log) were analyzed using students t-test for DRA and pairwise correlation for carotenoid associations. STATA software, Version 10 (STATACorp, College Station, TX) was used for analysis; comparisons were two-sided, and p<0.05 was considered significant.
RESULTS: Successful intervention participants did not vary from those who did not change their dietary intake in terms of age, race, education, or smoking status. However, successful participants were significantly more likely to be obese (BMI$\geq$30 kg/m2; p=0.03) and have diabetes (p=0.001) or hypertension (p=0.02). As assessed by health counselors, participants who changed their dietary intake were more likely to be motivated during the intervention (p=0.03). Additionally, all participants with diabetes (N=17) were rated as motivated. Correlations for carotenoid associations were not significant for any demographic or baseline measurements. There were no significant differences between groups in attendance or use of any intervention components for either dietary outcome.
CONCLUSION: Chronic disease and obesity predicted successful dietary change within the intervention group. It is unknown if participants with diabetes were more likely to engage in behavior change due to prior exposure to recommended dietary changes or

because they were more motivated. A limitation of this analysis includes the small sample size, which may have limited our ability to detect more subtle predictors of improved dietary outcomes.

PARTICIPATORY EVALUATION OF A COMMUNITY YOUTH VIOLENCE PREVENTION PROGRAM R. Skeete[1]; B. Tinney[2]; G. Lucas[3]; L. Curry[3]; M. Greene[3]; M. Rosenthal[3]. [1]Yale Robert Wood Johnson Clinical Scholars Program, New Haven, CT; [2]New Haven Family Alliance, New Haven, CT; [3]Yale University, New Haven, CT. *(Tracking ID # 206005)*

BACKGROUND: Youth violence in the United States disproportionately affects urban minority racial and ethnic communities. Homicide is the leading cause of death among African Americans between the ages of 10 and 24, and the second leading cause for Hispanics/Latinos. The Street Outreach Worker Program, a tertiary violence prevention initiative operated by a community-based organization in New Haven, CT, is designed to reduce gun violence by connecting at-risk youth with adults previously involved in violence but now committed to mentoring youth. Evaluation of the process of such a complex undertaking early on is paramount, as it provides accountability and can aid in program development and improvement. A community-academic partnership was formed to conduct a participatory evaluation of this program.
METHODS: We conducted a qualitative study using in-depth interviews with a sample of 13–24 year old youth program participants, the eight Street Outreach Workers and the three program administrators. Our interview guide was designed to determine, from the perspective of the three groups sampled: 1) program elements that keep youth engaged; 2) program elements that prevent gun violence and; 3) barriers and facilitators to youth program participation. With both community members and academics on the research team, interviews were audiotaped, transcribed and synthesized into common themes using the constant comparative method of qualitative analysis.
RESULTS: A unifying theme in keeping youth engaged, preventing gun violence, and overcoming barriers to participation was the relationship between youth participants and Street Outreach Workers. Interviews from all three parts of the sample described this relationship as a proxy family. A second theme was how the program changed perceptions of the youth about themselves and others. A third theme was that while the youth described program elements that occupy their time, provide exposure to pro-social alternatives to gun violence and bring together youth from different neighborhoods, many of them did not believe these activities would prevent violence.
CONCLUSION: Eighteen months after the start of the program, many youth who enjoyed and participated in program activities, did not believe the activities could reduce violence; they did, however, believe mentoring relationships were important aspects of violence reduction. Further study should assess the extent to which youth who participate in different aspects of the program are able to avoid violence. The study highlights the perceived importance of human capital and relationships for preventing youth violence; if such programs are found successful, the importance of sustaining the relationships in the proxy family between mentors and youth should not be underestimated.

PASS-FAIL GRADING IS ASSOCIATED WITH ENHANCED WELL-BEING AMONG MEDICAL STUDENTS: A MULTI-INSTITUTIONAL STUDY D.A. Reed[1]; L.N. Dyrbye[1]; D.W. Szydlo[1]; T.D. Shanafelt[1]. [1]Mayo Clinic College of Medicine, Rochester, MN. *(Tracking ID # 206009)*

BACKGROUND: There is a high prevalence of psychological distress among U.S. medical students, and student distress is associated with suicidal ideation and serious thoughts of dropping out. Preliminary reports suggest that 2 category (Pass or Fail) grading in medical school may reduce stress and improve well-being among students; however these relationships have not been demonstrated in multi-institutional studies. The objective of this study was to examine associations between grading scales used during the first 2 years of medical school and burnout, stress, and quality of life (QOL) among a large sample of U.S. medical students.
METHODS: All 2056 first and second year medical students enrolled in 7 U.S. medical schools (University of Alabama, University of California-San Diego, University of Chicago-Pritzker, Mayo Medical School, University of Minnesota, Uniformed Services University, and University of Washington) were surveyed using validated measures of well-being. Students were asked to complete the Maslach Burnout Inventory (MBI) including emotional exhaustion, depersonalization, and personal accomplishment subscales, Perceived Stress Scale (PSS), and SF-8 to identify burnout, stress, and QOL, respectively. Students were also asked whether or not they had serious thoughts of dropping out of medical school in the past year. Grading scales used among medical schools included 2 (pass/fail), 3 (honors/pass/fail), 4 (honors/high pass/pass/fail), or 5 (honors/high pass/pass/marginal pass/fail) categories. Associations between grading scales and well-being variables were examined using logistic and linear regression analyses.
RESULTS: A total of 1192 (58% response rate) students completed the survey. Nearly half (45.5%) of students had burnout. Mean (SD) PSS and SF-8 mental and physical QOL scores were 17.0 (7.5), 42.4 (11.2), and 51.9 (7.1), respectively. Over half of students (59%, 701) were graded using a 2 category scale, while fewer were graded using 3 (21%, 247), 4 (5%, 60), or 5 (15%, 184) category scales. Students not in a curriculum using a pass/fail grading scale had a 1.58 (95% CI: 1.23–2.01, p=.0002) increased odds of burnout compared to students graded in a pass/fail curriculum. Similarly, students not in a pass/fail curriculum had higher perceived stress scores [parameter estimate 1.91 (95% CI: 1.05–2.78), p<.0001], higher emotional exhaustion [parameter estimate 2.92 (95% CI: 1.67–4.16), p<.0001], and lower mental QOL [parameter estimate -2.79 (95% CI: -4.09, -1.50), p<.0001]. Students not in pass/fail curricula were nearly twice as likely to have serious thoughts of dropping out of medical school within the previous year compared to their peers in a pass/fail curriculum [OR 1.9 (95% CI: 1.30–1.80), p<.001].
CONCLUSION: Psychological distress is prevalent among medical students regardless of grading schema; however students in a pass/fail curriculum report more burnout, higher stress, worse mental QOL, and are more likely to seriously consider dropping out of medical school. Although future study is warranted before definitive conclusions can be made, these results from a multi-institutional sample of medical students suggest that curricular reform aimed at improving student well-being should include pass/fail grading.

PATIENT AND PHYSICIAN ATTITUDES TOWARDS HEALTH INFORMATION EXCHANGE A. Wright[1]; C.S. Soran[2]; C. Jenter[2]; L. A. Volk[2]; S. Evans[3]; A. Benjamin[4]; D. Delano[4]; D.W. Bates[5]; S.R. Simon[6]. [1]Brigham and Women's Hospital, Boson, MA; [2]Partners HealthCare, Wellesley, MA; [3]Tufts University School of Medicine, Boston, MA; [4]Northern Berkshire eHealth Collaborative, North Adams, MA; [5]Brigham and Women's Hospital, Boston, MA; [6]Harvard Pilgrim Health Care, Boston, MA. *(Tracking ID # 204848)*

BACKGROUND: Health information exchange (HIE) is the electronic exchange of patient information among healthcare providers for use in clinical care. HIE has the potential to improve the quality and efficiency of healthcare delivery by providing clinicians easy access to clinical information. However, the success of HIE will depend greatly on the attitudes of patients and physicians towards HIE and their willingness to participate. Little is currently known about attitudes towards HIE, and developing successful business models for HIE will be essential.
METHODS: We used complementary methods to assess patient and physician attitudes towards HIE: focus groups for patients and a survey for physicians. In 2006 we conducted five professionally moderated focus groups of community members in three locations in Western Massachusetts. Participants were asked to review a brochure and consent form for an HIE, fill out a questionnaire and then discuss their attitudes towards HIE and their willingness to consent to participate in such an exchange. In 2007, we conducted a survey of physicians throughout Massachusetts including physicians who had been previously surveyed and physicians newly licensed since 2005. Respondents were asked to indicate the effect HIE would have on reducing health care costs, improving quality of patient care, and saving time for clinicians based on a 5-point scale of positive to negative effects. Respondents were also asked about concerns relating to HIE privacy and security and their willingness to contribute financially towards participation in a HIE.
RESULTS: Overall, community member attitudes towards HIE, as expressed in the questionnaire and focus groups, were positive. Three dominant themes emerged: (1) concerns about privacy and security, (2) the potential for health benefits with health data exchange and (3) the

desire for more information about the consent process. On the pre-discussion questionnaire, 55 out of 62 participants (88%) indicated that they would provide consent for participation in the HIE, given the materials they had reviewed. The response rates for the follow-up physician survey and the survey for new physicians were 79.5% and 71.9%, respectively. More than two thirds of the 1,043 respondents indicated that they believed HIE would have positive effects on reducing healthcare costs (70%), improving quality of patient care (86%), and saving clinicians' time (76%). Only 16% of respondents were very concerned about privacy and security related to HIE; however more than half were somewhat concerned (55%). About half of respondents (54%) expressed a willingness to pay a monthly fee for HIE participation, while slightly more than one third overall (37%) were willing to pay if the monthly fee was $150. Physicians who believed HIE would have positive effects were more likely to indicate a willingness to pay for HIE.
CONCLUSION: Physician and patient perceptions of HIE were generally positive; however, security and privacy issues still represent concerns for both groups. Despite the positive perceived effects, only half of physicians were willing to contribute anything financially towards HIE participation. The success of HIE will depend on consistent financial resources and patient and physician participation. Our data suggest that patients and physicians are willing to participate in HIE, but business models that rely on physician fees may not be successful. Health information exchange may best thrive as a public good.

PATIENT BELIEFS ABOUT PHARMACEUTICAL INDUSTRY GIFTS TO PHYSICIANS AND DISTRUST IN THE HEALTH CARE SYSTEM D. Grande[1]; K. Armstrong[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 205492)*

BACKGROUND: Attention to pharmaceutical gifts to physicians has surged in recent years. Despite widespread attention, few studies have examined patient beliefs about how common it is for physicians to accept gifts including their personal physician. In addition, no studies have explored how patient beliefs about physician acceptance of gifts may contribute to distrust in the health care system. Given that trust is an important element of health care relationships, understanding how beliefs about industry-physician interactions contributes to distrust is important.
METHODS: We conducted a random digit dial telephone survey of the general public between June and December 2006 of the forty largest metropolitan areas in the United States with an over-sampling of African Americans. Respondents were asked what proportion of doctors accept gifts from pharmaceutical companies such as dinners, office lunches and office supplies. In addition, they were asked whether they believe their personal doctor accepts gifts. Respondents were also administered a nine-item health care system distrust instrument, a reliable scale with two distinct domains focused on perceived competence and values of the health care system.
RESULTS: A total of 2,022 individuals responded to the survey with a response rate of 34%. When asked how many doctors accept pharmaceutical industry gifts, 38% responded "almost all," 49% responded "some," and 13% responded "almost none." A belief that "almost all doctors" accept gifts was associated with high socioeconomic status (Attended college vs. did not attend college: 43% vs. 29%, $p<0.001$; Income: >$100K vs. <$20K: 52% vs. 22%, $p<0.001$). White respondents were more likely to believe that almost all physicians accept gifts compared to Black or Hispanic respondents (42%, 33%, 29% respectively, $p<0.001$). 54% of respondents believe that their personal physician accepts industry gifts. Beliefs that doctors accept industry gifts were associated with higher levels of health care system distrust. Among respondents that believed "almost all" doctors accept gifts, 30% reported high health care system distrust (i.e. top quartile) compared to 23% of those believing "some" and 20% of those believing "almost none" ($p=0.003$). In a similar analysis of the distrust subscale focused on values (e.g. motives), 38% of those believing "almost all" doctors accept gifts reported high levels of distrust compared to 24% of those believing "some" and 19% of those believing "almost none" ($p<0.001$). In a multivariate logistic regression controlling for respondent demographics, socioeconomic status, and social trust, a belief that "almost all" doctors accept gifts was associated with high levels of health care system distrust and values distrust compared to those believing that "almost no" doctors accept gifts (OR 2.12, $p<0.001$; OR 3.02, $p<0.001$).
CONCLUSION: A high percentage of patients believe that physicians accept industry gifts. These beliefs are associated with higher levels of distrust in the health care system which may have negative consequences for the health care system.

PATIENT NAVIGATION TO INCREASE MAMMOGRAPHY SCREENING AMONG INNER CITY WOMEN C.E. Phillips[1]; T.A. Battaglia[2]; B.J. Sherman[3]; A. Ash[3]; J.D. Rothstein[3]; K.M. Freund[3]. [1]Boston University School of Medicine, Boston, MA; [2]Boston Medical Center, Boston, MA; [3]Boston University, Boston, MA. *(Tracking ID # 204987)*

BACKGROUND: Minority and low-income women suffer lower mammography screening rates as compared to the rest of the U.S. population, leading to increased morbidity and mortality from breast cancer. The objective of this patient navigation intervention was to improve adherence rates to biennial screening mammography among women engaged in primary care at an inner-city academic medical center.
METHODS: All 48 primary-care providers (PCP's) practicing in an ambulatory practice of an academic safety-net institution in Boston were stratified into high or low baseline HEDIS (Healthcare Effectiveness Data and Information Set) mammography rates, and then half were randomly selected to receive the support of a part-time patient navigator. Subjects in the intervention group eligible for navigation services included all female patients between the ages of 50 and 70 who had a documented visit with their PCP within the past two years, but no documented screening mammogram in the past 24 months. The outreach navigator followed a protocol of phone-calls, reminder letters, and interaction with the providers to a) identify women in need of mammography, b) identify and assist patients overcome barriers to schedule mammograms and c) track them over time to ensure compliance with scheduled appointments. We compared the rates of adherence to biennial mammography screening among the intervention and control groups after a nine-month intervention period.
RESULTS: Of 3895 women eligible for screening mammography during the study period (1817 intervention, 2078 control), the average age was 60 years; 29% were White, 47% African-American, and 11% Hispanic; 78% spoke English as their primary language, while 9% spoke a language that was congruent with that spoken by the outreach navigators (Portuguese Creole, Cape Verdean, Portuguese, Spanish). Thirty-seven percent had private health insurance, 7% had not attended school, and 42% did not complete high school. At baseline, the only significant different between the intervention and control groups was a greater percentage of Hispanic subjects in the control group (14%) versus the intervention group (7%). The baseline adherence rates were similar for the intervention and control groups (76% and 77%, respectively). Mammography adherence after the nine-month intervention was 87% in the intervention group compared with 76% in the control group ($p<0.0001$). Except among Hispanic women who demonstrated high rates in both the intervention and control groups (85% and 83%, respectively), all racial groups and insurance groups demonstrated higher adherence in the intervention group (see table).
CONCLUSION: Outreach patient navigation improves mammogram screening rates for all racial and insurance groups in a vulnerable population. Primary care-based outreach patient navigation is a promising model for reducing health disparities.

Percent Adherence to Biennial Mammogram Screening by Subject Characteristics

Characteristics	Control, N=2078	Intervention, N=1817	P
All	76%	87%	0.000
White	70%	85%	0.000
African-American	78%	87%	0.000
Hispanic	83%	85%	0.579
Private Insurance	77%	87%	0.000
Public Insurance	77%	88%	0.000

PATIENT PERSPECTIVES OF AN INTIMATE PARTNER VIOLENCE CLINIC J.W. Fisher[1]; S. Mayberg[2]; J. Mcfarlane[3]; N. Montalvo[3]. [1]Baylor College of Medicine, Houston, TX; [2]University of California, Davis, Sacramento, CA; [3]Texas Woman's University, Houston, TX. *(Tracking ID # 206114)*

BACKGROUND: Intimate partner violence (IPV) against women has an estimated lifetime prevalence of 22–57%. Women who experience IPV have higher health care utilization rates and are more likely to rate their health as poor compared to those women who had never experienced IPV. Intimate partner violence (IPV) has been identified as a risk factor for a number of physical and emotional health problems. A hospital-based, inter-disciplinary clinic (VIVA) was established to address the needs of IPV survivors by facilitating access to mental and physical health services and community resources in one location. A retrospective review of women referred to the VIVA clinic demonstrated that women who visited the clinic were offered more resources (mean 4.5) as compared to women referred to the VIVA clinic but who never came (mean 2.6 resources). Over half of the women given a referral to the VIVA program never came. Limited data exists on victims' perceptions of needed services and on the outcomes of hospital-based intervention programs such as the VIVA clinic. This study sought to evaluate the services of the VIVA clinic from the perspective of the women served in order to meet the needs of IPV survivors with an optimal patient-centered approach.
METHODS: The study used a qualitative approach with individual semi-structured interviews (demographics and 10 open-ended questions) of eligible participants. All women who visited the VIVA clinic for a return appointment during the study period were invited to participate. To ensure adequate saturation of topics and themes, a convenience sample of the first ten English and ten Spanish-speaking patients willing to participate were interviewed in a private room. Interviews were audio recorded, translated, and transcribed. The transcripts were coded for themes independently by three researches and then were evaluated by all of the researchers for congruence of themes.
RESULTS: All 20 women approached agreed to participate. The average age of participants was 43.5 years. English-speaking IPV survivors identified readiness for change, desire to gain knowledge and access to resources as factors that were influential on attending a sub-specialty clinic for survivors of domestic violence. Spanish-speaking IPV survivors found the desire for treatment of depression and their "children" as influential to attending the VIVA clinic. Both English and Spanish-speaking patients identified fear of the perpetrator as a perceived barriers to clinic attendance for survivors in general. English speakers also identified shame as a potential barrier to help seeking. Clinic visitors found benefit in the availability of mental health and medical care during the same clinic appointment. When asked how the VIVA clinic services affected them, many of the participants commented positively on the patient-professional relationship such as "trust" "confidence" "confidentiality." Survivors who attended the clinic identified the need for timely service and alternate clinic hours (weekends, evenings) due to work and child care obligations.
CONCLUSION: Fear, shame and readiness for change are influential in accessing care at the VIVA clinic, a sub-specialty clinic for survivors of intimate partner violence. Women perceived benefits from the "art of listening" offered by professionals who were knowledgeable about IPV.

PATIENT PERSPECTIVES ON MANAGING HYPERTENSION: DEVELOPING A NEW CONCEPTUAL MODEL OF PATIENT BEHAVIOR B.G. Bokhour[1]; J. Solomon[1]; E.C. Cohn[2]; D. Cortes[3]; A. Elwy[1]; P. Haidet[4]; L.A. Katz[5]; A. Borzecki[6]; A.R. Green[7]; N.R. Kressin[8]. [1]Center for Health Quality, Outcomes & Economic Research, VA New England Healthcare System, Bedford, MA; [2]Sargent College of Health Professions, Boston University, Boston, MA; [3]Harvard Medical School, Cambridge, MA; [4]Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX; [5]New York Harbor VA Healthcare System, Larchmont, NY; [6]Boston University, Boston, MA; [7]Massachusetts General Hospital, Boston, MA; [8]Boston University, Bedford, MA. *(Tracking ID # 205556)*

BACKGROUND: With up to 30% of patients having uncontrolled hypertension, finding novel ways to improve upon patients" hypertension self-management is a priority. The role of patient perspectives, beliefs and practices in hypertension management remains poorly understood. We sought to develop a more comprehensive conceptual model of patient hypertension management.
METHODS: We conducted semi-structured qualitative interviews with 55 white, Latino and African-American patients with uncontrolled hypertension at two large Veterans Affairs Medical Centers. Fully transcribed interviews were analyzed using grounded theory analytic methodology, including open and axial coding, theorizing and constant comparison analysis across cases. Conceptual models were iteratively developed and refined through review of individual cases.
RESULTS: We identified four domains which affected the actions patients took to manage their hypertension: 1) Explanatory models – beliefs that individuals have regarding the cause, mechanisms & course of illness, and effects of treatment; 2) Planned action –patients' reported plans and motivations to control their hypertension; 3) Daily lived experience – patients' context, routines and other health problems that affect hypertension management; and 4) relationship with provider – including patients' attitudes towards their provider and provider communication. A breakdown in one of more of these areas were found to interfere with the patients' ability to engage in accepted hypertension control behaviors such as watching their diet, exercising, or taking prescribed medications. For example, many patients believed that stress was the primary reason their blood pressure would rise, and thereby their primary actions to control BP were managing stress. Other patients recognized the impact of hypertension and how they could manage it, but their daily lived experiences interfered due to few routines in their lives or social isolation. Patients rarely reported provider discussions about such issues in their clinical encounters.
CONCLUSION: In order to improve hypertension control, providers need to address patients' understandings of hypertension, their daily lived experience in managing hypertension as well as their motivations for controlling their hypertension. Simply providing information about hypertension and prescribing appropriate medications may be inadequate if other aspects of patients' belief systems and daily lived experiences interfere with their ability to follow through on recommendations. The conceptual model we have developed has implications for the ways in which we counsel patients about management of hypertension as well other chronic diseases. Designing interventions which include all aspects that contribute to patients' actions to control hypertension may lead to better overall blood pressure control and patient health.

PATIENT RACE AND PATIENT-PHYSICIAN RACE CONCORDANCE IN THE MANAGEMENT AND TREATMENT OF CVD FOR PATIENTS WITH DIABETES: A TRIAD STUDY A. Traylor[1]; U. Subramanian[2]; C. Uratsu[3]; C.M. Mangione[4]; J. Schmittdiel[5]. [1]University of California, Berkeley, Berkeley, CA; [2]Indiana University Purdue University Indianapolis, Indianapolis, IN; [3]Kaiser Permanente Division of Research, Oakland, CA; [4]University of California, Los Angeles, Los Angeles, CA; [5]Kaiser Permanente Northern California Division of Research, Oakland, CA. *(Tracking ID # 205261)*

BACKGROUND: There are well-documented racial disparities in cardiovascular (CVD) outcomes for patients with diabetes. However, the evidence on whether patients of color receive worse care for controlling CVD risk factors is mixed. Cultural or interpersonal barriers to the patient-physician relationship may contribute to CVD disparities. Studies have shown that patient-provider race concordance (defined as the patient and health care provider having the same race) can improve the interpersonal care received by minority patients. However, the effect of race concordance on CVD care and prevention is unknown. The purpose of this analysis is to examine the association of patient race and patient-provider race concordance on CVD risk factor levels and appropriate modification of treatment in response to high risk factor values (treatment intensification) in a large cohort of diabetes patients in an integrated delivery system.
METHODS: A cohort of 108,555 black, white, and hispanic adult diabetes patients in Kaiser Permanente Northern California (KPNC) in 2005 served as the study population. Good risk factor control in 2005 was defined as A1c<8.0%, LDL-c<100 mg/dL, and two or more consecutive systolic blood pressures (SBP) <140 mm Hg throughout 2005 respectively. Treatment intensification was defined as an increase in the number of drug classes, an increase in dosage of at least one drug class, or a switch to a different drug class within six months of an elevated risk factor value. Lab, blood pressure values, and evidence of treatment intensification were obtained through KPNC clinical, laboratory, and pharmacy databases. Probit models were conducted to assess the effect of patient race on A1c, LDL-c and SBP control and treatment intensification after adjusting for other patient and physician–level characteristics.. Stratified probit models for Black, Hispanic and White patients assessed the effect of patient-physician race concordance on A1c, LDL-c and SBP control and intensification within each subgroup

separately. To account for patient clustering at the physician level, all models adjusted for physician random effects.
RESULTS: Adjusted models showed that Black patients were less likely than Whites to have A1c <8.0% (64% versus 69%, p<. 0001). Black patients were also less likely to have LDL-c <100 (40% versus 47%, p<.0001) and SBP<140 (70% versus 78%, p<.0001). Hispanic patients were less likely than Whites to have A1c<8% (62% versus 69%, p<.0001). Black patients were less likely than Whites to have A1c intensification (73% versus 77%, p<.0001) and LDL-c intensification (44% versus 47%, p<.0001). However, Black patients were most likely to receive treatment intensification for SBP (78% versus 71% p<.0001). No significant disparities in treatment intensification for any risk factors were found for Hispanic patients. Patient-physician race concordance was not significantly associated with either risk factor control or treatment intensification.
CONCLUSION: Patient race is a significant predictor of risk factor control and treatment intensification. However, in adjusted models, patient-provider race concordance was not associated with either control or treatment intensification for any risk factor. Further research should investigate other potential drivers of racial disparities in CVD care.

PATIENT-LEVEL DETERMINANTS OF DYING IN THE HOSPITAL AMONG HRS DECEDENTS A.S. Kelley[1]; S.L. Ettner[1]; N.S. Wenger[1]; C.A. Sarkisian[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles/VA Greater Los Angeles Healthcare System, Los Angeles, CA. *(Tracking ID # 203242)*

BACKGROUND: Medical expenses in the last year of life dramatically exceed costs of care during other years and this spending is unsustainable as our population ages. High intensity hospital care at the end of life (EOL) is not associated with improved quality or satisfaction for most patients and their families. Our aim was to examine the patient-level determinants of dying in the hospital, a key indicator of high intensity, high cost EOL care.
METHODS: We sampled all decedents between 2000 and 2006, age 67 and older at the time of death, from the Health and Retirement Study (HRS), a longitudinal nationally representative cohort of older adults. A multivariate logit model was constructed to investigate the relationship between patients' social, functional and health characteristics and the primary outcome, dying in the hospital. Covariate selection was based on a conceptual model developed by the investigators and empirical literature.
RESULTS: Of the sampled HRS decedents (n=3539), 39% died in the hospital, 27% died at home, 26% in a nursing home, and 8% in other locations. Controlling for sociodemographic, functional and health covariates, characteristics associated with lower odds of dying in the hospital included white race and nursing home residence, while independence in activities of daily living and a greater number of medical comorbidities were associated with higher odds. Age, gender, education, net worth, and self-rated health did not have a statistically significant relationship with dying in the hospital. Not living alone, a proxy measure of social support, and having completed an advance directive, had associations with lower odds of dying in the hospital that approached but did not reach statistical significance.
CONCLUSION: Previously unexamined functional and social characteristics are significant correlates of dying in the hospital, a core component of high intensity EOL care. These results in conjunction with further investigation of patient-level determinants of EOL care intensity should help to prospectively identify individuals at risk for unwanted aggressive EOL care. Ultimately these findings should inform interventions to assist physicians and patients in the development of appropriate, preference-guided EOL care plans.

PATIENT-PHYSICIAN LANGUAGE CONCORDANCE AND PRIMARY CARE SCREENING PRACTICES AMONG SPANISH-SPEAKING PATIENTS P.P. Eamranond[1]; R.B. Davis[1]; R.S. Phillips[2]; C.C. Wee[3]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard University, Boston, MA; [3]Beth Israel Deaconess Medical Center, Brookline, MA. *(Tracking ID # 204861)*

BACKGROUND: Compared to non-Hispanic whites, Hispanic patients are less likely to undergo Pap smear, mammogram, fecal occult blood test, and sigmoidoscopy. Furthermore, Spanish-speakers are less likely to be screened for hyperlipidemia than English-speakers. We sought to determine whether patient-physician language concordance was associated with differences in cancer and cardiovascular risk factor screening among a Spanish-speaking patient population.
METHODS: We performed a retrospective medical record review of 101 Spanish-speaking patients cared for by 6 Spanish-speaking PCPs (language concordant group) and 205 Spanish-speaking patients cared for by 44 non-Spanish-speaking PCPs (language discordant group). Patients were included in the study if they were age 35–75 and used interpreter services between June 2001 to June 2006 in two Boston-based primary care practices. Our outcomes included screening for hyperlipidemia, diabetes, cervical cancer, breast cancer, and colorectal cancer with age- and sex-appropriate subgroups, as recommended by U.S. Preventive Services Task Force. Our main predictor of interest was patient-physician language concordance. We adjusted for clustering of patients within individual physicians and clinic sites using generalized estimating equations.
RESULTS: Patients in the language-discordant group tended to be female compared to patients in the language-concordant group. There were no significant differences in age, insurance status, # of PCP visits, duration of patient-PCP relationship, body weight, or Charlson comorbidity index between the two groups. Patients with non-Spanish-speaking PCPs tended to have more PCP visits than those with Spanish-speaking PCPs. Rates of screening for hyperlipidemia, diabetes, cervical cancer, and breast cancer were similar for both language concordant and discordant groups (see Table). However, patients in the language discordant group were more likely to be screened for colorectal cancer compared to the language concordant group. Odds ratios did not change significantly with adjusting for clustering by generalized estimating equations.
CONCLUSION: Although matching bilingual PCPs to patients with limited English proficiency has been touted to improve patient care, this study finds that Spanish-speaking patients cared for by language-concordant PCPs were not more likely to received recommended screening for cardiovascular risk factors and cancer.

Patient-Level Determinants of Dying in the Hospital among HRS Decedents

Patient Characteristics, n=3539	Adjusted Odds Ratio*	95% Confidence Interval	p value
Race, White	0.62	(0.50, 0.77)	<0.001
Advance Directive Completed	0.85	(0.71, 1.02)	0.08
Independence in Activities of Daily Living	1.93	(1.58, 2.36)	<0.001
Nursing Home Residence	0.41	(0.34, 0.50)	<0.001
Does Not Live Alone	0.84	(0.70, 1.01)	0.06
Number of Medical Comorbidities	1.09	(1.04, 1.15)	<0.001

* Adjusted for non-significant variables: age, gender, education, net worth, and self-rated health.

Table: Screening Tests by Patient-Physician Language Concordance

	Spanish-speaking Hispanic patients with English-speaking PCP	Spanish-speaking Hispanic patients with Spanish-speaking PCP	Adjusted Odds Ratio* (95% CI)	p
Lipid screening, n=225	92% (61)	95% (151)	1.88 (0.56-6.32)	.46
Glucose screening, n=236	92% (72)	93% (147)	1.22 (0.42-3.55)	.83
Mammogram, n=144	74% (35)	76% (74)	1.09 (0.49-2.54)	.81
Pap smear, n=165	87% (55)	89% (91)	0.94 (0.34-2.65)	.20
Colorectal cancer screening^, n=172	72% (44)	47% (52)	0.35 (0.18-0.70)	<.01

* Adjusted for age and sex only given insurance status, Charlson comorbidity index, number of PCP visits did not significantly confound the observed relationships. Spanish-speaking Hispanic patients cared for by English-speaking PCPs served as the reference group.

^ Colorectal cancer screening included screening for barium enema, fecal occult blood testing, sigmoidoscopy, and/or colonoscopy.

PATIENT-PROVIDER COMMUNICATION AND INFORMED DECISION MAKING FOR PATIENTS WITH KNEE OR HIP OSTEOARTHRITIS IN THE ORTHOPEDIC SETTING WITHIN THE VA B. Ling[1]; L. Hausmann[1]; M.K. Mor[1]; M. Geng[1]; S. Ibrahim[1]. [1]VA Pittsburgh Healthcare System and the University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205093)*

BACKGROUND: Primary care patients with end-stage knee or hip osteoarthritis (OA) are often referred to orthopedic surgery to explore advanced treatments such as joint replacement (JR). Patient-provider communication plays a critical role in guiding the patient through the decision making process when considering preference-sensitive procedures such as for JR. Two recent articles explored this issue however neither included a VA population which has a high prevalence of knee-hip OA. We therefore examined conversations between patients with OA and orthopedic surgeons in a VA sample to determine the extent that they contained elements of informed decision making (IDM) and whether IDM was associated with patient assessments of the encounter and surgical recommendation for JR.
METHODS: Audio-taped visits between patients and orthopedic surgeons discussing treatment options for knee/hip OA at Pittsburgh and Cleveland VA orthopedic clinics were coded using the IDM Model for the presence of nine essential decision making elements of communication (e.g., alternatives, risks/benefits). Visits were also categorized based on whether they met minimum criteria for informed decision making ("IDM-min"), which was defined as including a discussion of the nature of the decision and either the patient's role in the decision or an eliciting of the patient's preference. Patients rated the informativeness of their visit and ease of communicating with the surgeon using scales from the Patient Reactions Assessment, a validated instrument designed to measure patient perceptions of the patient-provider relationship. Whether JR was recommended during the visit was abstracted from medical records. We used chi-square tests to assess whether each IDM element as well as IDM-min were associated with patient ratings of the encounter and JR recommendations.
RESULTS: Analyses included visits of 387 patients with 68 surgeons. Discussion of IDM elements was highly prevalent, with discussion of 5 of the 9 elements (patient's role in the decision making, context of the decision, nature of the decision, assessment of patient understanding, and eliciting of patient preference) occuring in 80% or more of the visits (rates ranged from 24–89%) and IDM-min in 83%. Patient ratings of informativeness were positively associated with ($p<.05$) the discussion of 3 IDM elements (alternatives, risks-benefits, uncertainties associated with the decision), while ease of communication was positively associated with 5 IDM elements (patient's role in decision making, alternatives, risks-benefits, assessment of patient understanding, and eliciting of patient preference) as well as IDM-min. Recommendation for JR was positively associated with the discussion of 6 IDM elements (patient's role in decision making, context of the decision, nature of the decision, risks-benefits, assessment of patient understanding, and eliciting of patient preference) as well as IDM-min. Of note is that IDM-min occurred in 99% of the visits in which recommendations for JR were made.
CONCLUSION: IDM was highly prevalent in this sample of VA patient discussions with orthopedic surgeons. Furthermore, the discussion of specific IDM elements was associated both with favorable patient ratings of the communication and treatment recommendation for JR. Understanding the role of IDM for patients considering preference-sensitive treatments such as JR would help improve the quality of medical care and decision making.

PATIENT-PROVIDER COMMUNICATION IN MEDICARE PART D BENEFICIARIES WITH DIABETES: A TRIAD STUDY J. Schmittdiel[1]; N. Steers[2]; K. Duru[2]; E. Susan[2]; A. Brown[3]; V. Fung[1]; J. Hsu[1]; E. Quiter[2]; C. Tseng[4]; C. Mangione[2]. [1]Kaiser Permanente Northern California Division of Research, Oakland, CA; [2]UCLA David Geffen School of Medicine, Los Angeles, CA; [3]University of California, Los Angeles, Los Angeles, CA; [4]University of Hawaii, Honolulu, HI. *(Tracking ID # 205248)*

BACKGROUND: Research suggests patients and providers rarely communicate about managing out-of-pocket prescription drug costs, and that communication varies by patient characteristics. However, little is known about drug cost communications with physicians by Medicare Part D beneficiaries with chronic conditions such as diabetes.
METHODS: Cross-sectional survey data (58% response rate) of Part D beneficiaries with diabetes who entered the "coverage gap" in 2006 was used to assess communication regarding prescription drug costs with physicians, perceived importance of these communications, prescription drug switching, and cost-related medication non-adherence. Multivariate regressions assessed the relationship of patient and system-level characteristics with communication question responses.
RESULTS: A total of n=1,458 patients responded to the survey. Adjusted results showed fewer than half of patients reported discussing the cost of medications with their physicians, while over 75% reported that such communications were important. Forty-eight percent reported their physician had switched to a less expensive medication due to costs. Minorities, females, and older adults (age 85 and up) had significantly lower levels of communication with their physicians regarding drug costs than white, male, and younger patients respectively. Patients with <$25K annual household income were more likely than higher income patients to have talked about prescription drug costs with doctors, and to report cost-related non-adherence (27% vs. 17%, $p<.001$). Beneficiaries of Medicare Part D Advantage Plans (MAPD) within an integrated delivery system reported less communication with physicians, and less medication switching due to cost, than patients in for-profit MAPD plans and stand-alone Prescription Drug Plans (PDPs); however, integrated system patients did not show evidence of greater levels of cost-related non-adherence than patients in other plans.

CONCLUSION: Medicare Part D beneficiaries with diabetes who entered the "coverage gap" have low levels of communication with physicians about drug costs, despite the high perceived importance of such communication. Understanding patient and plan-level characteristics that may drive differences in communication and use of cost-cutting strategies can inform interventions to help patients manage prescription drug costs.

PATIENT-PROVIDER CONCORDANCE IN PRIORITIZATION OF HEALTH CONDITIONS: THE ROLE OF COMPETING DEMANDS FOR PATIENTS WITH COMPLEX CHRONIC CONDITIONS D. Zulman[1]; E.A. Kerr[1]; T.P. Hofer[1]; B.J. Zikmund-Fisher[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205429)*

BACKGROUND: Effective patient-provider communication has been associated with improved health outcomes. One measure of effective communication is patient-provider concordance in health care goals. Concordance regarding goals of care has been associated with improved outcomes in acute conditions, but has not been examined in patients with complex chronic conditions. We examined how often diabetic patients and their primary care providers are in concordance in prioritizing health conditions, and whether concordance is affected by competing demands.
METHODS: In a prospective cohort study at nine Midwest VA facilities, 92 providers and 1169 diabetic patients with elevated triage blood pressure (≥140/90) were surveyed at clinic visits. Patients and providers were asked to independently rank the three most important health conditions affecting the patient. We constructed a measure of patient-provider concordance by counting the number of priority matches, weighting the score with an extra point if the provider's top three priorities included the patient's top priority. Using an ordinal logistic regression model, we calculated the change in predicted probability of concordance when competing demands were present, controlling for patient sociodemographic characteristics, provider gender and type, and elements of the patient-provider relationship.
RESULTS: 337 patient-provider pairs (38%) ranked the same health condition as top priority. For 714 patients (73%), the provider ranked the patient's top priority in their top three priorities. 60% of pairs had high concordance on the constructed measure (≥3 out of 4 possible points). 58% of patients reported chronic pain, 55% reported depression symptoms, 39% reported fair to poor health status, and 12% agreed they had more pressing issues than health. Predicted probability of patient-provider concordance was significantly lower for patients who reported fair to poor health status (52% vs. 67%, $p<0.01$) or more pressing issues than their health (46% vs. 64%, $p<0.01$). Concordance was also lower for patients who reported chronic pain, but this was of borderline significance (59% vs. 65%, $p=0.05$).
CONCLUSION: Patients and providers had moderate concordance regarding prioritization of health conditions. Competing demands such as poor health status and issues more pressing than the patient's health were associated with lower concordance. Understanding these competing demands is likely to improve communication and possibly overall disease management.

PATIENTS CARED FOR BY PHYSICIANS WITH A TENDENCY TOWARD SHORTER LENGTHS-OF-STAY MAY HAVE INCREASED MORTALITY W. Southern[1]; E. Bellin[2]; J. Arnsten[2]. [1]Society of General Internal Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205481)*

BACKGROUND: Since the prospective payment system began in 1982, hospitals have been incentivized to reduce inpatient length-of-stay (LOS). Though average LOS for hospitalizations has since become shorter, few studies have examined the impact of shorter LOS on outcomes of care. Such studies are particularly difficult because of the need to eliminate confounding. We used a unique study design to examine associations between LOS and outcomes of care. Our analysis was based on physician LOS tendencies, which were determined for each physician and then used to group hospital admissions and assess associations with readmission and mortality.
METHODS: We examined all admissions to the medical teaching service of an urban medical center from 7/1/02 through 6/30/04. At admission, patients are assigned to an attending physician without bias. For this analysis, we included only physicians to whom admissions had been assigned in both years of the study, and whose mean LOS was not significantly different between study years 1 and 2, and then we divided the physicians into quartiles based on their mean LOS during the study period. Next, we created four admission groups, which we defined according to the physician to whom the admission had been assigned. Admissions were thus assigned to a physician group that shared a LOS tendency. We then compared admissions assigned to physicians in the highest LOS quartile group (the longest LOS physicians) to admissions assigned to physicians in the lower three quartiles (the shorter LOS physicians), with respect to baseline characteristics (demographics, Charlson co-morbidity score, prior admissions, and admission albumin), and 30-day readmission and mortality rates. Finally, we constructed mixed-effects logistic regression models using physician random intercepts to assess independent associations between physician LOS tendency and readmission and mortality rates.
RESULTS: 3221 admissions and 23 physicians were examined. 2763 admissions were assigned to shorter LOS physicians, and 458 admissions were assigned to the longest LOS physicians. There were no significant differences between admission groups with respect to age, sex, race/ethnicity, insurance, Charlson co-morbidity score, number of prior admissions, or admission albumin. There was also no difference in 30-day readmission rate between admissions assigned to longest LOS physicians vs. shorter LOS physicians (16.4% vs. 16.5%, $p=0.96$). In univariate analysis, admissions assigned to longest LOS physicians had a lower 30-day mortality rate than admissions assigned to shorter LOS physicians, but this difference was not significant (7.4% vs. 9.6%, $p=0.13$). After adjustment for covariates (age, Charlson score, admission albumin), admissions assigned to the longest LOS physicians had lower 30-day mortality than patients assigned to shorter LOS physicians (OR 0.74, 95% CI 0.47–1.12), but this difference was still not significant.
CONCLUSION: We used a unique study design to examine associations between physician LOS tendency and mortality, but had limited power to detect differences between patient groups. Compared to admissions assigned to physicians with shorter length of stay tendencies, admissions assigned to physicians with the longest LOS tendency had lower 30-day mortality, but the difference was not significant. Future studies should apply this study design to a larger sample size to better assess the association between physician length of stay tendency and patient outcomes.

PATIENTS' HIV KNOWLEDGE IN 2008: PREDICTORS OF POOR KNOWLEDGE AND SUCCESS OF PUBLIC HEALTH EDUCATION EFFORTS J.M. Blackwell[1]; N. Lerfald[2]; S. Wu Sun[3]; I. Modak[4]. [1]Carolinas Medical Center, Charlotte, NC; [2]West Virginia University, Morgantown, WV; [3]Mount Vernon Hospital, NY, NY; [4]Methodist Dallas Medical Center, Dallas, TX. *(Tracking ID # 204703)*

BACKGROUND: Two decades of public health campaigns have attempted to improve the nation's knowledge of HIV. The most recent measure of these efforts was the 1992 National Health Interview Survey (NHIS). We report current HIV knowledge, compare data to the NHIS, and identify predictors of poor knowledge among patients.
METHODS: Patients from 8 academic ambulatory clinics completed a 76-item survey on demographics, behavior, and HIV knowledge. Three knowledge scores were calculated: one for HIV spread and prevention, one for HIV treatment and prognosis, and an aggregate score. Descriptive statistics were compared to NHIS data. Bivariate analyses were performed, and a linear regression model was constructed using HIV knowledge score as the outcome variable.
RESULTS: 404 patients with a mean age of 45.3 years participated. Of those, 68% were female, 42% African-American, 15% Hispanic, 40% single, 25% with education less than high school, and 63% with income below $20K/year. The mean knowledge score for HIV spread and prevention was 12.4 (SE 0.15) out of 14. The mean score for HIV treatment and prognosis was 4.8 (SE 0.6) out of 6. The mean total score was 17.2 (SE 0.19) out of 20. Although knowledge regarding HIV spread by casual contact was higher than on the NHIS, 9% answered HIV could be spread by hugging, 10% by shaking hands, 18% by sneezing, and 33% by kissing. Compared to the NHIS, knowledge on the existence of HIV medications was higher, but more respondents incorrectly answered that there was a cure for HIV. One-fourth thought HIV life expectancy is less than 5 years and approximately 50% did not identify HIV as a chronic disease. After regression analysis, a lower total knowledge score was associated with not completing high school ($p=0.002$). Variables associated with a lower treatment and prognosis score include not knowing someone with HIV ($p=0.001$) and not completing high school ($p=0.02$). No significant differences were noted based on age, gender, race, marital status, or HIV risk factors.

CONCLUSION: Deficits in knowledge, particularly regarding spread of HIV by casual contact and prognosis after HIV infection, remain. Public health efforts should target these issues and people with fewer years of formal education.

PATIENTS' AND FAMILY CAREGIVERS' VIEWS ON AN OUTPATIENT PALLIATIVE CARE PROGRAM FOR CHRONIC HEART FAILURE
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BACKGROUND: While palliative care is often considered applicable only to dying patients, its focus on symptom alleviation and quality of life has much to offer outpatients with symptomatic heart failure (HF). We conducted a qualitative interview study to learn about HF patients' and their family caregivers' major concerns and needs and to explore whether palliative care would be useful to them.
METHODS: We conducted semi-structured, in-depth interviews in outpatients with symptomatic HF (n=33) and their family caregivers (n=20) recruited from cardiology and geriatrics clinics at an academic medical center. We asked about what was most distressing about having heart failure, what they would find most helpful, and what they perceived as unmet needs regarding symptom management, psychosocial care, and planning for the future. Transcribed interviews were coded and analyzed using the constant comparative method.
RESULTS: Patients' mean age was 64 years, 31% were women, and they had NYHA class II (30%), III (61%) and IV (9%) HF. Caregivers were primarily women (95%) and were mainly spouses (42%) or daughters (32%) of HF patients. Participants described three core needs: anticipatory guidance, symptom alleviation, and communication/collaboration. Key themes and quotes are listed in the Table. Many participants thought the core needs could be addressed by a nurse "very familiar with their heart problem" who worked within a multidisciplinary team. While family caregivers frequently expressed a need to learn about illness trajectory, patients, especially those who had heart failure for several years, were often ambivalent or uninterested in this topic.
CONCLUSION: Core unmet care needs described by HF outpatients and their family caregivers are amenable to palliative care intervention. Such an intervention would ideally involve a cardiac nurse trained in several palliative care components who meets regularly with a multidisciplinary palliative care team.

Key Themes	Key Quotes
• Living with uncertainty in the future of HF • Trajectory of physical limitations: what to expect • Optimizing physical functioning • Learning what activities are safe • Rehabilitating from HF	"A team approach could help people move forward and deal with the things they need to deal with and have those hard conversations that they are avoiding.... I don't think we are avoiding them, we just haven't talked about them because they are hard to talk about." (sister of HF patient) "It's just the thought that you have heart failure you know. That means you are closer to death.... I might not wake up in the morning." (HF patient) "That's where I can see you can really help ... at the beginning, [but] some people aren't even ready for help when it first starts because they cannot accept the disease...it's just so overwhelming, it can't be happening...it's quite a...psychological [and]... physical process. (wife of HF patient) "Is this going to last a day? A week? Five years? 20 years? We don't understand. Where do we go? I'm planning a funeral for someone that might live 20 years from now because I don't understand." (wife of HF patient) "...I sat down and said 'I'm not ready to cash it in... what things can I do to take back control for myself?'...things I could do to make changes that were going to help...it made a big difference." (HF patient)

Table. Key Themes and Quotes from Interviews with HF Patients and Their Family Caregivers.

PERCEIVED ACCESS TO CONTRACEPTION AMONG ADOLESCENTS WITH DIABETES
M. Sobota[1]; E.B. Schwarz[2]; D. Charron-Prochownick[2]. [1]Oregon Health & Science University, Portland, OR; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205817)*

BACKGROUND: Diabetic women who optimize their glucose control prior to conception experience fewer pregnancy complications. Use of contraception can facilitate timing of pregnancy. However, unintended pregnancies remain common among diabetic women.
METHODS: To assess knowledge of, attitudes towards and practices regarding contraception among adolescent women with diabetes, we surveyed 89 women (between the ages of 13 and 19 years) with type-one diabetes who were recruited from two endocrinology practices In Boston, MA and Pittsburgh, PA in 2003.
RESULTS: The majority of respondents (mean age=16 years) were white (75%), currently in high school (69%) and living with their parents (96%). Half of all sexually active adolescent women with diabetes reported having had sex without birth control at a time they were trying to avoid pregnancy. Of the 58% who reported ever having used birth control, the most commonly used methods are those that are least effective. Condoms had been used by 100% of teens who had ever used birth control, while rhythm/withdrawal had been used by 86%. Only 71% had used combined oral contraceptive pills, 36% had used depo-medroxyprogesterone and none used other highly effective long-term methods such as IUDs or implants. A third (36%) of subjects felt that women with diabetes have very limited choices of birth control, and 43% incorrectly believed that all birth control methods are less effective when used by women with diabetes. Less than half (47%) reported that they had discussed birth control with a health care professional, and 29% of teens surveyed reported they had not received formal instruction on birth control in any setting. Perhaps of greatest concern, only 69% stated they would feel comfortable asking a health care professional for birth control.
CONCLUSION: Many adolescent women with diabetes are at risk of unintended pregnancy and do not feel comfortable asking a health professional for birth control. In less urban areas, perceived access to birth control may be even more limited with greater barriers to obtaining birth control. In order to improve pregnancy outcomes among adolescent women with diabetes, healthcare providers may need to initiate conversations about contraceptive options.

PERCEIVED BARRIERS TO EXERCISE AND HEALTHY EATING AMONG OVERWEIGHT INDIVIDUALS IN EAST HARLEM: FINDINGS FROM PROJECT HEED
H.C. Looker[1]; D. Mann[2]; G. Arniella[3]; C. Goytia[1]; C.R. Horowitz[4]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai Medical Center, New York, NY; [3]North General Hospital, New York, NY; [4]Society of General Internal Medicine, New York, NY. *(Tracking ID # 205740)*

BACKGROUND: Obesity and diabetes are emerging as two of the most important issues in public health in the US. Improving diet and exercise habits are established pathways for reducing both obesity and diabetes. These behavior changes MAY be promoted through interventions designed to improve perceptions of healthy eating and exercise and overcome perceived barriers to change. Project HEED is a large ongoing randomized controlled study that uses community-based participatory research to test the effectiveness of a peer-led weight loss intervention in East Harlem, NY. To inform the intervention and assess its impact at baseline, community and academic partners developed, implemented and analyzed a survey instrument.
METHODS: Partners recruited participants at community events and organizations using convenience sampling. All overweight adults who consented underwent oral glucose tolerance testing to identify those with pre-diabetes glucose levels. Those enrolled had measured height, weight and were surveyed in English or Spanish about perceived barriers to physical activity and healthy eating.
RESULTS: Over 3 months, 165 overweight adults (145 women and 20 men) were recruited. The majority of subjects were Hispanic (52% Mexican, 19% Puerto Rican, 9% Ecuadorian, 9% other Latin American, 10% non-Latin American, 1% unknown). Ninety nine participants had pre-diabetes, 10 had diabetes and 52 had normal blood glucoses (4 subjects did not complete glucose testing). Participants reported a mean of 4.0 barriers to exercise (range 0–10) and 8.7 barriers to healthy eating (range 0–16). The four most frequently identified barriers to increasing exercise were: "already getting enough exercise at work" (45%), "don't have the time to be more active or exercise" (44%), "too tired, or don't have the energy" (43%) and "it takes too much effort to exercise or be more active" (42%). Concerns over the cost of exercise were the least cited barrier, with only 16% of participants agreeing this was a problem. The four most frequently cited barriers to healthy eating were: "raised to

finish everything on your plate or not waste food" (80%), "the tastiest foods are the ones that are bad for you" (76%), "it is difficult to eat healthy when you are in a hurry" (69%) and "it's hard to eat healthy when you are very hungry" (68%). The least cited barrier was "it is hard to make healthy meals" (31%). Interestingly, the most cited barrier to healthy eating was in response to a new question developed by community partners. There was no statistically significant variation according to gender or glycemic status. There was a positive correlation between BMI and the number of perceived barriers to exercise (r=0.18, p=0.02) but no association for BMI and the number of perceived barriers to healthy eating. There was a negative correlation between age and the number of perceived barriers to healthy eating (r=-0.19, p= 0.02). Overall, there was a modest correlation between the number of barriers cited for exercise and healthy eating (r=0.39, p<0.01).
CONCLUSION: In this community based sample of overweight adults from East Harlem barriers to healthy eating were a more prominent obstacle to weight loss than barriers to exercise. In particular, perceptions about wasting food and avoiding favorite food items were commonly cited barriers. Age and BMI were weak predictors of perceived barriers. Lifestyle interventions based in similar communities should incorporate these perceptions when developing their programs.

PERCEPTION OF WOMEN'S HEALTH IN INTERNAL MEDICINE RESIDENCY: FAILURE OF GROWTH IN ATTITUDES AND COMPETENCY ACROSS POST-GRADUATE YEARS S.K. Singh[1]; C. Brewer[2]; D. Litaker[3]. [1]Veterans Affairs Medical Center, Cleveland, OH; [2]Cleveland Clinic Foundation, Cleveland, OH; [3]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205001)*

BACKGROUND: Despite women making nearly twice as many outpatient visits as men, previous studies suggest that internal medicine residents are not adequately prepared to provide general primary care to women. National guidelines, including those of the Accreditation Council of Graduate Medical Education (ACGME) and the American Board of Internal Medicine (ABIM), have emphasized specific competencies related to women's health for all internists. These topics broadly include: 1) breast health, 2)counseling, 3)sexuality, 4)gynecology, 5) menstruation, 6)malignancy, 7)preventative health, 8)consultative medicine, and 9)urogynecology. Assuming residents are provided adequate curriculum and experiential opportunities, the duration of residency should correlate with residents achieving a greater sense of importance for and self-confidence in clinical skills related to gender-specific care. The objective of this study was to compare patterns across training year in residents' rating of the importance of specific women's health topics, the coverage of these topics during their training, and their perceived self-efficacy in providing gender-specific health care.
METHODS: We conducted a cross-sectional survey of internal medicine and medicine-pediatric residents in training at the University Hospitals at Case Western Reserve University during the period from July 2007 to June 2008. Residents provided information regarding their post graduate year training and rated their medical school preparation in gender specific health care, the degree of importance of specific women's health topic integration into their training, coverage of women's health care topics in the formal residency curriculum or in experiential settings, and their own knowledge and perceived self-efficacy (e.g. confidence in the ability to define components of women's health and apply them) in the ACGME/ABIM competencies related to women's health. Analysis of variance (ANOVA) assessed group differences in these domains; regression analysis evaluated linear trends by year of training.
RESULTS: Of eighty-two residents contacted, sixty-six residents (80.5%) responded. Residents of all post-graduate years reported similar levels of medical school preparation in gender specific health. While differences existed by year of training for many of the educational outcomes studied, linear trends were present only in defining and applying concepts in preventative health (p=0.016 and 0.002, respectively); applications of key concepts in breast health, female gynecology, and consultative medicine approached statistical significance.
CONCLUSION: Despite national guidelines endorsing women's health as an important component of internal medicine training, neither expectation of growth in the perceived importance of specific women's health issues or competency itself were confirmed over the course of training. Inadequacy of the curriculum, insufficiency in the number of experiential opportunities, or lack success by faculty to convey the importance regarding female care may all contribute to the lack of a consistent linear trend across all gender-specific competencies. Furthermore, despite opportunities and effective teaching, residents may remain unmotivated because of unrecognized external factors. Given our findings, we conclude that innovative educational programs are needed that emphasize women's unique health care needs and that promote skills in delivering care to women to improve the ability and confidence of residents to care for women.

PHYSICIAN ATTITUDES TOWARD INDUSTRY: A VIEW ACROSS THE SPECIALTIES D.R. Korenstein[1]; S. Keyhani[2]; J.S. Ross[2]. [1]Society of General Internal Medicine, New York, NY; [2]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 204711)*

BACKGROUND: Physician relationships with the pharmaceutical and device industries are receiving more attention as government and professional organizations move toward restrictive policies and financial transparency. While nearly all physicians maintain relationships with industry, differences across specialties have been described, though few have examined specialty differences in attitudes towards these relationships. Our objective was to explore attitudes of physicians from all specialties toward gifts from and interactions with the pharmaceutical and device industries.
METHODS: We administered an anonymous cross sectional survey to faculty and trainee physicians from hospitals in New York City and New Jersey affiliated with the Mount Sinai School of Medicine, examining attitudes toward the pharmaceutical and device industries. Surveys were distributed in participating departments through departmental administrators or at grand rounds. Survey items were based on published questionnaires. Demographic questions included clinical specialty, categorized as internal/general/family medicine, internal medicine subspecialty, pediatrics, psychiatry, general surgery/surgical subspecialty/OB/GYN, or other. Questions about attitudes toward industry gifts and payments and the appropriateness of gifts and payments used 4-point likert scales, ranging from strongly agree to strongly disagree or very appropriate to very inappropriate. Data were analyzed using descriptive statistics and Chi-square tests to test for differences in attitudes across specialties, accounting for multiple comparisons.
RESULTS: We approached 61 departments from 13 hospitals, of which 35 departments from 9 hospitals participated. Response rate was 67% (N=590). Fifty nine percent of respondents were male, 54% self-identified as white, 39% were attendings, 24% were generalists and 24% were from surgical specialties. Fifty four percent were familiar with their institution's policy on industry relationships; 25% had collaborated with industry. The majority of participants had positive attitudes toward industry gifts; most thought samples (80%), sponsored dinners (73%), textbooks (83%) and conference travel expenses (53%) were appropriate. Few deemed vacations (10%) or large gifts (25%) appropriate. Many believed that other physicians were more likely to be influenced by industry marketing than they (53% vs. 36%). We found differences in attitudes across specialties, training levels and by familiarity with institutional guidelines. Surgeons were more likely than others to deem meals, small gifts, and drug samples appropriate (all p<.005), and were less likely to perceive bias in sponsored grand rounds (52% vs. 69%, p< 0.001). Similarly, attendings were significantly less likely than trainees to view various gifts as appropriate, including meals (52% vs. 65%) and textbooks (72% vs. 83%) (p values<.005). Familiarity with guidelines was associated with less favorable attitudes toward gifts including samples (52% vs. 66%), and meals (65% vs. 79%) (p values<.005).
CONCLUSION: Physicians across specialties continue to hold positive attitudes toward the pharmaceutical and device industries. As compared with others, surgeons and trainees hold more positive attitudes toward various gifts and payments, and familiarity with institutional guidelines was associated with less favorable attitudes toward industry. Physician education should focus on surgeons and trainees if physician attitudes are to align with current policy trends.

PHYSICIAN KNOWLEDGE OF THE FDA-APPROVED INDICATIONS OF COMMONLY PRESCRIBED DRUGS: RESULTS OF A NATIONAL SURVEY R.M. Moloney[1]; D. Chen[2]; W. Matthew[3]; G.C. Alexander[1]. [1]University of Chicago, Chicago, IL; [2]University of Virginia, Charlottesville, VA; [3]American Medical Association, Chicago, IL. *(Tracking ID # 205252)*

BACKGROUND: The FDA regulates prescription drug marketing, not prescribing, and medication use for non-FDA approved indications ("off-label use") is common. However, many off-label uses occur with little or no supporting evidence and may expose patients to unwarranted risk. It is unknown how often physicians are aware that they are prescribing off-label. We sought to determine physicians' knowledge of the FDA-approved indications of a set of commonly-prescribed drugs, and to assess whether physicians' belief that an indication is FDA-approved increases with level of evidence supporting such use.
METHODS: We conducted a national mail survey, conducted from November 2007 through August 2008, of 599 primary care physicians and 600 psychiatrists randomly selected from the American Medical Association Masterfile of all U.S. physicians. The survey presented 14 drug-indication pairs (e.g., gabapentin [Neurontin®] for diabetic neuropathy) that varied in FDA-approval status and levels of supporting evidence. Physicians were asked whether they had prescribed each drug in the prior 12 months, whether they had prescribed the drug for the specified indication, and to identify whether the specified drug-indication pair was FDA-approved. We used Drugdex®, a commonly used drug compendium, to categorize labeling status and level of evidence regarding efficacy. Our primary outcome was physicians' knowledge of whether each drug was FDA-approved for the indication in question. We used Spearman's rho, a non-parametric correlation coefficient, to examine bivariate associations between ranked categories of levels of evidence and the percent of physicians believing each drug-indication pair was FDA approved.
RESULTS: The adjusted response rate was 47%, and the mean (median) number of drugs examined that the physician had prescribed during the previous 12 months was 11 (12). The average respondent correctly identified the FDA-approval status of just over half of the drug-indication pairs queried (mean 55%; median 57%). The proportion increased modestly (mean 59%, median 61%) when limited to drugs the respondent reported having prescribed during the previous 12 months. There was a strong association between physicians' belief that an indication was FDA-approved and greater scientific evidence supporting that use (Spearman's rho 0.74, p<0.001). However, 41% of physicians believed at least one drug-indication pair with uncertain or no supporting evidence (e.g., quetiapine [Seroquel®] for dementia with agitation) was FDA approved.
CONCLUSION: Our report highlights for the first time physicians' beliefs about the FDA label status of drugs they prescribe, and suggests that physicians may conflate the level of evidence supporting a drug's use and the drug's FDA approval status. A significant minority of physicians also prescribe some drugs for off-label indications in the belief that such uses are approved, despite uncertain or no supporting evidence. These findings highlight an important need for more effective methods to inform physicians about the evidence base, or lack thereof, for drugs they prescribe off label.

PHYSICIANS HAVE DECREASED RESPECT FOR PATIENTS WITH OBESITY M.M. Huizinga[1]; M.C. Beach[1]; S.N. Bleich[1]; J.M. Clark[1]; L.A. Cooper[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 204358)*

BACKGROUND: Obesity stigma is pervasive in our society; however few studies, if any, have described the level of physician respect for individual patients with obesity. Respect for patients is an important predictor of physician communication style and care patterns. We hypothesized that increased patient BMI would be associated with decreased physician respect for that patient. In addition, we hypothesized physicians would be less likely to have decreased respect for persons with increasing BMI if the patient's race or sex matched their own.
METHODS: Data were obtained from a randomized controlled trial of an intervention to improve patient-physician communication. Forty-one physicians and 279 patients were included in this analysis of the baseline data. The key exposure was body mass index (BMI) calculated from measured height and weight. The main outcome was physician respect for the patient. Physicians were asked to rank their level of respect for the patient on a 5 point Likert scale after the patient visit. Two categories were created (high respect=much more or more than the average patient (4–5); low respect=average or less than the average patient (1–3)). Logistic regression, clustered by physician and stratified by the effect modifiers of interest (race concordance, sex concordance), was performed. Race and sex concordance were defined as the patient and provider self-reporting the same race or sex, respectively.
RESULTS: The mean (SD) age of the patients was 58.3(13.1) years, 66% were female and 62% identified their race as black. The mean (SD) BMI of the patients was 32.9(8.1) kg/m2. Approximately half of the physicians were female (57%,n=22), 44% were white (n=18), 29% were black (n=12) and 25% were Asian (n=10). 42% of the physician-patient dyads were discordant by sex and 55% were discordant by race. Physicians had low respect for 38% (n=94) of the participants. Patients for whom physicians had low respect had a mean (SD) BMI of 34.7 (8.8) kg/m2 while the mean (SD) BMI for patients whom physicians did not have low respect was 31.9 (7.5) kg/m2 (p=0.0062). After adjusting for patient clustering by physician, BMI was a significant negative predictor of respect overall (odds ratio (OR) 0.96, 95%CI: 0.93,0.99; p-value= 0.006; per unit increase in BMI). In models stratifying by race and sex concordance, BMI was a significant negative predictor of respect in the discordant strata only (race discordant: OR 0.94, 95%CI: 0.91,0.97;p< 0.0001; race concordant: OR: 0.98, 95%CI: 0.93,1.04; p=0.50; sex discordant: OR 0.94, 95%CI: 0.90,0.97; p=0.001; sex concordant: OR 0.98, 95%CI: 0.93,1.03; p=0.43; all per unit increase in BMI). Other participant characteristics, such as age, race, sex, race concordance and sex concordance, were not associated with low respect.
CONCLUSION: We found that higher patient BMI was associated with lower physician respect, particularly among patients who were a different race or sex than their physician. In other studies, physician respect for individual patients is associated with increased information provided during visits and more expression of positive affect. The quality of patient-physician communication influences outcomes, such as patient adherence to lifestyle modification and medical therapy, critical to improving outcomes for patients with obesity, who often have many co-morbid illnesses. More research is needed to understand the role of physician respect in improving healthcare processes and outcomes for obese patients.

PHYSICIANS UNDERESTIMATE MEDICATION ADHERENCE OF OBESE PATIENTS M.M. Huizinga[1]; M.C. Beach[1]; S.N. Bleich[1]; J.M. Clark[1]; L.A. Cooper[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 204360)*

BACKGROUND: A considerable literature shows that healthcare providers have a negative bias towards patients with obesity. Other observable factors, such as race and age, have been shown to influence providers' perception of patient adherence to medication therapy. We hypothesized that patients with obesity experience similar negative stereotyping about medication adherence by their physician. In this study, we describe the association between obesity and physician perception of medication adherence.
METHODS: Data were obtained from the baseline visit of a randomized controlled trial of an intervention to improve patient-physician communication. Forty-one physicians and 279 of their patients were included in this analysis. Physicians were asked to rank their patient's medication adherence on a 5-point Likert scale after the patient visit. Two categories were created (adherent=fully adherent (=5); non-adherent=-less than fully adherent (<5)). The independent variable of interest was patient BMI (calculated from measured height and weight). Logistic regression, using generalized estimating equations clustered by physician, was performed. Covariates, including age, sex and race, were included. In addition, patient-reported medication adherence, measured by the Morisky scale, was included in a separate model, first as the outcome of interest and then as a covariate in the multivariate model of provider perception of adherence. All analyses were performed with Stata/SE 9.2 (College Station, TX).
RESULTS: The mean (SD) age of patients was 58.3 (13.1) years, 66% were female and 62% identified their race as black. The mean (SD) BMI of the patients was 32.9 (8.1) kg/m2 and 28% had a BMI40 kg/m2. Approximately half of the physicians were female (57%, n=22), 44% were white (n=18), 29% were black (n=12) and 25% were Asian (n=10). Physicians identified 54% of patients as fully adherent to medication. Patients who physicians reported to be adherent had a mean (SD) BMI of 34.4 (8.3) kg/m2 compared to patients physicians felt to be non-adherent who had a mean (SD) BMI 31.1 (6.8) kg/m2 (p=0.001). After adjusting for age, race, sex and clustering of patients within physicians, BMI was a significant negative predictor of provider perception of adherence (OR 0.95, 95%CI: 0.91,0.98; p=0.005, per unit increase in

BMI) but not patient-reported adherence (OR 0.98, 95%CI: 0.95,1.01; p=0.22, per unit increase in BMI). In addition, BMI remained a significant negative predictor of provider perception of adherence when patient reported adherence was added to the model (OR 0.94, 95%CI: 0.91,0.98; p=0.007, per unit increase in BMI).
CONCLUSION: In this study, we found that physicians view patients with a higher BMI as more non-adherent to their medication regimens. A negative perception of patient medication adherence may adversely affect the patient-provider relationship and lead to lower quality care. For example, a provider may not escalate care appropriately for fear of continued, perceived non-adherence, which could adversely affect health outcomes. More research is needed to understand why this bias exists among physicians, how it influences the care of obese patients and the ultimate effect on health outcomes.

POOR EXPERIENCES WITH HEALTH AND PRESCRIPTION PLANS INCOMPLETELY EXPLAIN COVERAGE CHANGES AMONG ELDERLY ADULTS A. Federman[1]; E. Halm[2]; S. Keyhani[1]; A.L. Siu[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]UT Southwestern Medical Center, Dallas, TX. *(Tracking ID # 205279)*

BACKGROUND: Expectations that competition in health insurance markets can produce efficiencies are predicated on the assumption that consumers make rational choices, based in part on their experiences with coverage. We sought to examine the association of experiences with health insurance with changes in coverage among older adults.
METHODS: Longitudinal, prospective study of independently living adults (age 60) recruited from residential and community centers in New York City, NY. Subjects were interviewed in English or Spanish at baseline, and 12-month follow-up interviews occurred after the Medicare open-enrollment periods. The current analysis is based on data for the subgroup of Medicare beneficiaries (n=301; follow-up rate, 81%). We analyzed the association of health and prescription plan changes (added, dropped, or switched health or prescription coverage) at follow-up with baseline ratings of health or prescription plans (rated coverage as poor to excellent on a 5-point scale) and avoidance of medical care or prescription drugs because of cost, as well as with demographic and health status characteristics.
RESULTS: Mean age at follow-up was 76 years, 34% were men, 29% black non-Hispanic, 32% Hispanic; 50% had no college education, 26% had Medicaid, and 40% reported poor-fair general health. At baseline, 17% rated their coverage as fair-poor and 50% of those individuals considered making a change in coverage (chi-square, p<0.0001). At follow-up, 19% had changed plans. In univariate analysis, changing coverage was more likely with poor baseline ratings of coverage, Medicaid coverage, Hispanic ethnicity, low educational attainment, poor English speaking ability, and poor-fair health. Variables not significantly associated with coverage change included age, gender, cost-related medication avoidance, health literacy, and cognitive impairment. In multivariable analysis, changing coverage was more likely among those with Medicaid (AOR 3.6, 95% CI 1.8–7.2), low ratings of coverage (AOR 2.3, 95% CI 1.0–5.3), and poor English speaking ability (AOR 2.1, 95% CI 1.0–4.7).
CONCLUSION: Low ratings of insurance coverage are associated with changing plans, partly supporting market-based strategies to optimize coverage for individuals. However, Medicaid coverage and poor English speaking ability are also associated with coverage changes, independent of coverage ratings. These findings suggest that vulnerable elders may not be equipped to appropriately choose health and prescription plans and may require more assistance with insurance coverage decision making.

POST-TRAUMATIC STRESS DISORDER AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH HEART DISEASE: FINDINGS FROM THE HEART AND SOUL STUDY B.E. Cohen[1]; C. Marmar[1]; T. Neylan[1]; S. Nelson[1]; S. Ali[1]; M.A. Whooley[1]. [1]San Francisco VA Medical Center, San Francisco, CA. *(Tracking ID # 205278)*

BACKGROUND: Post-traumatic stress disorder (PTSD) is increasingly recognized as a cause of substantial disability. In addition to its tremendous mental health burden, PTSD has been associated with worse physical health status and an increased risk of cardiovascular disease (CVD). Whether PTSD is an independent predictor of health status among patients with existing CVD is unknown.
METHODS: We measured PTSD, cardiac function, and health status in 1022 men and women with CVD. PTSD was assessed using the Computerized Diagnostic Interview Schedule for DSM-IV. Cardiac function was measured using left ventricular ejection fraction, treadmill exercise capacity, and inducible ischemia (wall motion score) on stress echocardiography. Cardiovascular health status was assessed using the symptom burden, physical limitation, and quality of life subscales of the Seattle Angina Questionnaire. We used ordinal logistic regression to evaluate the association of PTSD with the 3 health status domains, adjusted for potential confounders and objective measures of cardiac function.
RESULTS: Of the 1,022 participants, 95 (9%) had current PTSD. Compared to participants without PTSD, those with PTSD were more likely to report at least mild symptom burden (57% vs 36%), mild physical limitation (59% vs 44%), and mildly diminished quality of life (62% vs 35%) (all P≤.001). After adjusting for age, sex, history of diabetes, smoking, and cardiac function, PTSD was independently associated with worse health status in all three domains (Table). These associations remained significant after excluding participants with comorbid depression: symptom burden (OR 2.3, 95% CI 1.2–4.7; p =.02), physical limitation (OR 2.8, 95% CI 1.3–6.0; p=.01), and quality of life (OR 3.9, 95% CI 2.0–7.6; p<.001).
CONCLUSION: Among patients with heart disease, PTSD is more strongly associated with patient- reported cardiovascular health status than objective measures of cardiac function. Addressing PTSD symptoms has the potential to improve function and quality of life in patients with heart disease.

	Greater Symptom Burden		Greater Physical Limitation		Worse Quality of Life	
	OR (95% CI)	*P* value	OR (95% CI)	*P* value	OR (95% CI)	*P* value
PTSD	1.9 (1.2-2.8)	.005	2.3 (1.4-3.6)	<.001	2.6 (1.7-4.0)	<.001
Exercise capacity	1.4 (1.2-1.7)	<.001	2.8 (2.4-3.4)	<.001	1.7 (1.4-2.0)	<.001
Ejection fraction	1.0 (.84-1.2)	.96	1.0 (.85-1.2)	.90	.96 (.81-1.1)	.68
Wall motion score	.99 (.84-1.2)	.87	1.0 (.87-1.2)	.75	1.1 (.89-1.2)	.55

PRACTICE REDESIGN IMPROVES PRIMARY CARE FOR FALLS AND URINARY INCONTINENCE N.S. Wenger[1]; C.P. Roth[2]; D. Ganz[1]; V. Snow[3]; J. Minihan[3]; Q. Snooks[3]; M. Rosen[2]; R. Beckman[2]; D.B. Reuben[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]RAND, Santa Monica, CA; [3]American College of Physicians, Philadelphia, PA. *(Tracking ID # 205735)*

BACKGROUND: In primary care practices, medical care for age-associated conditions such as falls and urinary incontinence (UI) is inadequate. We previously developed the Assessing Care of Vulnerable Elders (ACOVE-2) intervention to improve primary care for falls and UI. In this American College of Physicians quality improvement study, we augmented and disseminated the practice redesign method to improve falls and UI care in five geographically diverse community primary care practices and tested the effect in a controlled trial.
METHODS: The 5 participating practices in 5 different states each had intervention sites (28 physicians across sites) and control sites (21 physicians across sites). Patients 75 years and older were screened for falls/fear of falling and UI. Intervention sites adapted a multi-component practice redesign intervention that included efficient collection of condition-specific data, medical record prompts for performance of essential care processes, patient education materials, and physician decision support. We compared quality of care between intervention and control sites from 13 months of medical record data by measuring the percent of ACOVE quality indicators satisfied.
RESULTS: Of 5404 patients screened, 47% screened positive for falls or UI (46% intervention, 48% control). We present a preliminary analysis of 212 patients who screened positive from 4 of the 5 practices. The 212 patients had a mean age of 82 years and 74% were female; these were not different between groups. Overall, intervention providers delivered 64% (95% CI 59%-69%) of recommended care for falls, versus 32% delivered by control providers (95% CI 27%-37%, p<0.001). Similarly, intervention providers delivered significantly more recommended care for UI (44% [95% CI 36%-52%] versus 21% [95% CI 14%-37%], p<

0.001). Among falls-specific clinical processes, intervention providers more often performed a falls history (88% v 58%, p=0.006), orthostatic blood pressure measurement (33% v 0%, p=0.002) and a gait and balance exam (60% v 21%, p=0.001). Among UI-specific clinical processes, intervention providers more often performed a UI history (50% v 23%, p=0.04) and tried behavioral treatments first (75% v 20%, p=0.12). Intervention group physicians were more likely to improve on a pre/post test of falls and UI knowledge (p=0.016) and felt more confident handling the conditions at follow-up (p=0.04).
CONCLUSION: Practice redesign can improve the care that community-based primary care physicians provide for older patients with falls and UI.

PREDICTING CARDIOVASCULAR MORTALITY USING A BAYESIAN RISK MODEL A.B. Akhondi[1]; R. Bryg[1]. [1]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 204377)*

BACKGROUND: Heart disease is the single largest killer of Americans. In 2003, it caused approximately 36.3 percent of all deaths. Coronary artery disease (CAD) is the leading cause of heart disease and we are increasingly utilizing risk factors such as hypertension, hypercholesterolemia, diabetes, and smoking to attempt to predict morbidity and mortality from CAD. In spite of this, many patients without significant risk factors suffer from CAD.
METHODS: To determine how well the established risk factors work in predicting cardiovascular death in populations, we developed a Bayesian model. This model was then applied to three large cohorts with long term follow-up: The Chicago Heart Detection Project in Industry (CHA), the screening component of the Multiple Risk Factor Intervention Trial (MRFIT), and Framingham Heart Study (FHS). We calculated sensitivity and specificity for coronary heart disease mortality for: smoking, diabetes, cholesterol >199 mg/dL (unfavorable) and >239 mg/dL (high risk), and systolic blood pressure (SBP) >120 mm Hg or diastolic blood pressure (DBP) >80 mm Hg (unfavorable) and SBP >140 mm Hg or DBP >90 mm Hg (high risk). Those who were currently being treated with hyperlipidemia medications as well as anti-hypertensives were also included in the high risk category. The diagnostic odds ratio was then calculated for several cutoff points. We present the data for a cutoff of 150% of the baseline probability of mortality.
RESULTS: Table 1 below represents the calculated sensitivity, specificity, and diagnostic odds ratio from the three cohorts (MRFIT, CHA, and FHS). At higher cutoffs, the sensitivity drops sharply, finding very few of the patients who suffer coronary mortality. In these three cohorts, the sensitivity of utilizing these risk factors for predicting coronary heart disease mortality was higher in the younger age group. The overall mortality in these populations was extremely low at 22–30 years at 2.2% to 10%. In the 40–59 age group, the diagnostic odds ratio is extremely low and not much higher than any of the individual risk factors separately.
CONCLUSION: A Bayesian model demonstrates that our established risk factors work better in the younger cohorts. The development of a Bayesian model with continuous variables may be useful in determining risk of CAD mortality in both the younger and older age groups.

Table 1: Calculated sensitivity, specificity, and diagnostic odds ratio from the three cohorts (MRFIT, CHA, and FHS):

	Sensitivity	Specificity	Diagnostic Odds Ratio
MRFIT (35–39)	49%	81%	4.25
MRFIT (40–59)	42%	80%	2.86
CHA (19–39)	70%	91%	24.8
CHA (40–59)	17%	93%	2.60
FHS (30–39)	50%	84%	5.16
FHS (40–59)	20%	91%	2.65

PREDICTING ERRORS IN PRIMARY CARE P. Vila[1]; M. Linzer[2]; L. Baier Manwell[2]; M. Albanese[2]; R.L. Brown[2]; E.S. Williams[3]. [1]Mount Sinai School of Medicine, New York, NY; [2]University of Wisconsin, Madison, WI; [3]University of Alabama at Birmingham, Tuscaloosa, AL. *(Tracking ID # 203356)*

BACKGROUND: Little is known about whether primary care physicians are able to predict when they are going to make mistakes. The Occupational Situations and Predicted Error (OSPRE) measure, designed as part of the Minimizing Error, Maximizing Outcomes (MEMO) Study, asks physicians to predict their likelihood of neglecting common processes in patient care during the next month. This report assesses if physicians can predict when they are likely to err, which work conditions correlate with high error prediction, and whether high error prediction is associated with adverse physician outcomes such as stress and burnout.
METHODS: General internists and family physicians were recruited from ambulatory care clinics in five regions: New York City, Chicago, Milwaukee, Madison, and smaller towns in Wisconsin. Sites were selected for their diverse patient base, wide range of payers, and numbers of uninsured patients. Physicians were surveyed about job satisfaction, job stress, likelihood of leaving the practice within two years, and characteristics of the clinic environment. Physician error and quality scores for case management were derived from chart audit data. Medical errors focused on mistakes in processes of care (errors of omission), and overlapped with, but were not the same errors as noted in the OSPRE. An Error Score and a Quality Score were calculated for each patient and normalized to scores from 1–100. Data were analyzed using multilevel regression modeling, with patient error and quality scores nested within physicians.
RESULTS: Of 422 physicians, 65% reported they were at least somewhat likely to make a medical error in the next month, and 36% were at least somewhat likely to make three or more errors. The most common types of predicted errors included not screening a new hypertensive patient for alcohol use and failure to notice an important drug-drug interaction in a patient with multiple comorbidities. High error prediction was associated with difficult encounters with challenging patients ($p<.01$) and, perhaps paradoxically, with high trust in the organization ($p<.05$). Fewer errors were predicted when clinics emphasized information and communication ($p<.05$) and quality ($p<.01$), and when physicians noted high work control ($p<.05$). High OSPRE scores significantly predicted future physician stress and burnout (standardized regression coefficient=0.13 $p<.05$ for both associations). When stratified by specialty, OSPRE scores for general internists showed little relationship with actual errors, while scores for family physicians showed a strong inverse relationship with errors.
CONCLUSION: Error concerns are common among primary care physicians, and may contribute to the high rates of stress and burnout often found in this setting. Emphasizing quality of care and communication may decrease fears of committing errors, and building trust in the organization may make physicians feel safer to disclose errors. The inverse relationship between predicted and actual error for family physicians bears further investigation; awareness of heightened error risk may potentially activate error prevention systems.

PREDICTING HOSPITALIZATION AMONG COMMUNITY-DWELLING PATIENTS WITH HIV: A NEW ELECTRONIC MODEL R. Amarasingham[1]; C. Clark[2]; T. Swanson[3]; K. Snackey[2]; Y. Ma[2]; G. Sinclair[1]; B.J. Moore[3]. [1]University of Texas Southwestern Medical Center at Dallas, Dallas, TX; [2]Parkland Health & Hospital Systems, Dallas, TX; [3]Parkland Health & Hospital System, Dallas, TX. *(Tracking ID # 205720)*

BACKGROUND: In order to allocate resources to HIV patients with highest need and reduce wait times to HIV specialty clinics, urban safety net health systems are attempting to carefully transition patients with HIV from specialty to primary care sites. This task has been hampered by a lack of sufficiently accurate risk stratification tools for community dwelling patients with HIV. We sought to develop an electronic model that would enable a public health system to inexpensively identify HIV patients at lowest risk for hospitalization over a 6 month period.
METHODS: A model for 6 month hospitalization risk was derived retrospectively from 4,362 adult HIV patients who were seen at least once in a HIV specialty clinic within an urban academic safety net health system between January 2007 and October 2008. Patients were randomized and split equally into a derivation and validation set (n=2,181 in each). We assessed severity of illness using the following electronic laboratory data to assign clinical risk: CD4 count, HIV viral load, creatinine, ALT, AST. Race, sex, payer, no. of emergency contacts, history of illicit drug use or mental illness, no.

of home address changes, emergency department (ED) visits, hospital admissions, and proximity to HIV specialty and primary care clinics were assessed through multivariable logistic regression. 6 month risk was calculated from time of first contact in 2007. We internally validated model coefficients by applying bootstrap sampling to candidate variables; variable selection was performed using step-wise regression and the Bayes Information Criterion. We assessed model fit through calibration, discrimination, and reclassification and assessed overall model improvement using the AUC, Hosmer-Lemeshow test, and integrated discrimination improvement index. The final model was externally validated using 2,181 patient in the validation set.

RESULTS: Yhe unadjusted 6 month hospitalization rate was 11%. Significant predictors (of stability p<.05) after multi-variable adjustment included CD4>250 (Odds Ratio: 0.63), RNA viral load <400 (0.47), no prior screening for cocaine use (.68), no prior hospitalizations (.28), and no prior ED visits (.62) over the last year. The AUC for the derivation and validation model was 0.75 (95% CI: 0.71, 0.78) and 0.76 (95% CI: 0.72, 0.79) respectively.

CONCLUSION: A set of automated clinical and non-clinical indicators can predict 6 month risk for hospitalization among community dwelling HIV patients in a large academic safety net hospital. Electronically derived risk models may allow public health systems to identify HIV patients that could be successfully migrated to primary care sites without requiring expensive chart review.

PREDICTIVE VALUE OF ALERT TRIGGERS FOR IDENTIFICATION OF DEVELOPING ADVERSE DRUG EVENTS C.R. Moore[1]; J. Li[1]; C. Hung[1]; J. Downs[1]; J.R. Nebeker[2]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]VAMC, Salt Lake City, UT. *(Tracking ID # 205185)*

BACKGROUND: Computerized event triggers alert clinicians to the possibility of adverse drug events (ADEs) based on trends in lab results and pharmacy orders, and have historically been used to detect existing ADEs. However; the ability of computerized event triggers to identify patients at high risk for inpatient ADEs before they occur has not been well studied. If these primary prevention event triggers can be designed to detect patients at increased risk for ADEs, before ADEs occur, then patient harm can be avoided. The objective of this study is to assess the positive predictive value of computerized event triggers to detect emerging ADEs in hospitalized patients before they occur.

METHODS: We conducted a prospective observational study in patients at a university-based teaching hospital during a 5-month period. Patients were monitored using primary prevention computerized event triggers designed to detect patients at increased risk for 4 types of ADEs: hypoglycemia (blood glucose 50 mg/dl), hypokalemia (blood potassium 3.0 mmol/l), hyperkalemia (blood potassium 6.0 mmol/l), and thrombocytopenia (platelets 60 k) (Table). Each patient for whom an event trigger fired was followed in order to determine whether a drug-induced episode of hypoglycemia, hypokalemia, hyperkalemia, or thrombocytopenia occurred 1 to 72 hours after the incident trigger firing. Inciting drugs for hypoglycemia were defined as: insulin, sulfonylureas, metformin, and thiazolidinediones. Potassium reducing () drugs were defined as: loop or thiazide diuretics. Potassium increasing () drugs were defined as: angiotensin converting enzyme inhibitors, angiotensin-2 receptor antagonists, potassium supplements, or potassium-sparing diuretics. Drugs that can cause thrombocytopenia were defined as: heparin, trimetheprim/sulfamethoxazole, clopidogrel, valproate, or chlordiazepoxide.

RESULTS: Overall, the computerized event triggers fired 611 times on 456 patients. Of the 456 patients, 101 experienced one or more related ADEs between 1 and 72 hours after the incident trigger firing. The positive predictive value of the triggers and median time from trigger firing to ADE was 31% (CI95%=25% - 38%) and 11.6 hours for hypoglycemia, 4.0% (CI95%=1% - 9%) and 17 hours for hypokalemia, 31% (CI95%=18% - 47%) and 25.4 hours for hyperkalemia, and 21% (CI95%=17% - 39%) and 48.4 hours for thrombocytopenia.

CONCLUSION: Primary prevention event triggers designed to identify hospitalized patients at increased risk for drug-induced hypoglycemia, hyperkalemia, and thrombocytopenia have sufficient predictive value and timeliness to potentially help clinicians avert ADEs.

Adverse Event Caused by a Drug	Computerized Event Trigger Algorithm
Hypoglycemia	Active hypoglycemic drug ***AND*** 3 glucose results < 65 mg/dl within 48 hrs
Hypokalemia	([potassium↓ drug started] ***OR*** [potassium↑ drug stopped] 1-5d prior) ***AND*** (potassium<3.8 and reduced by 0.8 over 72 hrs ***OR*** potassium<3.4 and reduced by 0.5 over 72 hrs)
Hyperkalemia	potassium↑ drug started 1-5d ***AND*** (potassium>5.5 and increased by 0.8 over 72 hrs ***OR*** potassium>5.9 and increased by 0.5 over 72 hrs)
Thrombocytopenia	(Platelets < 100k ***AND*** Platelets reduced by ≥ 50k within 4d prior) ***AND*** Taking drug that can cause thrombocytopenia since start of decrease

TABLE. Primary Prevention Computerized Event Triggers

PREDICTORS AND OUTCOMES OF DIFFICULT PATIENT-DOCTOR ENCOUNTERS S. Hinchey[1]; J.L. Jackson[2]. [1]Uniformed Services University of the Health Sciences, Bethesda, MD; [2]Society of General Internal Medicine, Bethesda, MD. *(Tracking ID # 205438)*

BACKGROUND: Previous studies have shown that some encounters are experienced as difficult by clinicians. Our goal was to assess patient and physician correlates with difficult encounters and the impact of such encounters on short-term patient-health outcomes.

METHODS: Seven hundred and fifty adults presenting to an Internal medicine clinic with a physical symptom were enrolled and surveyed at three time-points, immediately before and after their clinic visit, and again 2 weeks later. . Pre-visit patient measures included symptom characteristics, expectations, mental disorders (PRIME-MD),and functional status (MOS SF-6). Post-visit patient measures included satisfaction (RAND 9-item survey), symptoms resolution, health services utilization (6 month), visit costs and residual expectations. Clinicians completed the Physicians Belief Scale (PBS) that measures psychosocial attitudes toward care and were surveyed immediately after each encounter for perceived difficulty using the Difficult Doctor-Patient Relationship Questionnaire..

RESULTS: One hundred thirty-three (17.8%) of patient encounters were rated as difficult by their clinician. On multivariable analysis, patient correlates with difficulty included having poorer functional status (0.95, 95% CI: 0.90–0.99), greater number of "currently bothersome" physical symptoms (1.1, 95% CI: 1.01–1.19) and having higher utilization rates (1.10, 95% CI: 1.05–1.15). Clinician correlates included worse psychosocial orientation (PBS score: 1.08, 95% CI: 1.05–1.12) and fewer years as a practicing clinician (0.95, 95% CI: 0.93–0.98). Difficult encounter outcomes included more unmet expectations both immediately post-visit (1.64, 95% CI: 1.03–2.61) and at two weeks (1.49, 95% CI: 1.18–1.89), lower satisfaction at both time points, worse functional status at 2 weeks (p=0.005), and reporting their physical symptom to be more severe at 2 weeks (p=0.008).

CONCLUSION: Both patient and clinician characteristics affect whether an encounter will be perceived as difficult. Patients involved in such encounters experience worse immediate and 2-wk outcomes.

PREDICTORS OF PATIENT-PROVIDER RACE AND ETHNICITY CONCORDANCE A. Traylor[1]; J. Schmittdiel[2]; C. Uratsu[3]; C.M. Mangione[4]; U. Subramanian[5]. [1]Goldman School of Public Policy; University of California, Berkely, Berkeley, CA; [2]Kaiser Permanente of Northern California; Division of Research, Oakland, CA; [3]Kaiser Permanente Division of Research, Oakland, CA; [4]University of California, Los Angeles, Los Angeles, CA; [5]Diabetes Translation Research Center; Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 204784)*

BACKGROUND: African-American and Hispanic patients are less likely than Whites to have a same race physician despite evidence suggesting race concordance improves trust, reduces bias, and improves patient-physician communication for minority patients. Few studies have evaluated predictors of concordance in large samples, included patient, provider and organizational factors; or evaluated concordance for patients needing chronic care. Objective: The purpose of this study was to simultaneously examine the patient, physician and medical facility predictors of patient-physician race concordance among a large cohort of diabetes patients in an integrated healthcare delivery system.

METHODS: The final study population consisted of 117,216 White, Hispanic and African-American patients that received care from 1750 physicians in 49 facilities across Northern California. Patients were drawn from Kaiser Permanente Northern California (KPNC) diabetes registry who were continuously enrolled in 2005. Patient race was obtained from KP member surveys, study surveys and hospitalization data. Physician level variables and facility level racial composition of patients and providers were obtained from KNPC automated databases. Patient-physician racial match or concordance (dependent variable) was indicated by a binary variable of 1 if a patient had a same-race provider and 0 if a patient had a provider of a different race. Our two main explanatory variables included a) "availability" of the same race physician, indicated by 3 continuous variables (one for each race); defined as the percentage of all patients at each facility treated by Black, Hispanic, or White physicians and b) 'patient-provider link' indicated by two binary variables of whether the patient chose the physician or was assigned a physician by KP. We conducted stratified logistic regression models predicting race concordance for African-American, Hispanic and White patients, controlling for patient choice in provider, medical facility racial composition, patient demographic, socioeconomic and health status; and physician demographic and practice characteristics, and for clustering of patients and physicians within medical facilities.
RESULTS: 46% of the patients were White, 14% Asian, 11% Hispanic and 10% were African-American. Physicians were disproportionately White (47%) or Asian (40%). Nearly 48% of white patients were racially similar to their physicians, whereas only 9.7% of African-American patients and 11.2% of Hispanic patients were racially/ethnically matched. African-American and Hispanic patients in concordant and discordant relationships were similar in age, gender, health status and Medicare status. Compared with patients who were assigned a physician by the health care organization, minority patients who chose their physicians were more likely to have a same race provider with Odds ratios of 1.71 (CI 1.44- 2.04) for Hispanic and 2.2 (CI 1.74–2.82) for African American patients. In the stratified analyses, availability of a same race provider was also a strong predictor of racial match for African American patients [OR 2.7; CI 2.45–2.98].
CONCLUSION: Efforts aimed at diversifying the medical workforce may increase race concordance for minority patients. If, as the literature suggests, race concordance improves outcomes, increasing the availability of minority physicians can reduce racial and ethnic disparities in health.

PREDICTORS OF SEXUAL RISK BEHAVIOR: DIFFERENCES AMONG HIV-INFECTED HOMOSEXUAL MEN, HETEROSEXUAL MEN AND WOMEN C. Golin[1]; C.A. Grodensky[1]; C.M. Suchindran[1]; A.J. Wong[1]; D. Long[1]; J.S. Groves[1]; S. Przybyla[1]; J.L. Earp[1]; Z. Chariyeva[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205309)*

BACKGROUND: Few studies have examined whether HIV-positive people who feel more confident about practicing safer sex, perceive more HIV-related stigma, report more alcohol use, or have greater emotional well-being are less likely to engage in risky sexual behavior. We set out to answer this question for men who have sex with men (MSM), heterosexual men (MSW) and heterosexual women (WSM) for two groups: those with and without an at-risk partner.
METHODS: We enrolled 490 sexually active HIV-infected patients at one of three North Carolina clinics that are part of SAFETALK, a randomized controlled trial of a safer sex counseling intervention. Using baseline audio computer-assisted self interviews completed 7/06–5/08, we assessed: 1) unprotected anal/vaginal intercourse with any partner (UAVI) and with at-risk partners [transmission risk behavior (TRB)] in past 3 months; 2) psychosocial characteristics, including emotional well-being, stigma and safer sex self-efficacy; 3) alcohol and drug use in past 3 months; and 4) age, race/ethnicity, education, and income. We categorized participants as MSW, MSM, or WSM by gender of reported sexual partners or, if no sexual partners reported, self-reported sexual identification. We used Chi Square, Cochran-Mantel-Haenszel, or Kruskal Wallis tests to detect differences between MSW/MSM/WSM subgroups, and multivariate logistic regression with interaction variables to determine whether emotional well-being, safer sex self-efficacy, stigma, and alcohol use predicted UAVI and TRB differently in the MSW/MSM/WSM subgroups.
RESULTS: Our sample was 38% MSMs, 26%MSWs, and 32%WSMs; they were poor (54% <$10,000 annually), poorly educated (24% and predominantly African American (71%). Twenty-one percent engaged in UAVI, 12% TRB. Greater safer sex self-efficacy and emotional well-being each predicted a lower likelihood of UAVI and TRB for all groups ($p < .005$), with no differences by group. Neither alcohol use nor stigma were associated with UAVI or TRB for any group. UAVI, TRB, stigma, self-efficacy, emotional well-being and drug use did not differ for MSW/MSM/WSM subgroups. However, group differences did emerge in alcohol use (63% MSW; 72% MSM; 42% WSM $p<0.0001$), African American race (81% MSW; 59% MSM; 77% WSM: $p<0.0001$), age (<0.0001), education ($p<0.0001$), and income ($p=0.0003$). Controlling for self-efficacy and age, MSM, but not MSW, were more likely than WSM to engage in UAVI (OR: 2.659, CI: 1.568–4.50) and TRB (OR: 2.087, CI: 1.095–3.980). The picture was similar for emotional well-being and age for UAVI (OR: 2.352, CI: 1.425–3.882) and TRB (OR 1.912, CI: 1.016–3.598). In models controlling for stigma, alcohol use, and age, we also found MSM were twice as likely to engage in UAVI and TRB as WSM.
CONCLUSION: For all three groups, those who felt more confident about practicing safer sex and who had greater emotional well-being were less likely to engage in risky sexual behavior both with and without an at risk partner. Controlling for psychosocial factors, MSM but not MSW were more likely to engage in risk behaviors. To develop prevention with positive interventions these difference should be taken into account.

PREGNANCY INTENTION IN WOMEN WITH CHRONIC MEDICAL CONDITIONS: A FOCUS GROUP STUDY C.H. Chuang[1]; D. Velott[1]; C.S. Weisman[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 205327)*

BACKGROUND: Unintended pregnancy continues to be a major public health concern in the U.S. Women with chronic medical conditions are at increased risk for the adverse effects of unintended pregnancy as they are highly vulnerable to complications during pregnancy and adverse pregnancy outcomes. Understanding how women with chronic medical conditions formulate decisions about future childbearing will better inform interventions aimed at reducing unintended pregnancy occurrence. Using focus group methodology, we examined how women with chronic medical conditions viewed future childbearing and how their health status influenced their decisions.
METHODS: This study was designed to capture differences in pregnancy intention by chronic condition and prior pregnancy experience. Focus groups were stratified by chronic condition (diabetes, hypertension, obesity) and by previous live birth. This 3×2 design yielded 6 sampling frames; we planned 2 focus groups per sampling frame for a total of 12 groups. Participants were recruited using local newspaper/radio advertisements, flyers posted in clinical sites, and from a research volunteer call list from the Penn State Diabetes Registry. Participants were asked about their intention for future pregnancy, preconception planning, perceived risk of adverse pregnancy outcomes, and birth control practices. Transcripts from the 90-minute sessions were analyzed for major themes using a modified grounded theory method using NVivo8 qualitative research software.
RESULTS: The 12 focus groups included 72 women: 16 diabetic women, 16 hypertensive women, and 40 obese women. Of the participants, 21 had no previous live births and 51 had at least one previous live birth (more than half of whom had experienced at least one previous pregnancy complication). Four major themes were identified, consistent across all medical conditions and parity: (1) Lack of control over future pregnancy. Women adopted an "if it happens, it happens" attitude, with many women considering pregnancy not to be a matter of choice, but a matter of fate, or a decision made by God. (2) Downplaying pregnancy-related risks associated with chronic medical conditions. The perception that the risks were theoretical and not necessarily realistic was often justified by accounts of healthy women who had also experienced pregnancy complications. (3) Hostility toward providers' messages about their pregnancy-related risks related to the chronic condition, tempered in some cases by positive interactions with doctors. (4) Limited knowledge about how medical conditions might limit contraceptive choices. For example, there was no discussion about how birth control pills may affect women with hypertension or diabetes.
CONCLUSION: These themes allow us to better understand how women with chronic medical conditions think about reproductive health planning. Future unintended pregnancy and preconception health interventions for women with chronic conditions should consider

women's perceived lack of control over pregnancy planning, risk perception of adverse pregnancy outcomes, effective delivery of risk-related counseling, and effective contraceptive education.

PREPARATION, CONFIDENCE AND ATTITUDES ABOUT CHRONIC NONCANCER PAIN ACROSS GRADUATE MEDICAL EDUCATION PROGRAMS L.M. Yanni[1]; S.A. Amin[1]; J.M. Ketchum[1]; B. Johnson[1]; S.E. Harrington[2]; M.J. Fagan[3]; L.G. Clark[4]; P.J. Coyne[1]. [1]Virginia Commonwealth University, Richmond, VA; [2]University of Arkansas, Little Rock, AR; [3]Brown University, Providence, RI; [4]University of Massachusetts, Worcester, MA. *(Tracking ID # 205763)*

BACKGROUND: Previous studies show that training inadequately prepares practicing providers to manage chronic noncancer pain (CNCP). Several surveys on CNCP have captured Generalist trainee confidence and attitudes about CNCP. These surveys have not included trainees in Non-surgical or Surgical specialties. The purpose of this study is to determine trainee preparation, confidence, and attitudes about CNCP across Graduate Medical Education (GME) programs.
METHODS: We developed a Graduate Medical Education CNCP Survey. The final 68 items for the survey instrument were adapted from published instruments. Trainees (N=430) representing 16 different GME programs from 3 medical schools were invited to participate in the online survey using Inquisite software. Descriptive statistics (percentages) as well as chi-square tests were utilized.
RESULTS: The survey response rate was 57% (246/430); 44% were male and 56% were female. Thirty-three percent were PGY-1, 25% were PGY-2, and 42% were PGY-3 or greater. Respondents were divided into: Generalists (69.5%): Family Medicine, Internal Medicine (IM), IM-Pediatrics; Non-surgical specialties (21.1%): Neurology, Physical Medicine & Rehabilitation, Psychiatry, and Fellowships (Geriatrics, Hematology/Oncology, Infectious Disease, and Rheumatology); and Surgical specialties (9.3%): Anesthesiology, Neurosurgery, and Orthopedics. Only 11% of respondents reported that medical school education was good/excellent in preparing them to manage patients with CNCP. Generalists were less than half as likely to report this (7%) than the other specialty subgroups (p=0.0322). Similarly, only 21.7% rated residency preparation as good/excellent, though this was regardless of specialty. Eleven percent of respondents reported being confident/very confident in treating patients with CNCP, with males reporting this twice as commonly as females (15% versus 7%; p=0.0492). The percentage of confident/very confident respondents increased with year of training (1.3%, 13%, 17%, respectively; p=0.0045). While only 13% felt confident/very confident in their ability to prescribe opioids, confidence in prescribing opioids increased with year of training between PGY-1 (0%) and PGY-2 (22%) years. Most respondents agreed/strongly agreed that chronic pain is treatable and can lead to improved outcomes (84% and 91%, respectively). Seventy-three percent of respondents rated pain specialists as being good/excellent in managing CNCP compared to 6% rating generalists the same. Though nearly 60% agreed/strongly agreed that treating patients with CNCP was efficient use of their time, Surgical specialties (32%) were half as likely to have agreed/strongly agreed compared to the other specialty subgroups (p=0.0270).
CONCLUSION: Trainees are not adequately prepared to manage CNCP, a finding confirmed across GME programs. Overall, trainees exhibited low confidence in treating patients and prescribing opioids for CNCP though confidence did increase with year of training. Though more than half of trainees felt that managing CNCP was an efficient use of their time, surgical specialties were much less likely to agree, possibly because of the weight toward medical management as pain becomes chronic. Despite the prevalence of chronic pain in primary care, respondents were clear in their rating of pain specialists' ability to manage chronic pain over generalists. Curricular interventions are warranted across GME programs to improve preparation, confidence, and attitudes about CNCP.

PREVALENCE AND CORRELATES OF LIFETIME SUICIDAL IDEATION AND ATTEMPTS AMONG ASIAN AMERICANS M. Ratanasen[1]; J.K. Cheng[2]; T. Fancher[3]; S. Sue[4]; D. Takeuchi[5]. [1]University of California, Davis, Department of Internal Medicine, Sacramento, CA; [2]University of California, Davis, Department of Psychology, Davis, CA; [3]University of California, Davis, Sacramento, CA; [4]University of California, Davis, Davis, CA; [5]University of Washington, Department of Social Work, Seattle, WA. (Tracking ID # 205989)

BACKGROUND: Asian Americans have higher overall rates of fatal suicide than American whites, African Americans, and Latinos. Fatal suicide accounts for more Asian American deaths than nephritis, hypertension, septicemia, homicide, Alzheimer's disease, and liver disease. Despite these alarming trends, little is known about suicidal behavior in this growing minority population. Studies to date have been limited by small sample sizes and by a focus on fatal suicide as the primary outcome, rather than risk factors for suicidal ideation and attempt. This study examines the sociodemographic characteristics, psychiatric disorders, and culturally relevant factors associated with lifetime suicidal ideation and attempts in a nationally representative sample of Asian Americans.
METHODS: Data are taken from the National Latino and Asian American Study, the largest nationally representative household survey on mental health conducted with Asian Americans to date. A total of 2095 Asian Americans (600 Chinese, 508 Filipinos, 520 Vietnamese, and 467 other Asians) were interviewed between May 2002 and December 2003. Suicidality and the diagnoses of any lifetime psychiatric disorders were assessed using the World Health Organization Composite International Diagnostic Interview.
RESULTS: The lifetime prevalence of suicidal ideation and attempts among Asian Americans was 8.8% and 2.5%, respectively. Female gender, family conflict, discrimination, and the presence of psychiatric disorders were positively correlated with suicidal ideation and attempts. However, 34% of those attempting suicide had neither a depressive nor anxiety disorder. A high level of identification with one's ethnic group emerged as a protective factor against suicide attempts. Some correlates were found to be gender specific. Among Asian men, the presence of depression alone was not related to suicidal ideation, while the presence of chronic medical conditions or co-occurring depression and anxiety was strongly related to suicidal ideation.
CONCLUSION: These findings provide important clinical implications for assessing suicide risk in Asian Americans. In addition to identifying psychiatric disorders, clinicians should attend to culturally related issues such as discrimination, familial integration, ethnic identification, and to Asian men with chronic medical conditions without a DSM-IV depressive disorder.

PREVENTING READMISSIONS: THE PREDICTORS AND CONSEQUENCES OF DISCHARGE PLANNING IN U.S. HOSPITALS A.K. Jha[1]; E.J. Orav[2]; A.M. Epstein[1]. [1]Harvard University, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205177)*

BACKGROUND: The Centers for Medicare and Medicaid Services (CMS) and others have embarked on a national program to encourage hospitals to participate in public reporting of their discharge planning in select conditions. We sought to examine rates of performance on the two publicly-reported discharge metrics, to identify characteristics associated with better performance on these discharge measures, and to determine whether higher performance on these metrics is related to lower readmission rates.
METHODS: We used the September 2008 release of the Hospital Compare database to examine hospital performance in 2007 on two discharge planning metrics: adequate documentation in the chart of discharge planning for patients with congestive heart failure (CHF), and adequacy of discharge planning as reported by patients discharged after hospitalization for a medical or surgical condition through the Healthcare Consumer Assessment of Hospital Providers and Systems (HCAHPS) program. We used data from the American Hospital Association annual survey to examine whether key characteristics were associated with better performance on these two discharge metrics and finally, we examined whether higher performance on these discharge metrics was associated with lower risk-adjusted readmission rates for CHF and pneumonia, the two most common causes of hospitalizations among Medicare patients.
RESULTS: Among the 2194 hospitals that reported performance on both discharge metrics, there was essentially no relationship between how hospitals fared on the chart-based metric and the patient-reported metric (correlation 0.06). While larger hospitals performed better on the chart-based metric, smaller hospitals, those located in the Midwest, and those with higher nurse staffing levels had better peformance on the patient-reported metric. There was no relationship between the chart-based metric and readmission rates for CHF patients (readmission rates among hospitals

performing in the top quartile versus bottom quartile: 23.7% versus 23.5%, p=0.49). However, hospitals with higher performance on the patient-reported metric had lower readmission rates for both CHF (readmission rates among top versus bottom quartile performers: 22.6% verus 24.5%, p<0.001) and pneumonia patients (18.1% versus 19.5%, p<0.001).
CONCLUSION: There is essentially no correlation between how hospitals fare on chart documentation of adequate discharge instructions and patient-reported adequate discharge instructions. We found a modest but consistent relationship between patients' understanding of discharge information and the hospital's readmission rates for both CHF and pneumonia. The lack of a relationship between the chart-based metric and readmission rates suggests that this measure may not be a valid way to assess readmission prevention practices. Efforts to improve patient-reported experience of discharge planning may lead to reduced readmission rates.

PRIMARY CARE PROVIDERS' CLINICAL DOCUMENTATION METHOD AND ELECTRONIC HEALTH RECORD SATISFACTION P.M. Neri[1]; A.R. Wilcox[1]; L.A. Volk[1]; D.H. Williams[2]; H.Z. Ramelson[1]; G.D. Schiff[2]; D.W. Bates[2]. [1]Partners HealthCare, Wellesley, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204579)*

BACKGROUND: Although primary care providers are increasingly moving to electronic health records (EHRs), clinical documentation is challenging. Electronic documentation has the potential to improve quality of care and decision support, but may adversely influence physician time and satisfaction. We examined whether providers' methods of documentation had an influence on their satisfaction with the notes module of a home-grown EHR that allows for three methods of documentation: structured, free- form, and dictated. Structured documentation contains the most coded data but may take longer, while unstructured approaches (free-form or dictated) may be quicker but provide less opportunity for decision support.
METHODS: We evaluated the number of documents generated in the notes module of the EHR by 701 primary care providers across a large integrated delivery system. We categorized providers into three groups based on which method of documentation they used most often (structured, free-form, or dictated). In addition, we surveyed a random sample of 415 primary care providers from this population regarding their satisfaction with the EHR. 165 providers (40%) responded to our survey. We excluded 25 respondents who did not answer the notes satisfaction question, and 7 that had <100 documents in the past year. The remaining 133 providers (126 Primary Care Physicians, 7 Nurse Practitioners) were grouped based on the documentation method they used most often. For each group, we calculated the average number of documents generated in the notes module per month, and average satisfaction rating with the notes module. Providers rated their satisfaction with the EHR notes module on a Likert-type scale (1= Dissatisfied, 5=Satisfied).
RESULTS: Overall, of the 701 primary care providers, more than half (54%) used free-form documentation most often. 40% of providers used structured documentation most often, and 6% of providers used dictation most often. The average numbers of documents generated per month in these three groups were similar (free-form: 167; structured: 157; dictated: 178). Of the 133 survey respondents, 45 providers (34%) used structured documentation most often, 77 providers (58%) used free-form documentation most often, and 11 providers (8%) used dictation most often. The average satisfaction rating with the notes module for the structured group was 3.53 compared to 4.10 for the free-form group (p=0.008). The average total number of documents generated per month for the providers in the structured group was 323 compared to 264 for the free-form group (p=0.08). The average satisfaction rating for the dictation group was 3.45, and the average total number of documents generated per month was 251, neither of which was significantly different from the structured or free-form groups.
CONCLUSION: Providers who used free-form documentation were more satisfied with the EHR notes module than those who used structured documentation. Because structured documentation can contribute to clinical decision support and improve quality of care, it is essential to assess clinicians' workflow preferences, the trade-offs between unstructured and structured documentation, and how they relate to efficiency and quality of care.

PRIMARY CARE PROVIDERS' VIEW OF CHALLENGES AND REWARDS OF DEMENTIA CARE RELATIVE TO OTHER CONDITIONS D.P. Harris[1]; J. Chodosh[2]; S.D. Vassar[1]; B.G. Vickrey[3]; M.F. Shapiro[4]. [1]Department of Neurology, UCLA David Geffen School of Medicine, Los Angeles, CA; [2]Department of Veterans Affairs, Greater Los Angeles Geriatric Research Education and Clinical Center, Los Angeles, CA; [3]VA Greater Los Angeles Healthcare System/Department of Neurology, UCLA David Geffen School of Medicine, Los Angeles, CA; [4]Division of General Internal Medicine and Health Services Research, UCLA David Geffen School of Medicine, Los Angeles, CA. *Tracking ID # 205151)*

BACKGROUND: Quality improvement programs for dementia may be more difficult to implement than for other common conditions due to providers' experiences and perceptions of the complexities and organizational capacity for effectively managing dementia. We compared primary care providers' (PCPs) perceptions about dementia and its care within their healthcare organization (HCO) with that of other common chronic conditions affecting older patients, and explored factors associated with differences.
METHODS: We surveyed by mail all PCPs at 18 clinics in 3 San Diego HCOs participating in a randomized controlled trial of a dementia care quality improvement intervention. PCPs were compared on 5 views about dementia versus heart disease and diabetes. For each condition, PCPs were asked their agreement (from 1='strongly agree' to 6='strongly disagree') with these statements: older patients should be routinely screened for the condition; PCPs can significantly improve quality of life for older patients with the condition; older patients with the condition are difficult to manage in primary care; and HCO has expertise and referral resources needed to manage the disorder effectively. PCPs also rated for each condition the care coordination and information sharing with other HCO providers (1='almost effortless' to 6='difficult struggle'), and room for improvement in their ability to evaluate and manage elders with dementia, hypertension, incontinence, gait disorders/falls, depression, and delirium (from 'a great deal', to 'not at all'). Differences in responses for dementia vs. each other condition were assessed with Wilcoxon rank-sum test. Multivariate analysis examined associations of views about dementia with PCP type, gender, dementia care knowledge, # of dementia patients, # of patients ≥ age 65, time since professional school graduation, and duration at current practice.
RESULTS: Survey response was 71.3% (164 of 230). PCPs reported more difficulty managing dementia than heart disease or diabetes (P's< 0.001), stronger beliefs that PCPs can improve quality of life for heart disease or diabetes than dementia (P's<0.001), and stronger support for routine screening for heart disease (P<0.001) and diabetes (P=0.004) than dementia. PCPs perceived having more organizational expertise and referral resources to manage diabetes and heart disease (P's< 0.001) than dementia, and more room for improvement in their ability to manage dementia than incontinence, depression, or hypertension (P's<0.001). Respondent PCPs were internists (44%), family physicians (45%), and nurse practitioners/physician assistants (11%). In multivariate analyses, only PCP type was consistently associated with views on dementia care, with internists less likely than family physicians to have positive views of screening (P=0.008), improving quality of life (P= 0.03), organizational care coordination (P=0.02), and availability of expertise and referral resources (P=0.002). Unique to dementia care (but not for heart disease or diabetes), PCPs' belief that patients with dementia are difficult to manage was associated with perceived difficulty in dementia care coordination within their HCO, and that their HCO lacked expertise and referral resources to manage dementia effectively (P's<0.001; Wilcoxon).
CONCLUSION: Improving primary care management of dementia should directly address PCP concerns about expertise and referral resources, difficulty of care provision, and views about prospects for patient improvement.

PRIMARY CARE UTILIZATION AMONG VETERANS WITH DIABETES AND/OR CORONARY HEART DISEASE AND SEVERE MENTAL ILLNESS P.A. Pirraglia[1]; L. Jiang[1]; P.D. Friedmann[1]. [1]Providence VA Medical Center, Providence, RI. *(Tracking ID # 203837)*

BACKGROUND: Schizophrenia, bipolar disorder, and schizoaffective disorder, collectively referred to as severe mental illness (SMI), are prevalent among veterans. Veterans with SMI have a high prevalence of

obesity, diabetes, smoking, and hypertension. The quality of the medical care of SMI patients may be sub-optimal. We sought to examine how veterans with severe mental illness (SMI) and concomitant diabetes (DM) and/or coronary heart disease (CHD) utilize primary care services and how well they attain some measures of disease control.

METHODS: We performed a cross-sectional study of veterans in Veterans Integrated Service Network (VISN) 1, which includes all VA care in New England, using data from Fiscal Year (FY) 2007. We limited to only veterans with DM and/or CHD as determined by ICD-9 coding in the outpatient event files for DM (250) and CHD (36.1, 36.2, 00.66, 414, 429.2, 411, 413). We defined veterans as having SMI if there was at least one coded diagnosis of schizophrenia, bipolar disorder, or schizoaffective disorder. We then examined primary care visits and primary care no-show rate, which was calculated as the number of primary care no-shows divided by the sum of no-shows and attended primary care visits. We looked at the attained values of key laboratory tests—hemoglobin A1c (HbA1c) and calculated low density lipoprotein (LDL-C)—in this population, expressed as the mean value over FY2007, and number of these tests completed in FY2007.

RESULTS: Our population consisted of 82,394 veterans in VISN1 with a diagnosis of DM, CHD, or both. SMI was present in 3% of veterans in this population. This population was 97.9% male. We had information on race in 75.6% of the population; of these, 96.8% were white and 2.5% were African-American. Of the veterans in our population, 15.5% were 50% service connected or greater. The mean age was 72.5± 10.7 years. Veterans with SMI differed from those without SMI in being women (4.2% vs. 2.0%, p<.0001), African-American (7.9% vs. 2.3%, p< .0001), younger (61.4±10.5 vs. 72.8±10.5, p<0.0001), and higher medical comorbidity (Charlson Comorbidity Index score 1.54±1.55 vs. 1.43±1.49, p<.0003). Among veterans with DM, CAD, or both, those with SMI had on average more primary care visits than those without SMI (3.94±5.97 vs. 2.94±2.99, p<.0001). However the no-show rate was twice as high among those with SMI (0.10±0.20 vs. 0.05±0.14, p< .0001). The HbA1c value for veterans with DM was 7.15%±1.60% among those with SMI compared to 7.12%±1.26% for those without SMI (p=NS). However, the number of HbA1c tests ordered for those with SMI was 1.82±1.35 vs. 1.43±1.21 in those without SMI (p<.0001). LDL-C values were higher among those with SMI (93.9 mg/dL±29.8 vs. 90.3 mg/dL±27.7, p<.0001), and more LDL-C tests were ordered for veterans with SMI (1.52±1.20 vs. 1.22±1.12, p<.0001).

CONCLUSION: Veterans with SMI have higher primary care utilization and a higher rate of primary care no-shows. They attained HbA1c values similar to those without SMI, but had higher LDL-C values and received both of these tests more frequently. These findings indicate that programs designed to improve primary care delivery and efficiency for patients with SMI are warranted.

PRIMARY CARE UTILIZATION OF FREQUENT GERIATRIC USERS OF THE EMERGENCY DEPARTMENT L. Torres[1]; U. Hwang[1]; S. Yang[1]; L. Decherrie[1]; K. Ornstein[1]; T.A. Soriano[1]; A. Wajnberg[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205266)*

BACKGROUND: Emergency Department (ED) utilization increased 20% from 1995 -2005 while the number of EDs decreased. Common geriatric psychosocial and functional issues are frequently unrecognized in the ED and older patients are at high risk of functional decline and decreased health-related quality of life after an ED visit. Prior studies have shown that lack of access to primary care services and care coordination may influence ED utilization.

METHODS: This was a prospective telephone survey of adults 65 years of age or older who had four or more Mount Sinai ED visits between December 2007 and May 2008. These patients were contacted within 1-month of their fourth ED visit. Inclusion criteria were greater than 64 years of age, non-nursing home resident, English or Spanish speaking, and having a working telephone. All patients were screened for cognitive impairment using the short portable mental status questionnaire; if positive (greater than 5/10) their surrogate was identified to complete the survey. Data gathered included patient demographics, living situation and support systems, insurance status, self reported health and functional status, ability to leave their homes, and their access to and use of primary health care services.

RESULTS: 207 older adults met inclusion criteria: 29% were interviewed, 17% refused, and 49% were unreachable. Of the 59 interviewed, 68% were female, 53% spoke Spanish, 47% had Medicare/Medicaid, 36% had education 8th grade, and 44% lived alone. Participants reported a history of chronic pain (59%), congestive heart failure (47%), stroke (34%), heart attack (39%), and dementia (24%). Participants left their homes 0 to 1 (27%), 2 to 4 (36%), and 5+ times/week (37%), usually for health related appointments. Functionally, 78% needed assistance on a daily basis and 78% had difficulty walking. 95% reported having a usual source of care, which they identified as: hospital outpatient clinic (49%), a doctor's office (39%), or emergency department (5%). 92% reported having a primary care provider and 41% of these patients reported seeing their provider 10 or more times in the last year. However, only 36% contacted their primary care provider before a visit to the ED. Of those who did not contact their PCP, 32% reported that it was due to problems accessing their PCP (e.g. at night, did not have number), while 35% reported that it was due to an emergency (e.g. no time to wait, called 911).

CONCLUSION: Factors associated with ED use are multifaceted. These results are contrary to previous studies suggesting that frequent ED users may lack access to primary care. This study provides some evidence that elderly frequent users of the ED may benefit from improved access to timely outpatient care. Future studies may include surveying geriatric infrequent ED users and having focus group studies to better understand reasons why geriatric patients use the ED.

PROFESSIONALISM AND COMMUNICATION SKILLS AMONG MEDICAL INTERNS ON AN INTEGRATED TEACHING SERVICE M.E. Thorndike[1]; G.T. Mcmahon[1]; R. Maurer[2]. [1]Harvard Medical School, Brigham and Women's Hospital, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205557)*

BACKGROUND: The Integrated Teaching Unit (ITU) was designed as an experimental program of the Brigham and Women's Hospital Internal Medicine Residency Program. The unit was developed to examine the effect of reducing workload and providing more attending supervision and teaching time on the quality of patient care and education. This study assessed the effect of the ITU model on intern communication with patients, families and nursing staff, in comparison with a traditional team model, and compared the data to passively collected Press-Ganey survey results.

METHODS: Patients who were cared for by either the ITU team or a traditional general medical team (GMS) were surveyed with a brief questionnaire asking about communication skills and professionalism of the intern caring for them. If patients were unable to answer then family members were surveyed. All questions were answered on a 5-point Likert scale. Interviewers were blinded to team assignment. A similar questionnaire was given to nurses, asking about the quality of their communication with interns as well as professionalism. Both questionnaires were adapted from published, validated instruments used in a study of a multi-disciplinary feedback intervention at Cincinnati Children's Hospital. Each question on the survey was analyzed separately. Press-Ganey survey data was retrieved from the balanced scorecard dataset. Analysis was stratified by time period reflecting rotation dates. A mixed effect ANOVA was utilized for the analysis. The protocol was approved by the institutional review board.

RESULTS: Two-hundred patients completed surveys about 62 interns (118 and 82 surveys about ITU and GMS team members respectively). A total of 39 interns were evaluated in the nursing arm, via a total of 135 surveys (66 and 69 surveys about ITU and GMS team members respectively). Both ITU and GMS teams scored highly in all domains, with team averages ranging from 4.2 to 4.8 on the 5-point scale (with 4 being Very Good and 5 being Excellent) in the patient/family survey, and ranging from 3.7 to 5.0 in the nursing survey. There was no statistically significant difference between ITU and GMS teams for any question on the survey, for both the patient/family and the nursing arms of the study. ITU and GMS teams performed similarly well in the communication elements measured by Press Ganey patient satisfaction surveys.

CONCLUSION: First-year medicine residents perform highly in areas of communication skills and professionalism as measured by patient/family and nurse ratings, a finding that correlated with excellent reports on the Press-Ganey surveys. The introduction of an experimental teaching unit with increased educational time did not detract from the quality of communication with patients or with nurses.

PROJECT PREP – PROMOTORAS DE SALUD IMPROVED DISASTER PREPAREDNESS AMONG LATINO IMMIGRANTS. D. Eisenman[1]; D. Glik[1]; Q. Zhou[1]; C. Tseng[1]; S. Asch[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]West LA VA, Los Angeles, CA. *(Tracking ID # 203730)*

BACKGROUND: Public health seeks to improve disaster preparedness among vulnerable communities. Theoretically-derived and empirically-tested approaches to improving disaster preparedness have not been widely developed or applied. We developed and pilot tested Project PREP (Programa Para Responder a Emergencias con Preparación), a community-collaborative program to improve disaster preparedness among low-income Latinos in Los Angeles using social networks for recruitment and culturally competent, lay health promoters (promotoras de salud) for dissemination.
METHODS: PREP employed a randomized, longitudinal cohort design with two-arms. Low-income, immigrant, Latinos were enrolled using Respondent Driven Sampling (RDS). RDS is a chain referral sampling method that uses social network theory to gather a sample representative of the target population and is ideally suited for recruiting from "hidden" populations. Participants were randomized to either the experimental "platica" group (a small group discussion led by promotores), or the comparison "media" group (Spanish and English language brochures on preparedness mailed to the home). The curriculum, materials and brochures were developed specifically from PREP's focus groups. Baseline and 3-month-post-intervention assessments were performed by bilingual, bicultural, telephone-interviewers blind to study assignment. The sample was comprised of 231 adult Latinos; of these 187 (81%) completed the study. Participants lost to follow-up did not differ significantly from participants who completed the study. There were no significant differences in distribution of sociodemographic variables between arms.
RESULTS: The platica participants had larger improvements than the media participants in preparedness. A majority (98%) of platica participants who did not have water pre-intervention reported having stockpiled water post-intervention. In comparison, over two thirds (67%) of participants in the media arm who did not have water pre-intervention reported having stockpiled water post-intervention ($p=0.003$). A majority (92%) of platica participants who did not have food pre-intervention reported having stockpiled food post-intervention. In comparison, slightly less than two thirds (61%) of participants in the media arm who did not have food pre-intervention reported having food post-intervention ($p=0.013$). Over two thirds (69%) of platica participants who did not have blankets pre-intervention reported having blankets post-intervention. Less than half (46%) of participants in the media arm who did not have blankets pre-intervention reported having blankets post-intervention ($p=0.047$). Almost three fourths (70%) of platica participants who did not have a written family communications plan pre-intervention reported having a plan post-intervention. In comparison, less than half (42%) of participants in the media arm who did not have a plan pre-intervention reported having one post-intervention ($p=0.002$).
CONCLUSION: PREP is the first experimental testing of a culturally-tailored, socially-embedded disaster preparedness program, as well as the first experimental trial of a disaster preparedness program generally. Both arms improved disaster preparedness. Promotora led small group sessions improved particularly important and challenging aspects of preparedness including stockpiling water, food and creating a communication plan. Further efforts are needed to test, refine and disseminate this model.

PROMOTING OPIOID RISK MANAGEMENT AMONG GENERALIST PHYSICIANS D.P. Alford[1]; C. Bridden[2]; J.H. Samet[1]. [1]Boston University School of Medicine/Boston Medical Center, Boston, MA; [2]Boston Medical Center, Boston, MA. *(Tracking ID # 205240)*

BACKGROUND: Opioids are increasingly being prescribed by generalists for chronic pain. At the same time prescription opioid misuse is a growing public health problem. Medical societies and regulatory agencies now recommend specific opioid risk management strategies (i.e. addiction screening, controlled substance agreements, urine drug testing and pill counts) to reduce opioid misuse by patients receiving opioid therapy for chronic pain. Currently there is inadequate opioid risk management training in physician education. Because Chief Residents (CRs) play a key role in training future physicians we assessed the impact of training CRs about opioid risk management.
METHODS: As part of the 4-day, intensive Chief Resident Immersion Training (CRIT) program in Addiction Medicine, opioid risk management was addressed in the curriculum including pharmacology of opioid medications and opioid risk management skills when using opioids to treat patients with chronic pain. The curriculum was presented using a variety of teaching methods including case-based didactic presentations, small group workshops, and skills practice sessions. CRs were assessed via electronic survey at baseline (pre-CRIT) and 6 months after the CRIT program. The surveys used 5-point Likert-type scales for confidence (1="not at all" to 5="very") and specific clinical and teaching practices (1="never/rarely" to 5="always").
RESULTS: Twenty-two CRs were trained from 22 residency programs from 12 states in May 2007. CRs significantly increased their confidence from baseline to 6-month follow-up in both identifying substance use disorders in patients with chronic pain (3.0 to 3.7) ($p<0.01$) and treating high risk patients with chronic pain (i.e. history of substance abuse) (2.4 to 3.6) ($p<0.001$). Compared to baseline there was almost universal self-reported improvement in opioid risk management practices with chronic pain patients including use of a validated substance abuse screening tool (2.3 to 3.5) ($p<0.001$), use of agreements/contracts (2.6 to 3.4) ($p<0.05$) and use of routine urine drug testing (1.7 to 3.1) ($p<0.001$). However, CRs had a significant decrease in use of routine pill counts (3.1 to 2.4) ($p<0.01$). Importantly, CRs also significantly increased their frequency of teaching opioid risk management strategies to their trainees in various venues: bedside teaching (2.0 to 3.4) ($p<0.001$); other small group interactive teaching (1.7 to 3.4) ($p<0.001$); other large group didactic teaching (1.4 to 3.0) ($p<0.001$).
CONCLUSION: The curricular content on opioid risk management incorporated in the Chief Resident Immersion Training (CRIT) program in Addiction Medicine successfully increased CR's opioid risk management clinical confidence, skills and teaching. Training CRs, who have a primary responsibility for educating medical trainees, appears to be one important pragmatic strategy to address the compelling need for better physician training in opioid risk management. Future research on training CRs should consider a more in-depth investigation of impact on the CRs' trainees.

PROTON PUMP INHIBITORS AND RISK FOR RECURRENT CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHEA A. Linsky[1]; K. Gupta[2]; E. Lawler[3]; J. Fonda[4]; G. Sokolovskaya[4]; J. Hermos[2]. [1]Boston Medical Center, Boston, MA; [2]MAVERIC, VA Cooperative Studies Program, VA Boston Healthcare System and Boston University School of Medicine, Boston, MA; [3]MAVERIC, VA Cooperative Studies Program, VA Boston Healthcare System and Harvard Medical School, Boston, MA; [4]MAVERIC, VA Cooperative Studies Program, VA Boston Healthcare System, Boston, MA. *(Tracking ID # 204051)*

BACKGROUND: Recent studies suggest proton pump inhibitor (PPI) use may be a risk factor for both incident and recurrent ***Clostridium difficile*** associated diarrhea (CDAD). We sought to determine whether PPI exposure concurrent with antibiotic treatment for incident CDAD was associated with an increased risk of recurrent CDAD.
METHODS: The study population consisted of veteran patients in the VA New England Healthcare System between 2004 and 2008 with linked pharmacy and health care encounter and diagnosis data who had laboratory results indicating an incident positive ***C. difficile*** toxin. Only those patients who initiated CDAD treatment with metronidazole or oral vancomycin within the toxin positive period (-6 days until +3 days) were included in this study. PPI exposure was defined as an active prescription within the 14 days after incident positive toxin concurrent with CDAD treatment. The outcome was recurrent CDAD defined by the first new positive ***C. difficile*** toxin at 14–90 days after the initial positive toxin result. Covariates collected and evaluated included: age, sex, hospital admission and length of stay, and comorbidities including diabetes, malignancies and chronic cardiovascular, rheumatologic, gastrointestinal and kidney diseases. Medication use within the 90 days prior to incident CDAD included: antibiotics, H2-receptor antagonists, systemic and inhaled steroids, chemotherapeutics and immuno-modulators. Cox proportional hazards ratios (HR) and 95% confidence intervals (95% CI) estimated the association of recurrent CDAD with PPI use during incident CDAD treatment.

RESULTS: We identified 1492 patients with incident CDAD; among these, 1224 patients received treatment with metronidazole (94.8%) or oral vancomycin (5.2%) and were included in the study population. Overall, 478 (39.4%) patients were exposed to a PPI during antibiotic treatment and 746 (60.9%) were not exposed to concurrent PPI use. The veteran cohort was predominantly male (97.1%), with a median age of 74. Age, sex, co-morbidities and medication use were similar among PPI users versus non-users, with the exception of higher baseline prevalence among PPI users of ischemic heart disease (p=0.0001), rheumatologic disease (p=0.003), esophageal disease (p=0.0001) and systemic steroid use (p=0.047). Recurrent CDAD occurred in 118 PPI users (24.7%) and 141 non-PPI users (18.9%), with a median time to recurrence of 28 days for both groups, (age adjusted HR=1.36, 95% CI 1.06–1.73, p=0.015). After further adjusting for length of inpatient exposure after diagnosis, selected co-morbidities, systemic steroid use and initial CDAD antibiotic treatment, the increased risk associated with PPI use was unchanged (HR=1.37, 95%CI 1.06–1.76, p=0.02). Age of the patient at the time of initial infection appeared to modify the association between PPI use and recurrent CDAD in stratified, multivariate adjusted analyses, with a trend indicating a stronger association with PPI use and recurrent CDAD with increasing age [age <60 years HR 1.19 (95%CI 0.55–2.58), 60–80 years HR 1.37 (95%CI 0.98–1.91), >80 years HR 1.47 (95%CI 0.93–2.33)].
CONCLUSION: PPI use during treatment of incident CDAD in veteran patients confers a slightly higher risk of short-term recurrence (14–90 days). The observation of increasing risk of PPIs and recurrence among elderly patients warrants further investigation. The decision to start or continue a PPI in those diagnosed with incident CDAD needs to be balanced with the risk of recurrence.

PROVIDER BARRIERS TO SCREENING FOR INTIMATE PARTNER VIOLENCE IN BOGOTÁ, COLOMBIA. A.A. Baig[1]; G. Ryan[2]; M.A. Rodriguez[3]. [1]University of Chicago, Chicago, IL; [2]RAND, Los Angeles, CA; [3]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205209)*

BACKGROUND: Intimate partner violence (IPV) is a pervasive global public health problem. While the role of healthcare providers in the identification and care of IPV survivors has been well studied in the US, there are scant studies in developing countries and we are unaware of any studies that have examined provider barriers to screening for IPV among female patients in Colombia.
METHODS: Semi-structured interviews were conducted with 27 healthcare personnel from a diverse sample of eight hospitals in Bogotá, Colombia from March 2008 to April 2008. We purposefully sampled public and private hospitals that delivered primary, secondary, and tertiary level of care in Bogotá and then interviewed physicians, nurses, social workers, and psychologists whose patient populations were at least 50% women of reproductive age. Of the 27 healthcare personnel, 12 were physicians, 7 nurses, 5 social workers, and 3 psychologists. We used a structured protocol to guide all our interviews and participants also completed a brief survey on current practices in IPV detection and management. We used systematic qualitative analysis techniques to identify the range and consistency of beliefs and practices across different hospitals and types of healthcare professionals.
RESULTS: Of the 27 healthcare personnel, 12 were physicians, 7 nurses, 5 social workers, and 3 psychologists. Eighteen of the 27 (67%) providers reported taking care of patients who were victims of IPV. Seventeen (63%) screened patients for IPV only when they had suspicion, and 7 (26%) always screened their patients for IPV. Nineteen (70%) providers stated that their clinic had a protocol for management of IPV victims. In the interviews, most respondents reported only asking about IPV when they suspected it or if the patient came in with a physical injury. Most providers noted that physicians had the responsibility to screen for and detect IPV among their patients. Barriers to screening included lack of training, lack of time, providers' focus on physical health, patient unwillingness to disclose abuse, and the lack of effective interventions and personnel to manage the abuse once detected.
CONCLUSION: Colombian healthcare providers stated many barriers to screening for IPV that are similar to those reported outside of Colombia, reinforcing the notion that healthcare providers globally face very similar barriers in addressing IPV. Improving the care for IPV victims within the Colombian healthcare system will involve addressing the barriers to detection through provider-based and system-based solutions. Future studies will need to clarify how specific hospital policies and training of personnel affect identification of IPV victims.

PROVIDER PERCEIVED CHALLENGES AND BARRIERS TO CHRONIC PAIN MANAGEMENT IN THE PRIMARY CARE SETTING A.L. Parpart[1]; M.S. Matthias[2]; K.A. Nyland[3]; M.A. Huffman[4]; C. Sargent[3]; D.L. Stubbs[5]; M.J. Bair[3]. [1]Roudebush VA Medical Center, Indianapolis, IN; [2]Butler University, Indianapolis, IN; [3]Roudebush VA Center of Excellence on Implementing Evidence Based Practice, Indianapolis, IN; [4]Regenstrief Institute, Indianapolis, IN; [5]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 205904)*

BACKGROUND: Over 1/3 of adults live with chronic daily pain. Despite minimal training in pain management, primary care providers (PCPs) are often left to manage this patient population. A previous study found that three-quarters of PCPs find chronic pain management frustrating. Our objective was to further explore provider frustrations with pain management by identifying provider perceived challenges and barriers to effective pain management in the primary care setting.
METHODS: We conducted 20 semi-structured interviews of PCPs at a single VA Medical Center. Providers were asked to comment on their experiences and difficulties with pain management in the primary care setting. Additional questions related to the care of specific patients selected among those whose treatment for severe pain (score 7 or greater) had not been initiated or changed at their previous clinic visit (identified by electronic chart review). All interviews of providers were audio taped and transcribed to facilitate data collection and analysis. Qualitative data was grouped into major themes followed by formal analysis and coding using constant comparison methodology by five researchers. Discrepancies were resolved by consensus.
RESULTS: Providers (N=20) ranged in age from 33 to 54 years. Ten were female, ten were male. Length of time in practice varied from less than 5 years to more than 20. Four participants were nurse practitioners, one was a Doctor of Pharmacy, and the remainder were physicians. Identified challenges and barriers to pain management were numerous and included: 1) psychiatric co-morbidities such as depression and anxiety; 2) lack of objective findings on physical exam or radiographic tests; 3) the subjectivity of the 0–10 pain scale commonly used in the clinical setting; 4) opioid treatment and monitoring and concerns of misuse and addiction; 5) trust issues in the patient-provider relationship; 6) conflict issues in the patient-provider relationship related to treatment options and patient non-compliance; 7) disparate priorities and different "agendas" between providers and patients; 8) lack of access to specialty care; 9) lack of communication between pain specialists and PCPs 10) lack of time to address the complexity of pain; 11) lack of system support and education for patients and providers.
CONCLUSION: We identified numerous challenges and barriers to managing chronic pain in the primary care setting leading to frustration among PCPs. Further research is needed to find the most effective way to overcome these challenges and barriers in order to improve provider satisfaction and optimize outcomes for patients living with chronic pain.

PROVIDER PERCEPTIONS: BREAST CANCER RISK AND SCREENING K.E. Kingzett[1]; J. Terry[1]; H. Ballon-Hennings[1]; W. Yoo[1]; N.M. Afonso[1]. [1]Wayne State University, Detroit, MI. *(Tracking ID # 203771)*

BACKGROUND: A majority of women rely on their primary care physicians for information about breast cancer. However, it is unclear what knowledge deficits exist among physicians. Primary care providers need the ability to assess breast cancer risk and be able to discuss screening and risk reduction. The present study aims to provide data on trainee physicians' knowledge of breast cancer risk and screening and risk reduction.
METHODS: Residents in Internal Medicine (IM) and obstetrics and gynecology (OB/GYN) completed questionnaires about breast cancer risk and screening. Collected data was analyzed for knowledge deficits about risk stratification and screening modalities.

RESULTS: Knowledge deficits regarding risk factors were identified in several areas, most notably in role of mammographic density, history of other cancers, and radiation therapy (respectively only 26%, 32%, and 58% of the residents were aware of these as risk factors). Although 84% of residents were aware that women could modify their risk, only 71% were familiar with the role of chemoprevention. Additionally, only 10% felt comfortable discussing chemoprevention with their high risk patients. In the area of risk stratification 40% of IM residents were aware of the availability of risk prediction models as compared to 70% of OB residents. Residents were also unfamiliar with screening protocols in high-risk patients.
CONCLUSION: This study identifies knowledge deficits about breast cancer risk in primary care residents, as well as a significant deficit in understanding the management of high-risk patients. With awareness of the above factors, we hope to identify future educational measures aimed at improving awareness of breast cancer risk and screening in primary care residency programs.

PROVIDERS' PERSPECTIVES ON URINE DRUG TESTING AND OPIOID "CONTRACTS" (AGREEMENTS) TO MONITOR PATIENTS TREATED WITH OPIOIDS FOR CHRONIC PAIN M.S. Matthias[1]; K.A. Nyland[2]; M.A. Huffman[3]; C. Sargent[2]; A. Parpart[4]; D.L. Stubbs[5]; M.J. Bair[2]. [1]Butler University, Indianapolis, IN; [2]Roudebush VA Center of Excellence on Implementing Evidence Based Practice, Indianapolis, IN; [3]Regenstrief Institute, Indianapolis, IN; [4]Roudebush VA Medical Center, Indianapolis, IN; [5]Indiana University School of Medicine, Indianapolis, IN. *(Tracking ID # 205415)*

BACKGROUND: Over half of Americans suffer from chronic pain, and most patients with chronic pain are managed in the primary care setting. Primary care providers face numerous obstacles in pain management, including a lack of training, lack of consensus regarding optimal treatments, and controversies surrounding opioid prescribing, including the use of urine drug screens and opioid agreements. Of particular concern with screening and agreements is the potential impact on the provider-patient relationship—especially given the strong link in the literature between this relationship and patient adherence and outcomes. Therefore we sought to identify provider perceptions of the impact of screening and agreements on the provider-patient relationship.
METHODS: We conducted 20 semi-structured interviews with primary care providers from 5 general medicine clinics at the Roudebush VA Medical Center in Indianapolis, IN. Interview questions focused on perceived barriers to provision of effective chronic pain treatment in primary care. Interviews were audio-taped and transcribed. Through an iterative process, investigators identified themes which emerged from provider narratives of their experiences in pain management. Five researchers independently coded transcripts using constant comparison methodology. Discrepancies were resolved by consensus.
RESULTS: Providers (N=20) ranged in age from 33 to 54 years. Ten were female; 10 were male. Length of time in practice varied from less than 5 years to more than 20. Four participants were nurse practitioners; one was a doctor of pharmacy; the remainder were physicians. Providers voiced conflicting views of the utility of opioid agreements. One provider asserted, "I have everyone sign a narcotics contract." Other providers feared that such agreements undermine trust between patients and providers, with one provider noting that only about 10% of her patients with chronic pain have signed an agreement. Time constraints were also cited as a reason for not utilizing opioid agreements more frequently: "Do I have all my patients on it? No Should I? Probably But it's a time constraint issue." Still others expressed ambivalence regarding agreements. One provider said that agreements make it difficult for patients to obtain pain medicine from the ER if necessary, but at the same time noted that they provide "leverage on someone you think is abusing." Trust was a greater concern with regard to urine drug screening. One provider said, "It is like I'm telling the patient right from the start that I don't trust them." Others indicated that they use drug testing judiciously, only when they have reason to suspect misuse of opioids: "I only use that when I've got what I would perceive as a problem patient."
CONCLUSION: The use of opioids to treat patients with chronic pain is a challenging issue for primary care providers. Agreements and urine drug screens are commonly recommended tools to monitor safe and effective opioid use, but are not without their drawbacks. According to these provider interviews, such methods may undermine trust in the provider-patient relationship. However, some providers view these tools as useful and necessary, at least with selected patients. More research is needed to evaluate the benefits and harms of these tools.

PSA UTILIZATION, BIOCHEMICAL RECURRENCE RATES, AND SURVIVAL AFTER INITIAL DEFINITIVE TREATMENT FOR PROSTATE CANCER: DESCRIPTIVE RESULTS FROM A POPULATION-BASED COHORT. J. Tilburt[1]; M. Kohli[1]; S. Bagniewski[1]; Q. Shi[1]; B. Morlan[1]; N. Shah[1]. [1]Mayo Clinic, Rochester, MN. *(Tracking ID # 205921)*

BACKGROUND: Prostate cancer is a disease marked by uncertainty in screening, treatment, and post-treatment monitoring. How prostate-specific antigen testing (PSA) is utilized after primary treatment for non-metastatic prostate cancer may influence detection of and response to biochemical recurrence and ultimately cancer specific mortality. However, little is known about the basic utilization of this testing in population-based samples. This study describes basic patterns of post-treatment PSA testing and rates of biochemical recurrence and overall survival across treatment types in a population-based sample.
METHODS: A retrospective cohort design was used based on the Mayo Clinic cancer registry that captures all the cancer care in Olmsted Co., MN. We identified all men in Olmsted Co., MN who were diagnosed with non-metastatic prostate cancer as their first cancer from 1995 to 2006. We analyzed all PSA test utilization in the county; among those receiving definitive therapy we focused on the time between definitive therapy and biochemical recurrence or last followup. RP patients were determined to have recurred if their undetectable PSA rose to >0.2 ng/ml (as defined by the American Urological Association). Recurrence from radiation (RT) was defined as a PSA at or above 2 ng/ml above the post treatment nadir (as defined by the American Society of Therapeutic Radiation Oncology). For comparison patients who did not have any treatment, so called "watchful waiting" (WW), were studied from their date of diagnosis until death. We described the population characteristics and used use Kruskall-Wallis p-values to compare treatment groups for continuous data, and Kaplan-Meier estimates for survival data.
RESULTS: We identified 873 cases of non-metastatic prostate cancer diagnosed between 1995 and 2006. 458 received RP, 221 received RT, 194 watchful waiting. There was a median of 6.5 years of follow up per patient. 11,813 PSA values were gathered for these 873 patients as defined above. Mean age at diagnosis was 66 years [73 for WW, 61 for RR, 71 for RT p<.0001]. Median baseline PSA was 5.3 [ww 6.2, RP 5, RT 5.5 p=.006]. Overall, the median number of PSAs per patient per year of follow-up was 1.2 which were more frequent in the RT group. WW 1.1 PSAs/year, RP 1.1/year, RT 1.6 per year; p<.0001]. There were 118 biochemical recurrences during the 4176 patient years of follow up in the RT and RP groups, as well as 151 deaths (all cause) during the 5,675 patient years of follow-up for the group as a whole. Three year unadjusted survival rates were 93.2%, 98.3%, and 89% for WW, RP, and RT respectively. Five year unadjusted survival was 83%, 97%, and 82%, for WW, RP, and RT respectively. Recurrence rates at 3 years was 13.9 and 3.7 RP and RT groups respectively; at 5 year was 18.9% and 8.6%.
CONCLUSION: There are significant differences in PSA testing frequency, biochemical recurrence rates, and unadjusted outcomes across different treatment types. The exact relationship between PSA utilization, biochemical recurrence rates, and survival remains unclear. Further research should explore the potential independent impact (if any) of testing frequency on biochemical recurrence rates within treatment categories and whether early detection of biochemical recurrence impacts disease-free survival or all-cause mortality.

PSYCHOSTIMULANTS INVOLVED IN DEATH OF FORMER INMATES S.L. Calcaterra[1]; I. Binswanger[2]. [1]University of Colorado at Denver, Denver, CO; [2]University of Colorado Denver, Aurora, CO. *(Tracking ID # 205889)*

BACKGROUND: Methamphetamine use is on the rise across the United States. Data are lacking describing its use and relationship to death. The WHO International Classification of Disease 10th edition (ICD-10) uses the broad code of T43.6 to describe the condition of "poisoning by

psychostimulants with abuse potential, excluding cocaine." Methamphetamines, amphetamines, methylphenidates, ephedrine and other psychostimulants are included in this broad category. This study aimed to describe the causes of death associated with methamphetamine abuse among former inmates, characteristics associated with methamphetamine-related death, and conditions upon their death.

METHODS: A database including inmates released from the Washington State Department of Corrections from July 1999 through December 2003 described mortality rates and causes of death among former prisoners. Prison records were linked to the National Death Index. ICD-10 codes from the multiple cause of death files from the National Death Index were used to identify former inmates who died with the ICD-10 code, T43.6, or "poisoning by psychostimulants with abuse potential" among their causes of death. Analysis was conducted using Stata 10.1.

RESULTS: Among 30,237 inmates released from the Department of Corrections, 443 died during a mean follow-up period of 1.9 years. Of those 443, 25 (6%) former inmates had the ICD-10 code T43.6 listed as a condition contributing to death on their death certificate. 22 of the 25 (88%) were listed as white, 2 (8%) were African American. Less than three were Hispanic white or American Indian. 21 (84%) were male and 4 (16%) were female. The mean age of release was 35.5 years old. 36% were between the ages of 25–34 years old and 36% were between the ages of 35–44 years old. 6 (24%) of the 25 had been incarcerated two or more times. 19 of the 25 (76%) had the underlying cause of death listed as "accidental poisoning by and exposure to drugs and other biological substances." An additional 3 of the 25 listed primary cause of death by "poisoning and exposure to drugs and biological substances of undetermined intent" as the underlying cause of death. 5 (20%) of the 25 had both cocaine and psychostimulants listed as conditions of death. 13 (52%) listed three or more drug types among the contributors of death. 12 (48%) had mental behavioral disorder due to the use of multiple drugs or alcohol listed as a condition of death. Associated causes of death included anoxic brain injury, intracerebral hemorrhage, subarachnoid hemorrhage and stroke.

CONCLUSION: Methamphetamines were involved in a substantial number of deaths after release from prison, and over half of deaths involved other substances. Most of the deaths occurred in white males between 25 and 45 years old. Methamphetamine abuse and related deaths are rising, but little is known about the mechanism of death from psychostimulants and how to prevent death. In order to better understand methamphetamine-related morbidity and mortality, a specific ICD code should be created for methamphetamine-associated deaths. Patients who use methamphetamines should be informed of the risk of death associated with its use, particularly during transitions from prison to the community, and in conjunction with the use of other substances.

QUALIFYING AS PATIENT-CENTERED MEDICAL HOMES: WILL PRACTICES SERVING SOCIOECONOMICALLY VULNERABLE POPULATIONS BE AT A DISADVANTAGE? M.W. Friedberg[1]; D.G. Safran[2]; K.L. Coltin[3]; M. Dresser[4]; E.C. Schneider[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Tufts University, Boston, MA; [3]Harvard Pilgrim Health Care, Waltham, MA; [4]Massachusetts Health Quality Partners, Watertown, MA. *(Tracking ID # 204970)*

BACKGROUND: Patient-Centered Medical Home (PCMH) proposals call for increased payments to primary care practices with specified structural capabilities (e.g., reminder systems, case management). Reducing socioeconomic disparities in health care is a goal of the PCMH, but making the investments necessary to qualify for PCMH-based payments may be particularly challenging for practices serving disproportionate shares of socioeconomically vulnerable patients. In this study, we evaluated the relationship between the structural capabilities and the socioeconomic case-mixes of Massachusetts primary care practices.

METHODS: We developed a written survey to assess primary care practices' use of 13 structural capabilities common to PCMH proposals. Between May and October 2007, we administered the survey to 1 randomly selected physician from each of the 412 primary care practices in Massachusetts with ≥2 physicians, obtaining 310 (75%) responses. Using geocoded U.S. Census data corresponding to patient home addresses, we estimated the socioeconomic profile of each practice's patients, including prevalence of unemployment, receipt of public assistance, income <200% federal poverty line (FPL), and education < high school. Prevalence of these 4 variables was highly correlated (Cronbach's alpha 0.8), and we created a composite score for each practice using the standardized mean of the estimated prevalences. Practices with composite scores in the highest 20% were classified as "highly vulnerable." All other practices were defined as "less vulnerable." Logistic models were used to assess the relationships between practice socioeconomic vulnerability and prevalence of each structural capability. Multivariable models were also constructed, including the following potential confounders: practice size (number of physicians), affiliation with a large physician network, teaching status, multispecialty status, and geographic location (metropolitan Boston vs. other).

RESULTS: Responding and non-responding practices' patient socioeconomic profiles did not differ. Highly vulnerable practices were more likely than less vulnerable practices to have 4 or more physicians (63% vs. 38%, P<0.001) and less likely to be located in metropolitan Boston (38% vs. 67%, P<0.001). As expected, highly vulnerable practices had higher median patient unemployment (5% vs. 3%), receipt of public assistance (3% vs. 2%), income <200% FPL (23% vs. 14%), and education < high school (16% vs 10%). In unadjusted analyses, highly vulnerable practices were more likely to have 4 of the 13 investigated structural capabilities: on-site language interpreters (56% vs. 25%, P< 0.001), ≥1 clinician delivering care in a language other than English (78% vs. 51%, P<0.001), multi-functional electronic health records (EHRs; 40% vs. 31%, P=0.03), and awareness of patient experience ratings (73% vs 65%, P=0.03). There were no statistically significant associations between practices' socioeconomic case-mix and the remaining 9 structural capabilities (e.g., case management). After adjustment for confounders, only practice language capabilities remained significantly associated with socioeconomic vulnerability.

CONCLUSION: At present, Massachusetts practices serving disproportionate shares of socioeconomically vulnerable populations are more likely to have structural capabilities that could enable them to qualify as PCMHs. Our results suggest that such practices would not be at a disadvantage if payments were tied to PCMH designation.

Theme	Representative Quotation(s)
Open arms	"Dr. 'D' has gone well above and beyond what I had anticipated from a College advisor. From day one, he has been accessible, friendly, and helpful, displaying an incredible dedication to the students and a genuine interest in helping us form a community…"
Wonderful resource	"…if a student asks for help with a certain question or issue, she is very willing to provide suggestions or do what she can to help in other ways, i.e. put the student in touch with other resources or people …"
Promotes growth	"…he engaged me in discussions about what I wanted out of life… and challenged me to think critically about the choices I make now …. Mentoring me as a person who is training to be a doctor (rather than simply mentoring me to be a doctor) is perhaps the most unique and most valuable part of what Dr. 'B' does as an advisor. I would not be what I am today without his help."
Role model	"…Dr. 'I' is always ready to share his own experiences and hard-learned lessons in order to perhaps lighten the load of my own burdens." "The trick in medicine is to combine [clinical reasoning] while also expressing the utmost in empathy and compassion. I feel that she was a wonderful role model in combining the two."
Remote	"…my advisor is not on the list of people that I would contact if [a problem] did arise. This is because much of our interactions felt like me talking at him, him acknowledging what I had said, but not building upon it or offering useful advice."

QUALITATIVE ANALYSIS OF MEDICAL STUDENTS' ASSESSMENTS OF THE STRENGTHS AND WEAKNESSES OF THEIR ASSIGNED FACULTY ADVISORS S.L. Clever[1]; R. Shochet[1]; S. Wright[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205792)*

BACKGROUND: Advising is recognized as important for career development, but few data exist to explain what students believe are most important in a faculty advising relationship. In fall 2006, our institution started a Colleges Advisory Program. Faculty were selected based on their teaching ability and commitment to student well-being. Faculty were assigned to serve as advisors to five students from each class. We aimed to understand and characterize students' perceptions of their faculty-physician advisors' strengths and weaknesses.

METHODS: In December 2007, all 480 medical students at JHUSOM were sent an electronic questionnaire asking them to rate their advisors'

various characteristics. At the end of the questionnaire, we asked: "What are the strengths of your advisor and the ways that you have benefited from your interactions with her/him?", "What are the weaknesses of your advisor and the ways in which she/he was unable to fulfill your needs?" The students' answers were transcribed and independently coded by two investigators and compared for agreement. Content analysis identified several major themes.

RESULTS: 411 students (85%) completed the questionnaire. 48% were women, 49% were Caucasian, and they were uniformly distributed across the 4 years of the medical school classes. Four themes emerged as advisors' strengths, "open arms", "wonderful resource", "promotes growth" and "role model". The most frequently identified weakness was "none". Weaknesses were grouped into one theme, "remote".

CONCLUSION: Students' descriptions of their advisors' strengths suggest that students not only seek guidance but also look for warmth, encouragement, and role models. The data remind us that successful advisors can both enhance the students' own development and contribute significantly to the sense of community at the medical school. The results may be helpful in selecting and evaluating faculty advisors.

QUALITY AND A STUDENT RUN FREE CLINIC IN AN URBAN, PREDOMINANTLY IMMIGRANT COHORT A. Montero[1]; J. Griffin[2]; G. Fung Chaw[3]; M. Kelly[3]; A. Koppel[4]. [1]Society of General Internal Medicine, New York, NY; [2]Columbia University College of Physicians and Surgeons, New York, NY; [3]Columbia University Medical Center, New York, NY; [4]None, New York, NY. *(Tracking ID # 206117)*

BACKGROUND: Although free medical student run clinics (SRCs) have become increasingly common at medical schools in the U.S, they remain largely unstudied. Limited data indicate that patients receiving care at SRCs are disproportionately poor, uninsured and of minority race/ethnicity. SRCs have the potential to provide health benefits to at risk, underserved patients while furnishing a unique educational opportunity for students. Small studies indicate that educational outcomes are positive. However, the quality of care for preventive services and chronic disease management at student-run free clinics has not been systematically studied, and some educators have raised concerns that resource constraints and student inexperience may adversely affect the quality of care offered to patients in these settings. The Columbia Student Medical Outreach (CoSMO) opened in March 2004 as a medical student-run, free primary care clinic for community patients in Northern Manhattan. As of March of 2007, the clinic had served close to 350 community patients. The aim of this study was to assess the receipt of the routine preventive services and accepted quality metrics (process and outcome) for diabetes management for all eligible CoSMO patients.

METHODS: The study was retrospective, and cross sectional in design. All patient with at least one visit to the CoSMO clinic from March 2004 to March 2007 were eligible for inclusion (n=347). All data was obtained via a query of our clinical information system's data warehouse or manual chart review. All patient data from visits occurring up to three years after the index visit to CoSMO was eligible for review, but only data accruing in "active" follow up at CoSMO was included. All patient visits without an associated electronic note were excluded from review (n=47). The final sample consisted of the 300 patients making a total of 711 visits during the follow up period. For patients 50–75 years of age and eligible for colon cancer screening at baseline (n=93) our primary outcome variable was receipt of any colorectal cancer screening in follow up. For patients with DM (n=45) our primary outcome variables were receipt of HgA1c tests and mean HgA1c during follow up. The impact of duration of follow up on the primary outcomes was analyzed in bivariate analysis.

RESULTS: Only 54% of patients followed for less than three months received some type of CRC screening. However, this improved to 88% for patients following up for at least one year. For patients with DM making at least one visit, 92% received at least one HgA1c test. The mean HgA1c drawn in follow up was significantly lower than the mean HgA1c at baseline (p=.03).

CONCLUSION: CONCLUSIONS: In our sample of urban, predominantly Hispanic immigrant patients attending a SRC, higher quality of care for preventive services and diabetic management was associated with longer patient follow up. SRCs should focus their quality improvement efforts at keeping patient engaged in follow up.

Baseline Characteristics

Age (mean)	44.3
Female (%)	64
Hispanic (%)	91
Foreign Born (%)	60.5
DM (%)	14
HTN (%)	35

Results

	At Least 1 Visit	3 Months	12 Months
Receipt of FOBT (%)	53	75	88
Receipt of at Least 1 HgA1c	45/49	33/33	16/16
Receipt of at Least 2 HgA1c	28/49	24/33	16/16
Mean HgA1c	9.78 (baseline)	8.67 (in follow up)	

QUALITY IMPROVEMENT IN A RESIDENT PRACTICE - WHO ARE THE LEARNERS? H. Kathleen[1]; S.L. Brandenburg[1]; K. Chacko[2]. [1]University of Colorado Denver, Aurora, CO; [2]Society of General Internal Medicine, Aurora, CO. *(Tracking ID # 205694)*

BACKGROUND: The ACGME mandates that Internal Medicine Residents participate in an ongoing quality improvement (QI) project as part of their training program. Outpatient continuity clinic sites lend themselves naturally to these projects given the longitudinal experience. Very little is known about the ability of either faculty or residents to successfully choose QI projects. The best QI projects combine both high yield and low effort, the latter being largely dependent on the clinic microsystem (CM). We assessed the knowledge of CM, the ability to identify high yield/low effort projects, and perceived skills and attitudes towards QI in a combined resident/faculty academic practice.

METHODS: Utilizing one of the ABIM Practice Improvement Modules as a platform for the project, residents and faculty completed two surveys and a QI project assessment. The first survey assessed knowledge of the CM. Two experts for the clinic were identified, completed the CM survey, and agreed upon the correct answer key. A second Likert-based survey on skills and attitudes was administered prior to the QI project assessment. Residents and faculty categorized QI projects based on yield and effort. Yield was specifically defined as projects that improve patient outcomes based on available literature and was set by the principal investigators based on current literature. Effort was determined by the clinic experts. Comparison of CM knowledge was made between residents, faculty, and the two clinic experts. Analysis of QI project yield/effort classification between groups was also performed. Associations between skills and attitudes responses and the ability classify QI projects accurately were analyzed using Pearson's correlates.

RESULTS: The CM survey was broken into sections. Faculty performed significantly better than the residents in two of the sections: patient activation (p=0.001), access and communication (p=0.016). There was no section in which the residents outperformed the faculty. There were no statistical differences between groups in their ability to correctly classify QI projects according to yield and effort. Across groups; 12.2% failed to correctly classify either of the two identified high yield/low effort projects, 57.1% correctly classified one of the projects, and 30.6% were able to correctly classify both projects. Residents who felt QI was important to training and that it improved patient care made less yield errors (p=0.022). Overall, faculty had a more favorable attitude towards QI than residents (p=0.012). Faculty also indicated greater familiarity with and ability to participate in QI projects than residents (p=0.001 for both). Both residents and faculty agreed that QI is important.

CONCLUSION: Our study indicates that while faculty are interested in QI and feel prepared to participate in QI projects, they are no better than residents at identifying appropriate projects. Faculty have a more in-depth knowledge of the CM than residents, but QI projects are not necessarily best determined by a single group. Given the importance of QI projects, ensuring that an appropriate project is chosen with input from all interested stakeholders at the outset deserves emphasis. While

all participants agreed that QI is important, teaching QI is a relatively new discipline and understanding that both residents and faculty are learners in this realm is an important consideration when designing curriculum and planing QI projects.

QUALITY IMPROVEMENT METHODS USED TO PROMOTE ADHERENCE TO GUIDELINES FOR SMOKING CESSATION TREATMENT M.F. Farmer[1]; E.M. Yano[1]; S. Sherman[2]; M.N. Mitchell[1]; D.D. Riopelle[3]. [1]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA; [2]NYU School of Medicine, New York, NY; [3]VA Greater Los Angeles HSR&D Center of Excellence, Los Angeles, CA. *(Tracking ID # 205823)*

BACKGROUND: Smoking cessation (SC) treatment rates are lower than almost all other rates of preventive care delivery in the VA. We examined the quality improvement (QI) methods which are used across the VA nationally to promote adherence to SC treatment guidelines and how these methods impacted the delivery of guideline adherent SC treatment in 2007.
METHODS: We used the 2007 Clinical Practice Organizational Survey (CPOS) Primary Care Directors Module (sites=222) to assess QI methods for promoting SC treatment guideline adherence (e.g. group/telephone counseling, pharmacotherapy). We merged CPOS data with the 2007 Survey of Healthcare Experiences of Patients (smokers= 14,838) and examined three patient-level measures: at least once in past 12 months were (1) advised to quit smoking, (2) medications recommended or discussed, and (3) other quit methods/strategies recommended or discussed. Bi-variate analyses and logistic regression were at the patient level adjusting for probability of being sampled.
RESULTS: Eighty-three percent of smokers were advised to quit, 62% had medications recommended and 60% had another quit method recommended. Almost all sites (99%) reported using at least one method to promote adherence to SC guidelines. Computerized reminders were used most often (88%), followed by performance profiling/feedback (44%), provider education (44%), specialized CPRS templates (42%), use of local clinical champions (28%), incentives (13%) and delegated RN for management (9%). Only 17% of sites utilized 5 or more of these strategies. In regression models, having a local clinical champion increased odds of medication recommendation (OR:1.11;CI:.79-.99). However, provider education decreased the odds of being advised (OR:.71;CI:1.04–1.35), and incentives decreased the odds of medication (OR:.83;1.01–1.35) and other quit methods (OR:.82;1.02–1.36).
CONCLUSION: Facilities use a variety of methods to promote guideline adherence for SC, but most methods were not significantly linked with higher SC treatment performance. In fact, provider education and incentives actually decreased the odds of treatment. Impact statements: Traditional quality improvement methods to improve adherence to guidelines are not working for SC treatment. Insofar as SC treatment may require coordination between primary care and SC clinics, new QI strategies that promote collaborative models may be needed for system-wide improvement in SC treatment rates.

QUALITY OF CARE AND OUTCOMES FOR HEART FAILURE AMONG DISABLED MEDICAID RECIPIENTS WITH AND WITHOUT SEVERE MENTAL ILLNESS S. Blecker[1]; Y. Zhang[2]; E. Guallar[3]; S. Dos Reis[3]; D. Ford[3]; D.M. Steinwachs[3]; L. Dixon[4]; G.L. Daumit[3]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]Johns Hopkins School of Public Health, Baltimore, MD; [3]Johns Hopkins University, Baltimore, MD; [4]University of Maryland School of Medicine, Baltimore, MD. *(Tracking ID # 204387)*

BACKGROUND: Persons with severe mental illnesses (SMI) such as schizophrenia, bipolar disorder and severe depression have substantially higher mortality rates than the general population, in large part due to cardiovascular diseases. However, little is known about quality of care for heart failure (HF) in persons with SMI. The objective of this study was to assess whether persons with SMI and HF have poorer quality of care and clinical outcomes compared to persons without SMI.
METHODS: We performed a retrospective cohort study of disabled adult Maryland Medicaid recipients from 2001 through 2004 using Medicaid data linked to the National Death Index. Cohort members were continuously enrolled in Medicaid for at least 2 years, lived in the Baltimore area or the rural Eastern Shore, met criteria for either severe mental illness or a medical disability, and had a primary inpatient or two primary outpatient ICD-9 diagnoses of HF within a year. We assessed the following quality of care outcomes occurring at any point during the study: 1) use of angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB); 2) use of beta-blockers; and 3) assessment of left ventricular function with echocardiography. Clinical outcomes included number of total and HF hospitalizations in the study, cardiovascular readmission rate following the first HF hospitalization within a given year, and mortality. We performed multivariate logistic regressions to model quality of care and mortality, zero-inflated negative binomial regressions to model number of hospitalizations, and generalized estimating equations (GEE) to model cardiovascular readmission.
RESULTS: The cohort consisted of 1,820 adults with HF, 344 with SMI and 1,476 without SMI. Persons with SMI were younger (mean age 57 vs. 59 years), more likely to be White (44% vs. 27%), and had higher prevalence of diabetes (66% vs. 59%) and drug or alcohol abuse (25% vs. 15%). Within the SMI cohort, 32% of individuals had schizophrenia and 21% had bipolar disorder diagnoses. In unadjusted analysis, persons with SMI were less likely to have used an ACE inhibitor or ARB compared to those without SMI (47.2% vs. 53.1%; OR=0.79 (95% CI, 0.62–1.00)), although this difference did not persist in analyses adjusted for demographics and comorbidity (aOR=1.04 (95% CI, 0.79–1.36)). There was no difference between groups for beta-blocker therapy (43.7% for SMI vs. 45.8% for non-SMI; aOR=1.18 (95% CI, 0.90 -1.54)) or echocardiography (80.5% vs. 81.4%, respectively; aOR=0.91 (95% CI, 0.66 -1.26)). Persons with SMI had similar numbers of medical hospitalizations (mean 4.5 vs. 3.8; aRR=1.06 (95% CI, 0.95–1.19)), numbers of HF hospitalizations (mean 0.83 vs. 0.75; aRR=1.02 (95% CI, 0.82 -1.26)) and rates of readmissions (9.8% vs. 7.6%; aOR=0.85 (95% CI, 0.44–1.65)) during the study period. Mortality between persons with and without SMI was not significantly different (29.9% vs 31.7%; aOR=0.89; 95% CI, 0.68 -1.17).
CONCLUSION: In this sample of disabled Medicaid recipients with heart failure, persons with severe mental illness had similar quality of care and clinical outcomes as those medically disabled without severe mental illness. Both groups had low rates of evidence-based medical treatment for heart failure and high mortality. Quality improvement programs should consider how best to target these vulnerable populations.

QUALITY OF END OF LIFE CARE IN THE HOSPITAL A.M. Walling[1]; C.P. Roth[2]; T. Barry[1]; S.M. Asch[3]; K. Lorenz[3]; N.S. Wenger[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]RAND Health, Santa Monica, CA; [3]VA GLAHS, Los Angeles, CA. *(Tracking ID # 205213)*

BACKGROUND: Prior studies suggest that patients dying in the hospital often suffer severe pain and other symptoms in their last days of life and that advance care planning is inadequate. However, systematic measurement of the quality of palliation, symptom management, and aggressiveness of care planning had not been done.
METHODS: We operationalized the 12 Assessing Care of Vulnerable Elders quality indicators applicable to persons dying in the hospital. Medical records were obtained for a random one-fifth sample of all adults who died after at least 3 days of hospitalization at one medical center between April 2005 and April 2006. Trained nurses abstracted paper and electronic records from the terminal hospitalization.
RESULTS: Of 96 patients (mean age 63,57% female, 90% white, 59% married), 61% of patients were admitted to the hospital with end stage disease at baseline or were age 70 or older: 14% had advanced cancer, 10% end stage pulmonary disease, 4% end stage CHF, 17% ESLD, 15% ESRD and 1% end stage dementia. One quarter of the patients were being considered for transplant during the hospitalization and half of those were removed from consideration prior to death. One-fifth of patients had an advance directive and 82% had medical record documentation suggesting that they died an "expected death." Only 16% of patients died while receiving CPR. Four fifths of patients spent time in the ICU with a mean ICU length of stay of 20 days. The 96 patients triggered 592 quality indicators of which 392 were passed (66%, range 22%-100%). Pain assessment, surrogate specification and respecting resuscitation decisions were performed with fidelity, however many aspects of recommended end of life care were inconsistently provided. For example, 93% of conscious dying patients had a

documented pain assessment on their final day and 78% of patients had a surrogate identified in the medical record. However, timely intervention and follow-up for moderate to severe pain was provided only 73% of the time and only half of opiate-treated patients received a bowel regimen. When life-sustaining treatment decisions were made for patients, documentation supported patient involvement or an explanation why not only about 2/3 of the time and clinicians documented a timely attempt to address goals of care for patients admitted to the ICU or mechanically ventilated about half of the time. Sixty one percent of conscious patients with dyspnea had appropriate intervention and follow-up at the end of life and only one fourth of patients extubated anticipating that they would die had documented dyspnea assessments.

CONCLUSION: Patients dying at the studied hospital received intensive treatments during the terminal hospitalization, but detailed analysis of care identified clinically important deficiencies in palliative and advance care planning care processes, particularly in regard to dyspnea management, constipation prevention, withdrawal of life sustaining therapies, and physician-patient communication. A practical, chart-based assessment can identify care practices that can be targeted to improve care for patients dying in the hospital.

QUANTIFYING ORAL NUMERACY IN PATIENT-PHYSICIAN ENCOUNTERS AMONG PATIENTS WITH DIABETES K. Smith[1]; R.L. Rothman[1]; C.Y. Osborn[1]; S. Kripalani[1]; K.A. Wallston[1]; T.A. Elasy[1]; K. Cavanaugh[1]. [1]Vanderbilt University, Nashville, TN. *(Tracking ID # 205784)*

BACKGROUND: Among patients with diabetes, limited literacy and numeracy skills have been associated with lower diabetes knowledge, worse glycemic control, and dissatisfaction with physician communication. Little is known about oral communication of quantitative information between patients and physicians.

METHODS: Fifty routine visits between resident physicians and patients with diabetes were audio-recorded. Patients completed validated measures of health literacy, confidence with provider communication, diabetes numeracy, diabetes self-care self-efficacy and behaviors. All patient and provider statements were examined. Quantitative statements containing simple concepts requiring no manipulation were coded as basic; those requiring manipulation were coded as intermediate; and those requiring interpretation or higher-level manipulation were coded as advanced. These codes were scored and averaged to create an oral numeracy content score (ONCS)[range 1–5] calculated separately for patients and providers.

RESULTS: Patients were mean(SD) age 56(10.7) years old, 56% were female, 46% were black, 22% had low health literacy, 94% had Type 2 diabetes, 43% used insulin, and the mean A1C was 8.0(2.2)%. Patients averaged 48(38) quantitative statements per visit while providers made 54(29). Patients' numeracy statements were categorized as 77(9)% basic, 15(8)% intermediate, and 8(6)% advanced. Physicians' statements were 67(11)% basic, 14(9)% intermediate and 19(10)% advanced. This pattern was similar for diabetes-specific statements. Basic statements often related to time(48%) or values, such as weight(27%); intermediate statements often related to frequencies, such as drug dosing(56%); and advanced statements often involved interpreting laboratory values and goal setting(75%). Patient ONCS was associated with diabetes-specific numeracy skills(rho(r)=0.33, p=0.02), longer clinic visits(r=0.28,p<0.01), with more quantitative statements(r=0.28,p<0.01), and also with diabetes self-efficacy(r=0.28,p=0.05), adherence to diet recommendations(r=0.27,p=0.06), and also BMI(r=-0.26,p=0.07). Across clinic visits, on average, physicians spoke at an ONCS 0.42 higher than their patients(95% CI -0.54 to -0.31;p<0.01). In visits where patient and physician ONCS scores were concordant (difference<0.4), the patient's ONCS was higher than the average patient score (1.71(0.28)) and the physician's was lower than average physician(1.84(0.29)). These patients had a longer history of diabetes, used insulin, or had higher tested diabetes numeracy. Concordant patients also reported higher self-efficacy of communication with their provider and better adherence to diet recommendations and glucose testing (Table 1).

CONCLUSION: To our knowledge, this study is the first to characterize oral numerical content of a patient-physician encounter. In general, patients and physicians speak at different levels of numerical complexity, with patients using fewer advanced quantitative statements. When physicians and patients speak at a similar level of numerical complexity, patients report improved self-efficacy to talk with their providers and also better diabetes self-care behaviors.

Table 1

	Concordant ONCS (n=27)	Discordant ONCS (n=23)	p-value
Self-efficacy w/Provider Com	47.4 (3.8)	43.9 (6.1)	0.02
Diet	5.3 (1.6)	4.0 (1.8)	0.01
Glucose monitoring	5.2 (2.1)	3.6 (2.7)	0.02

RACE AND UNINTENDED PREGNANCY AND THEIR RELATIONSHIP WITH TUBAL STERILIZATION S. Borrero[1]; L. Qin[1]; C. Moore[1]; E.B. Schwarz[2]; A. Akers[1]; M. Creinin[1]; S. Ibrahim[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of California, San Francisco, Pittsburgh, PA. *(Tracking ID # 205537)*

BACKGROUND: Racial/ethnic minorities in the U.S. are at particularly high risk of having an unintended pregnancy. Prior studies examining disparities in unintended pregnancy have not examined the effect of race/ethnicity after adjusting for socio-economic factors. Minority women are also more likely to use tubal sterilization as a contraceptive method compared to white women. The reasons for this difference remain unclear but may be related to prior experiences with unintended pregnancy. We used a nationally representative sample of women of reproductive age to examine: 1) the independent effect of race/ethnicity on unintended pregnancy; 2) the effect of unintended pregnancy on the relationship between race/ethnicity and tubal sterilization.

METHODS: This study utilized cross-sectional data collected by the 2002 National Survey of Family Growth (NSFG). The NSFG provides national estimates of factors affecting pregnancy and birth outcomes among women 15–44 years old in the U.S. Women who had ever been pregnant were asked to characterize each pregnancy as either "unwanted", occurring at the "right time", "overdue", "too soon", or that they "didn't care", or "didn't know." Women reporting pregnancies that were either "unwanted" or occurred "too soon" were considered to have a history of unintended pregnancy for this analysis. We first examined the relationship between self-reported race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black) and history of unintended pregnancy adjusting for insurance, age, income, education, parity, marital status, and religion. We then examined the role of unintended pregnancy as a cofounder for the relationship between race/ethnicity and tubal sterilization. SAS survey procedures were used for all analyses to account for the complex survey sampling design.

RESULTS: The sample consisted of 7,258 women: 69% white, 16% Hispanic, and 15% black. Overall, 40% of white women, 48% of Hispanic women, and 59% of black women reported a history of unintended pregnancy. After adjusting for socio-economic characteristics, we found that black women were more likely than white women to have had an unintended pregnancy (OR: 1.98; 95% CI: 1.68 – 2.34) while Hispanic women were just as likely as white women to report an unintended pregnancy (OR: 0.99; 95% CI: 0.82 – 1.20). Among women who had ever had an unintended pregnancy, 29% had a tubal sterilization compared to 7% of women who reported never having an unintended pregnancy. In unadjusted analysis, black and Hispanic women had statistically significant higher odds of undergoing sterilization (OR: 1.53; 95% CI: 1.24 – 1.89 and OR: 1.42; 95% CI: 1.11 – 1.82, respectively) as did women who had a history of unintended pregnancy (OR: 5.24; 95% CI: 4.39 – 6.26). When we adjusted for unintended pregnancy, the relationship between race/ethnicity and tubal sterilization was attenuated and no longer significant (OR: 1.16; 95% CI: 0.93 – 1.45 for black women and OR: 1.27; 95% CI: 0.97 – 1.67 for Hispanic women). Unintended pregnancy remained a significant predictor of tubal sterilization (OR: 5.15; 95% CI: 4.30 – 6.16).

CONCLUSION: Unintended pregnancy is significantly associated with tubal sterilization and may mediate the relationship between race/ethnicity and tubal sterilization. Minority women, who experience higher rates of unintended pregnancy than white women, may choose tubal sterilization in response to their experience with an unintended pregnancy.

RACE CONCORDANCE AND PATIENT DECISION-MAKING: A STUDY USING STANDARDIZED PHYSICIANS S. Saha[1]; P. Newman[2]; E. Morse[2]. [1]Portland VA Medical Center, Portland, OR; [2]Oregon Health & Science University, Portland, OR. *(Tracking ID # 206052)*

BACKGROUND: Patient-physician race concordance is associated with patients' ratings of physicians. It is unclear whether these effects are driven by differences in physician behavior or patients' perceptions of physicians of their own race, or whether concordance affects patient decision-making.
METHODS: We developed DVD vignettes in which actors playing physicians interact with a patient and discuss options for coronary heart disease (CHD) management. After discussing angiography results, the physician recommends coronary artery bypass graft (CABG) surgery. The physician in each vignette was one of eight actors: 2 African American men, 2 African American women, 2 white men, 2 white women. Scripts and acting were standardized across vignettes. We randomized patients at a community general medicine clinic who were >=40 and had CHD or CHD risk factors, each to one vignette. After viewing the video, patients were administered a survey. Our primary independent variable was race concordance between patient and physician/actor. Our main outcome variable was patients stated likelihood of undergoing bypass surgery if they were the patient in the video (4-point scale). Secondary outcomes were likelihood of getting a second opinion (4-point scale); ratings of physician behavior (5 items, alpha .92) and competence (4 items, alpha .84); trust (10 items, alpha .94) and comfort (3 items, alpha .94) with the physician; and overall rating of the physician (5-point scale). Associations were tested using t-tests and were stratified by patient race.
RESULTS: Of 335 eligible patients, 248 (74%) completed the study. We analyzed data for the 238 patients who were African American (45%) or white (55%). African American patients indicated a higher likelihood of undergoing CABG when the recommending physician was African American (Table). Race concordance was not associated with likelihood of undergoing CABG for white patients and was not associated with desire for a second opinion for either group. Concordance was strongly associated with ratings of physician behavior and competence, trust in and comfort with the physician, and overall physician ratings, for African Americans but not whites.
CONCLUSION: Race concordance was associated with patient decision-making and perceptions of physicians for African Americans, even when physician behavior was standardized. Physician race may influence care not only via physicians cultural competence but also through the effect of race on patients comfort level and unconscious perceptions of physicians.

Association of Race Concordance with Outcome Variables, by Patient Race

Patient Race:	African American (n=107)			White (n=131)		
MD Race:	Concordant	Discordant	p	Concordant	Discordant	p
Would have CABG (0-3)	2.43	2.09	.04	2.30	2.29	.92
Would get second opinion (0-3)	2.43	2.68	.12	2.14	2.11	.86
MD good behavior (0-4)	3.51	3.02	<.001	2.96	3.02	.72
MD competent (0-4)	3.34	2.76	<.001	2.89	2.90	.94
Trust in MD (0-4)	3.12	2.37	<.001	2.58	2.47	.47
Comfort with MD (0-4)	3.39	2.69	<.001	2.68	2.55	.49
Overall MD rating (0-4)	3.22	2.34	<.001	2.46	2.50	.70

RACE-ETHNIC DIFFERENCES IN CARDIOVASCULAR RISK FACTOR TREATMENT AND CONTROL AMONG PARTICIPANTS WITH DIABETES IN THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS (MESA) G.J. Winston[1]; O. Carrasquillo[1]; A. Bertoni[2]; R. Barr[1]; S.J. Shea[1]. [1]Columbia University, New York, NY; [2]Wake Forest University, Clemmons, NC. *(Tracking ID # 205449)*

BACKGROUND: African Americans and Hispanics with diabetes have been shown to have unfavorable cardiovascular risk factor profiles compared to Caucasians. Few studies have assessed changes in intermediary outcomes among race/ethnic groups over time. Available data indicate that stratifying race/ethnic groups by gender highlights gender-specific race/ethnic disparities in CV risk factor treatment and control. However, data have been limited to cross-sectional analyses of managed care and veteran patient populations. We, therefore, examined race/ethnic differences in cardiovascular risk factor treatment and control, both cross-sectionally and longitudinally (2000–2007), among persons with diabetes in the Multi-Ethnic Study of Atherosclerosis (MESA). We additionally stratified by gender to determine if there are gender-specific race/ethnic differences.
METHODS: MESA is a multi-center cohort study of 6,814 participants with no clinical evidence of cardiovascular disease at the time of enrollment in 2000–2002. We defined diabetes as a fasting plasma glucose ≥126 mg/dl, or use of oral hypoglycemic agents or insulin, or self-report of diabetes diagnosis. Data from four exams (2000–2007) were analyzed. Mean values of cardiovascular risk factors (LDL cholesterol, blood pressure, hemoglobin A1c) and the percentage of participants taking medication for risk factor treatment and achieving treatment goals were compared by race/ethnic group using a non-Hispanic white referent group. The non-Hispanic white female group was the referent for gender/ethnic group comparisons. Multivariable regression models were used to calculate predicted means of continuous variables. Categorical outcomes were evaluated using chi-square tests.
RESULTS: The sample included 926 persons with diabetes (19% non-Hispanic white, 12% Chinese American, 38% African American, 31% Hispanic). After adjustment for age, MESA site and gender, African Americans and Hispanics had significantly higher systolic blood pressure (SBP) compared to non-Hispanic whites at baseline exam (135.4 and 134.8 vs. 128.7 mmHg, $p < 0.01$), and SBP remained higher for African Americans through exam 4. Hemoglobin A1c was higher among African Americans and Hispanics compared to non-Hispanic whites (7.50 and 7.61 vs. 6.97%, $p<0.01$). After additional adjustment for income, education and insurance status the findings remained consistent. Despite the race/ethnic differences in CV risk factor control, an equivalent or greater percentage of African Americans and Hispanics were using anti-hypertensive and glucose control medications compared to non-Hispanic whites. Aspirin use, however, was significantly lower among African Americans and Hispanics compared to non-Hispanic whites (28% and 20% vs. 38%, $p<0.05$). African American and Hispanic women had higher mean levels of SBP compared to non-Hispanic white women (137.5 and 137.0 vs. 127.8 mmHg, $p<0.01$), and Hispanic women had lower prevalence of aspirin use (16% vs. 29%, $p< 0.05$). Men of each race/ethnic group had higher diastolic blood pressure compared to non-Hispanic white women, there were no significant differences in remaining CV risk factor levels or treatment.
CONCLUSION: In MESA, African American and Hispanic participants with diabetes had unfavorable cardiovascular risk factor profiles compared to non-Hispanic whites despite equivalent or greater use of medication for risk factor control. African American and Hispanic women had less favorable profiles than non-Hispanic white women.

RACIAL AND ETHNIC DISPARITIES IN PATIENTS' EXPERIENCES WITH HOSPITAL CARE O. Hasan[1]; S.R. Lipsitz[1]; L.S. Hicks[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204137)*

BACKGROUND: Although patients' experiences with hospital care has become a publicly reported quality measure, few national data are available on racial/ethnic differences in hospital experiences.
METHODS: To determine whether patients' experiences with hospital care differed by race/ethnicity, we analyzed survey data from 29,533 adults discharged from 174 acute care hospitals across 30 states participating in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Benchmarking Database during 2006. We limited our analysis to hospitals with response rates >40% and examined the association of patients' race/ethnicity with giving high ratings in multiple dimensions of hospital experiences using multivariable logistic regression to adjust for patients' sociodemographic characteristics and hospital characteristics. Robust standard errors were used to account for clustering by hospital. We present the adjusted proportion of patients within each racial/ethnic category giving high ratings, stratified by clinical service. P values<0.01 represent significant differences in ratings of experiences.
RESULTS: The mean response rate per hospital was 62.3% (median 51.0%). 80.5% of patients were white, 17.4% Hispanic, and 2.1% black. Across clinical services, a significantly lower proportion of whites reported high ratings in communication about medications, adequacy of discharge information, and overall rating of hospital compared with non-whites. Despite this, likelihood of recommending the hospital did not differ significantly by race/ethnicity (Table 1).
CONCLUSION: Our findings suggest that hospitalized minority patients are more easily satisfied than whites and may have lower expectations for care. Future research should assess whether these disparities indicate underlying variations in the quality of clinical care or reflect differences in expectations resulting in minority patients being more satisfied with the same or lower quality clinical care.

Table 1. Adjusted proportions of patients giving high experience ratings

	White (%)	Hispanic (%)	Black (%)	P value
Communication about medications:				
Medicine	60.4	63.6	68.6	0.005
Surgery	61.4	64.9	64.0	0.07
Obstetrics	66.7	72.9	74.6	0.33
Adequacy of discharge information:				
Medicine	62.1	67.2	67.5	<0.001
Surgery	71.8	77.9	73.1	<0.001
Obstetrics	71.6	69.5	75.1	0.05
Overall rating of hospital:				
Medicine	59.3	64.9	63.5	0.006
Surgery	62.8	68.6	67.4	<0.001
Obstetrics	64.3	75.2	78.5	<0.001
Recommend hospital (% yes):				
Medicine	93.8	95.7	95.8	0.03
Surgery	94.5	96.6	95.5	0.01
Obstetrics	97.7	98.7	96.2	0.03

RACIAL AND GENDER DIFFERENCES IN EMERGENCY ROOM TRIAGE ASSESSMENT AND TEST ORDERING FOR CHEST PAIN L. Lopez[1]; A. Wilper[2]; A.R. Green[3]; J. Betancourt[3]. [1]Harvard University, Boston, MA; [2]University of Washington, boise, ID; [3]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205962)*

BACKGROUND: Racial and ethnic disparities have been documented in the clinical care of myocardial infarction (MI). A patient's presenting symptoms and initial emergency department (ED) triage assignment likely affect the assessment and treatment of MI and could contribute to reported differences in care.
METHODS: Nationally representative ED data for all adult persons (>18 years) were obtained from the National Hospital Ambulatory Health Care Survey of Emergency Departments (NHAMCS-ED) for 1997–2006. Patient demographic characteristics, reason for the visit, triage category assignment, tests ordered, insurance status, final ED diagnosis, and hospital characteristics were analyzed. We used weighted logistic regression in SUDAAN to examine the multivariable-adjusted associations between race and presenting symptom, triage assignment, test ordering and final MI diagnosis. Survey year was included to assess changes in test ordering practices over time.
RESULTS: The total sample consisted of 235,117 visits. Of these, 21,629 presented with a complaint of chest pain, representing 78 million such visits nationally over the 10 year period. Compared to whites, Blacks (OR 0.93 [CI 0.88–0.95]) and Hispanics (OR 0.82 [CI 0.76 – 0.89]) are less likely to present with an initial complaint of chest pain. Men and older patients are more likely to present with an initial complaint of chest pain. Of those presenting with chest pain, Blacks (0.62 [CI 0.52–0.73]) and Hispanics (OR 0.69 [CI 0.53 – 0.90] are less likely to be categorized in emergent triage categories compared to whites. The uninsured and those with Medicaid were less likely to be categorized in emergent triage categories compared to those with private insurance. Of those presenting with a complaint of chest pain, Blacks (OR 0.84, [CI 0.74–0.90]) and those insured with Medicaid and the uninsured were less likely to have an EKG ordered. Blacks (OR 0.69, [CI 0.61 – 0.80]), Hispanics (OR 0.65 [CI 0.54 – 0.78]), and those insured with Medicaid and the uninsured were less likely to have a cardiac monitor ordered. Blacks (OR 0.79, [CI 0.68 – 0.91]) and Hispanics (OR 0.74 [CI 0.61 – 0.89]) were less likely to have pulse oximetry ordered. Men and older patients were more likely to have all three tests ordered. These findings persist after adjusting for year of survey. Of those with a final diagnosis of myocardial infarction, there were no significant differences in triage category or test ordering by patient or hospital characteristics.
CONCLUSION: Minority patients are less likely to present with chest pain to an ED. Of those presenting with chest pain, minority patients are less likely to be triaged to emergent triage categories and are less likely to receive essential evaluative tests. However, there were no significant differences in triage category or test ordering for those with a final diagnosis of MI. These findings suggest gender and racial/ethnic differences in triage which may result in differences in initial evaluation and urgency of evaluation but not in final diagnosis of MI.

RACIAL DIFFERENCES IN LUNG CANCER SURGERY: WHAT FACTORS CAN BE MODIFIED TO OPTIMIZE CARE IN EARLY STAGE DISEASE? S. Cykert[1]; P. Walker[2]; A. Bunton[3]; F. Mcguire[4]; L.J. Edwards[3]; M. Monroe[5]; A. Sigounas[2]; C. Freeman[6]. [1]University of North Carolina at Chapel Hill, Greensboro, NC; [2]East Carolina University, Greenville, NC; [3]University of North Carolina at Chapel Hill, Chapel Hill, NC; [4]University of South Carolina, Columbia, SC; [5]Carolinas Medical Center, Charlotte, NC; [6]Moses Cone Health System, Greensboro, NC. *(Tracking ID # 205241)*

BACKGROUND: Surgery for early stage non-small cell lung cancer is a life or death decision. Yet, administrative data have shown lower surgical rates and reduced survival for African-Americans who are diagnosed with early disease. These data lack detail needed to identify specific reasons for this disparity. We report on a prospective cohort of 437 patients with newly diagnosed, non-small cell lung cancer with emphasis on identifying modifiable factors that influence care.
METHODS: Using pulmonary, oncology, thoracic surgery, and generalist practices in 5 communities, we enrolled 437 patients with early stage, non-small cell lung cancer. Inclusion criteria were: >18 years old, a tissue diagnosis or >60% probability of non-small cell lung cancer using Bayesian methods, and Stage I or II disease by clinical and radiological criteria. Patients were enrolled after direct referral from practices or through a chest CT review protocol. After being informed of the diagnosis of probable or definite lung cancer, but before establishment of a treatment plan, patients were administered a 100-item survey that included questions on demographics, trust, communication, perceptions about lung cancer, and functional status. A chart review was also done to catalogue pulmonary function results and co-morbid conditions. The primary outcome was receipt of lung cancer surgery within 4 months of diagnosis. We performed bivariate and logistic regression analyses to explore possible explanations for surgical decisions.
RESULTS: We recruited 437 newly diagnosed patients. Of these individuals, 398 have reached the 4 month post-diagnosis milestone. 27% are African-American, 63% married, 56% male, 40% with education >high school, and 93% are insured. Patient ages range from 26 to 90 years with a mean age of 66. 12% of patients were excluded because of absolute surgical contra-indications as defined by pulmonary function testing. Patients who were not African-American (AA) or Caucasian (W) were also excluded from this analysis. 64% of all patients received lung cancer surgery (68% Caucasian, 54% African-American, p-value=.02). Regression analyses revealed that W patients who did not agree their physician listened to their concerns about surgery were one-third as likely to undergo cancer surgery while AA patients who held this perception were one tenth as likely to proceed. W patients who scored in the lowest quartile on the mental component of the SF-12 were less apt to go to surgery (OR .43, 95% CI .19-.98). This effect was not significant among AA. The presence of co-morbid conditions on chart review was not associated with W patients receiving cancer surgery; however, the presence of at least one of these conditions in AA markedly reduced the odds of surgery (OR .14, 95% CI .26–0.74).
CONCLUSION: After patients with absolute contra-indications are excluded, racial disparities in treatment for early stage lung cancer remain. The impact of negative communication and similar co-morbidities on AA patients compared to W patients is striking. These results suggest that lung cancer surgery recommendations need to be standardized, the patient-provider discussion needs to incorporate active listening, patients' understanding of salient facts needs to be confirmed, and every decision against surgery needs to be scrutinized in real time.

RACIAL DIFFERENCES IN PATIENT-PROVIDER COMMUNICATION IN HIV CARE M.C. Beach[1]; S. Saha[2]; T. Korthuis[2]; V. Sharp[3]; J. Cohn[4]; D. Roter[1]; L.A. Cooper[1]; R.D. Moore[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Oregon Health Science University, Portland, OR; [3]Saint Lukes - Roosevelt, New York, NY; [4]Wayne State University, Detroit, MI. *(Tracking ID # 205985)*

BACKGROUND: Significant racial disparities exist in HIV care in the United States. The quality of patient-provider communication has been found to vary by patient race in many healthcare settings, suggesting that racial differences in communication may underlie disparities in HIV care. We designed the Enhancing Communication and HIV Outcomes (ECHO) study to explore possible racial differences in patient-provider communication in HIV care settings.
METHODS: We audio-recorded routine encounters between 45 providers and 360 of their African-American and white HIV-infected patients in the ECHO Study across 4 HIV care sites in the United States (Baltimore, Detroit, New York, and Portland). We then conducted interviews with patients to assess their demographic, behavioral and clinical characteristics, and experiences of care. We coded communication with the Roter Interaction Analysis System (RIAS), which provides measures of specific patient and provider behaviors (total number of rapport-building, question-asking, and information-giving statements) and overall measures (verbal dominance, emotional tone, and visit length). We used linear and Poisson regression to compare observed and patient-rated measures of communication by patient race, adjusting for patient age, sex, education, and illicit drug use, and provider race, age and sex. We used generalized estimating equation modeling to account for clustering of patients within providers and sites.
RESULTS: Providers were mostly white (69%) and Asian (24%); 57% were female. Patients were African American (71%) and white (29%); 36% were female; 26% did not have a high school degree; and 29% were actively using drugs. Compared to white patients, African-American patients provided less information to their providers (adjusted mean 121 vs. 148 statements, p=0.010). There was no association between patient race and visit length, verbal dominance or emotional tone; in the total number of provider statements categorized as rapport-building, question-asking or information-giving; or in the total number of patient statements categorized as rapport-building or question-asking. There were also no significant racial differences in patient ratings of provider communication.
CONCLUSION: African American patients with HIV provided less information but did not otherwise differ from white patients in the communication they exhibited or experienced with their providers. These findings suggest that racial differences in patient-provider communication in HIV care settings are not substantial and are unlikely to explain disparities in HIV care and outcomes. Nevertheless, further research is needed to understand the reasons that African American patients provide less information to their HIV providers, and on its potential health consequences.

RACIAL DIFFERENCES IN SURVIVAL IN A NATIONALLY REPRESENTATIVE COHORT OF U.S. ADULTS, 1995–2005

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BACKGROUND: Black Americans have a substantially shorter life expectancy than white Americans. Assessments of factors accounting for racial differences in survival may help to guide social and health policies to reduce this disparity.
METHODS: The Midlife in the U.S. (MIDUS) study (www.midus.wisc.edu) enrolled a nationally representative cohort of adults in 1995 to assess demographic, psychosocial and clinical factors related to healthy aging. After recruitment through random-digit dialing, subjects completed a detailed telephone interview and self-administered questionnaire. Among 1996 (84%) of 2377 subjects who were ages 35–74 at enrollment, vital status through 2005 was obtained from household contacts and linkage to the National Death Index. Racial differences in survival between black (N=118) and white (N=1765) subjects were analyzed with proportional hazards models, weighted to account for the complex survey design and missing vital status data.
RESULTS: Black adults comprised 11.2% of the weighted cohort. They were much more likely than white adults to have incomes <$25,000 (43% vs 23%), lack a high school degree (29% vs 13%), report diabetes (14% vs 6%) or cardiovascular disease (44% vs 30%), and reside in the South (61% vs 34%) (all P<0.001). Each of these characteristics, except education, was associated with significantly increased mortality in fully adjusted models (hazard ratios (HR) 1.75 to 2.87, all P<0.05). Unadjusted 10-year mortality rates were significantly greater for blacks than whites (14.5% vs 9.0%, P=0.007), particularly among adults ages 35–54, men, those with low incomes, and residents of the South. Adjusting for age and sex, the risk of death among blacks was double the risk among whites (HR 2.00, P=0.008). Adjusting for income and education reduced this mortality difference by 30% (HR 1.70, P=0.03). Further adjustment for diabetes, cardiovascular disease, and smoking reduced the racial difference in mortality by an additional 36% from the age/sex-adjusted difference (HR 1.34, P=0.29). Adjusting for region further reduced the racial difference in mortality by 13% (HR 1.21, P=0.50). Some measures of psychological well-being (purpose in life, positive relations with others) were less common in black adults and associated with improved survival in unadjusted analyses (P<0.01), but these measures did not remain statistically significant or account for racial differences in survival after controlling for socioeconomic and clinical factors.
CONCLUSION: In this national cohort of middle-aged Americans, black adults had substantially greater mortality than white adults from 1995 to 2005. Differences in income, education, region of residence, and rates of diabetes and cardiovascular disease accounted for about 80% of the difference in mortality by race. Policies to improve the socioeconomic position of black adults and to prevent and treat diabetes and cardiovascular disease more effectively have the potential to reduce racial differences in survival substantially.

RACIAL DISPARITIES IN BREAST CANCER TREATMENT KNOWLEDGE: DOES PHYSICIAN DISCUSSION AFFECT PATIENT'S NEED FOR INFORMATION?

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BACKGROUND: Women with early stage breast cancer are increasingly being asked to take an active role in deciding on treatment. Thus, many women need and want information about their new cancer diagnosis and available treatments. We undertook this study to understand the informational needs of women with newly diagnosed breast cancer.
METHODS: We surveyed 239 women with newly diagnosed and operated early stage breast cancer recruited from 8 participating hospitals in New York City. Patients were asked an array of questions about their thoughts and opinions about breast cancer in general, their breast cancer treatment, and their practical, psychosocial, and informational needs and barriers to care. Of 513 eligible patients, 324 (63%) did not refuse study participation; of those, 275 were reachable and 239/324 (64%) patients were consented, surveyed and completed the needs assessment. We created a summary scale of single items assessing knowledge that radiation, chemotherapy and hormonal therapy increase disease-free or overall survival. We conducted bi- and multivariate analyses; odds ratios were converted to adjusted relative risks.
RESULTS: Sixty-two percent of women (149/239) expressed a need for information about breast cancer. Information requests were greatest among patients living below the poverty level (84% vs. 54%; p<.0001), with a high school education level or less (75% vs. 52%; p=.0002), and who do not speak English at home (88% vs. 52%; p<.0001). Women who discussed treatment options with their physician were more likely to express a need for information than those who did not (66% vs. 47%; p=.02). Those women who discussed treatment with physicians had more knowledge of adjuvant treatment efficacy, compared to women who did not discuss treatment (55% vs. 40%; p=.06). Even though minority women were more likely than white women to discuss treatment with their physicians (90% vs. 75%; p=.003), minority women had less knowledge of treatment effectiveness than white women (47% vs. 67%; p=.002) and were more likely than white women to request additional information (83% vs. 35%; p<.0001). Multivariate models adjusting for race, education, income, language, knowledge of treatment effectiveness and treatment discussion with physician found that informational needs were higher among minority women (aRR= 2.05; 95% CI: 1.64–2.33) and lower among women whose primary language is English (aRR=0.49; 95% CI: 0.21–0.98) (model c=0.81; p<.0001). Informational needs were not effected by education level (aRR=0.87; 95% CI: 0.49–1.35), physician discussion of treatments (aRR=1.34; 95% CI: 0.82–1.85), or how much knowledge of treatment effectiveness women had (aRR=0.79; 95% CI: 0.61–1.01).
CONCLUSION: High proportions of minority women with newly diagnosed early stage breast cancer want additional information about breast cancer and its treatments despite discussions with physicians. Given the overall low rates of knowledge of adjuvant treatment efficacy,

accessible and useful information about treatments should be provided to all, particularly, minority women.

RACIAL DISPARITIES IN OUTCOMES OF PATIENTS WITH CHRONIC NON-CANCER PAIN ON OPIOID ANALGESICS

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BACKGROUND: African-American (AA) patients have been shown to be less likely than whites to be prescribed opioid analgesics (OAs) for pain. Yet once patients are prescribed long-term OAs, it is not known whether racial disparities occur in other important outcomes. As such, we sought to evaluate racial differences in monitoring, aberrant behaviors and acute care utilization among primary care patients with chronic non-cancer pain (CNCP) treated with long-term OAs.
METHODS: Using electronic medical record (EMR) data, we identified a retrospective cohort of patients 18 and older with at least three office visits from 1/1/04 to 7/1/08 to six urban primary care practices. Included patients had 3 OA prescriptions at least 21 days apart within a 6-month period and a diagnosis of musculoskeletal and/or neuropathic pain. We excluded patients with cancer and 20 patients who were not white or AA. We created six outcome measures based on three categories: monitoring (dose escalation or medication change without an office visit; at least one urine drug test); aberrant behaviors (2 early refills of OAs; high volume of phone calls per month) and acute care utilization (2 ED visits; at least one hospitalization). We used chi-square to compare covariates and outcomes by race, and logistic regression to model the outcomes with race as the independent variable of interest. In these models, we adjusted for age, sex, income, weeks prescribed OAs, office visit frequency, type of OA prescribed (short-acting, long-acting, both); and high-risk diagnoses such as non-opioid drug use disorder, alcohol use disorder, tobacco use disorder, and current psychiatric comorbidity.
RESULTS: Of the 1,626 eligible patients on long-term OAs for CNCP, 66.7% were female and 60.7% were AA, with a mean age of 54.0 years (range 19 to 94). With regard to covariates, AA patients were more likely to be female (70.7 vs. 59.8%; p<.001); to be in the lowest income category (37.9 vs. 4.3%; p<.001) and to have a non-opioid drug use disorder (9.2 vs. 3.7%, P<.001). In unadjusted analyses, AA patients were less likely than white patients to have a dose escalation or medication change without an office visit (18.2 vs. 34.1%; P<.001) and more likely to have a urine drug test (10.4 vs. 4.3%; (P<.001). AA patients were less likely to have 2 early refills (20.7 vs. 28.2%; P<.001); there was no difference with regard to high volume of phone calls. AA patients were more likely to have 2 ED visits (18.0 vs. 5.9%; P<.001) and to be hospitalized (28.3 vs. 18.6%; P<.001). In fully adjusted models, AA patients were less likely to have a dose escalation or medication change without an office visit (AOR 0.58, CI 0.41, 0.81), more likely to have a urine drug test (AOR 1.83, 95%CI 1.01, 3.35), and less likely to have 2 early refills (AOR 0.63, CI 0.42, 0.96). AA patients were more likely to have 2 ER visits (AOR 2.10, CI 1.46, 3.02). Race was not associated with hospitalization or high volume of phone calls.
CONCLUSION: AA patients appear to receive closer monitoring despite having fewer aberrant behaviors, as compared to white patients. Despite this closer monitoring, AA patients have a greater use of acute care services. Further research is needed to better understand factors underlying these apparent inequities in care for AA patients with CNCP.

RANC: A COMPUTER-BASED APPROACH TO SELECTING RESIDENTS

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BACKGROUND: Residency program directors often struggle with how to best assess the attributes of applicants to their program and ultimately prepare a rank list. In order to standardize and simultaneously simplify our selection process, we sought to develop a computer-based ranking program (RANC) that assigned a composite score to each applicant.
METHODS: A focus group consisting of 10 core faculty involved in our residency program was convened and a review of the literature was performed to develop a comprehensive listing of factors used in evaluating applicants. Using this list as a basis, the first RANC model was developed and pilot testing was conducted on the 2008 applicant year. Comparison to the traditional ranking process used at our institution was done through calculation of a Pearson correlation coefficient and the construction of a scatterplot. Modifications to the first RANC model were made by examining outliers on the scatterplot, reviewing previous residents in our program who had various difficulties, and convening further focus groups to discuss items not initially included in the first model. The resulting second RANC model was then tested on the 2008 applicant year and a statistical method identical to that used on the first model was performed.
RESULTS: Factors identified as being important in the selection of residents were: grades both in preclinical and clinical rotations, performance during the interview, USMLE scores, MSPE/Dean's letter, Chairperson's letter, AOA membership, research experience, volunteer/leadership experience, medical school reputation, PhD or Master's degree, presence of red flags, and letters of recommendation. Because of variability observed in the values placed on each factor, it was decided to design RANC to allow for flexibility in the choice of included factors and the relative weights attached to each factor. Based upon the values and priorities of our training program, the following factors with attached weights were chosen to comprise the first RANC model: grades in 6 clinical clerkships (50%), AOA status (15%), USMLE step I score (20%), MSPE/Dean's letter (10%), and Chairperson's letter (5%). Bonus points were awarded for a PhD or Master's degree and negative points were assigned for failing or repeating any course. Pilot testing on individuals in the 2008 applicant year and comparison to the traditional process yielded a correlation coefficient of 0.71 (P<0.0001). Further refinement led to the development of a second RANC model with the following components and attached weights: medical school attended (10%), performance in key basic science courses (10%), performance in key clinical courses (30%), USMLE performance (10%), MSPE/Dean's letter (10%), Chairperson's letter (5%), volunteer/leadership experience (10%), research experience (10%), and interview score (5%). Bonus points were awarded for AOA membership and the presence of either a Master's degree or PhD and applicants were able to be marked as having other outstanding attributes or as having potential red flags. Pilot testing of this second model and comparison to the traditional process yielded a correlation coefficient of 0.80 (P<0.0001).
CONCLUSION: Preliminary analysis reveals that this new standardized approach is reproducible, less time-consuming, and yields a rank list that correlates strongly to the traditional, more subjective and time-intensive approach.

RANDOMIZED CONTROLLED TRIAL OF A SELF-MANAGEMENT INTERVENTION IN COPD PATIENTS WITH LOW HEALTH LITERACY

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BACKGROUND: Multiple COPD self-management interventions have shown improvement in health outcomes. However, the effect of those interventions on individuals with low health literacy has not been assessed. We aimed to develop a self-management intervention and to determine its impact on inhaler technique and other intermediate outcomes for COPD patients with low health literacy.
METHODS: We conducted a randomized controlled trial at an academic Internal Medicine clinic from January through December 2008. We enrolled English speaking adult patients with stable COPD taking an inhaled medication. Participants completed the Short Test of Functional Health Literacy in Adults (S-TOFHLA). S-TOFHLA scores are categorized as inadequate (0–16), marginal (17–22), and adequate health literacy (23–36). For our study, we combined the inadequate and marginal to form our low health literacy group. Participants were asked to demonstrate how they use two consecutive doses of their MDI. A trained research assistant (RA) scored each participant's technique using an eight point scale. Following baseline assessment, participants were randomized (2:1 to maximize our experience with the intervention) to the intervention or usual care. The intervention included a 30 minute one-on-one educational session utilizing a handout titled, "Living With COPD." The handout's readability, ability to enhance the reader's self-efficacy, and cultural appropriateness was rated superior (score 81%) per the Suitability Assessment of Materials (range 0 to 100%). The

readability was rated adequate and at a 7th grade reading level (Fry and SMOG). The RA verbally went through the main concepts using a "teach-back" method to ensure comprehension of the material. The intervention included discussion and demonstration of correct methods for administering inhaled medications as well as other information important for self-management of COPD. Participants returned for follow-up assessments after 2 to 8 weeks. The primary outcome, change in inhaler technique score, was approximately normally distributed. Thus, we used t-tests to compare mean change in inhaler technique scores between those in the intervention and control groups and between those with low and higher health literacy.
RESULTS: 233 patients were approached, 86 were eligible and have been enrolled, and 66 (77%) completed the follow-up visit to date. Fifty eight were randomized to the intervention group and 28 to the control. Mean age was 63.9 years (range 43 to 84), 31% were male, 71% were Caucasian, 27% African American, 94% were insured, and 47% had annual household incomes under $15,000. Thirty eight percent were in the low health literacy group and 62% in the higher health literacy group. Subjects in the intervention group had greater mean improvements from baseline in MDI technique scores than those in the control group (1.46 vs. -0.47, p<0.0001). Similar improvements were found for low health literacy subjects (1.42 vs. -1.0, p=0.006) and those with higher health literacy (1.48 vs. -0.31, p=0.002) with no difference between health literacy groups (p=0.97).
CONCLUSION: A self-management intervention designed for subjects with low health literacy can have similar benefits for patients with both low and higher health literacy for inhaler technique use. Further evaluation is needed to determine whether such interventions impact health outcomes such as frequency of exacerbations or mortality.

RAPID EVALUATIONS OF LEARNERS' EXPERIENCES: IMPROVING INPATIENT ROUNDS T.K. Houston[1]; L.L. Willett[1]; S.J. Cohen[1]; C.A. Estrada[1]; W.A. Curry[1]; T.C. Wall[1]; G.R. Heudebert[1]. [1]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 205583)*

BACKGROUND: Global end-of-rotation trainee ratings of learning experiences are often limited in detail. Accuracy may suffer from the delay between experience and evaluation, impairing a training program's ability to identify variations.
METHODS: Internal Medicine residents on 12 inpatient services were asked to complete brief, daily, postcard-size evaluations of inpatient rounds. The cards were developed to measure domains including attending behavior (providing feedback, encouraging active discussions), trainee ratings of teaching quality (5 point likert scale – excellent, above avg., average, below avg., poor), when learning occured during rounds (mini lectures, patient treatment discussions, physical exam demonstration, modeling patient communication), and trainee behavior (number of self-directed leaning topics). Date, service, call rotation, patient census, post-graduate level were collected. We compared reported experiences by services (general medicine, critical care (ICU), subspecialty) in general, adjusting for clustering of multiple ratings within a service-month using the gllamm procedure in STATA. Intraclass correlation coefficients (ICCs) were calculated to assess the amount of variance at the service-month level.
RESULTS: 304 cards have been completed in 6 months, representing 87 service-month assessments. Respondents were PGY1 (37%), 2 (40%), and 3 (23%) with a mean patient census on service of 12.6 (SD 6). Trainees strongly agreed that attendings provided useful feedback and encouraged participation on 33% (103/304) and 41% (126/304) of cards, respectively. Teaching was rated as excellent more frequently on general medical (39%, 21/53) and ICU (33%, 20/63), compared with subspecialty services (13%, 22/146) (p from gllamm=0.013), and residents used the full spread of the likert scale (4%, 11/304, rated teaching poor). Service differences weren't attenuated by adjustment (PGY level, on-call rotation, or patient census). A weak correlation of higher census and lower teaching ratings (0.18) was nonsignificant after cluster-adjustment (p 0.08). Learning occurred less frequently by demonstration of physical exam and modeling patient communication (12% each) compared with mini-lectures (30%) and patient discussions (77%). Limiting to service-months with at least 4 separate daily assessments, service-month ICCs for feedback (0.36), encouraging discussion (0.37) and teaching rating (0.61) were high, whereas self-directed learning (0.17) was lower.
CONCLUSION: Based on rapid evaluation cards, we identified wide variations in experiences. High ICCs suggest strong faculty/rotation effect. That census did not attenuate differences suggests that quality teaching can be delivered in busier as well as less-busy rotations.

RECOGNIZING FACTORS FOR IMPROVING WEIGHT LOSS; A COMPARISON BETWEEN CARIBBEAN HISPANIC AND NON- HISPANIC WHITE WOMEN Z.E. Joseph[1]; L. Epstein[2]; R. Sciacca[1]; S.M. Yala[1]; L. Mull[3]; M. Weiss[1]; S. Akabas[3]; E.G. Giardina[1]. [1]Columbia University Medical Center, Center for Women's Health, New York, NY; [2]University of California, San Francisco, San Francisco, CA; [3]Columbia University Medical Center, Institute of Human Nutrition, New York, NY. *(Tracking ID # 205074)*

BACKGROUND: The persistent and rising epidemic in the US related to being overweight and/or obese is closely tied to the development of coronary heart disease (CHD). Factors that prevent women from losing weight and thus decreasing their risk of CHD, especially within the Caribbean Hispanic community have not been explored. To this end, 547 women treated at primary care clinics of an urban academic medical center participated in a cross-sectional study to evaluate: 1) awareness of weight loss methods, 2) perceived barriers to weight loss, and 3) perceptions of body image.
METHODS: Data collected included demographics (race/ethnicity, age, years of education), BMI, waist size, awareness of ways to lose weight, and perceived obstacles to weight loss. In addition, subjects were presented with a series of figural stimuli and asked to identify their body image as well as the body images they thought were "ideal", "too thin", and "overweight".
RESULTS: Of the 547 subjects who participated, 230 were Non-Hispanic White (42%) and 247 were Hispanic (45%); 84% of Hispanics were of Caribbean origin (207/247). Mean age was 49±16 years; education was 14±4 years; and BMI was 26.5±6.2. Awareness that physical activity is a method for losing weight was related to education (r=0.20, p<0.0001). Hispanics were less likely than Non-Hispanic Whites to know behaviors that enhance weight loss such as increasing physical activity (87% vs. 99%, p<0.0001), decreasing dietary intake (76% vs. 92%, p<0.0001), choosing healthier food options (86% vs. 94%, p=0.007), using weight loss medications (27% vs. 49%, p< 0.0001), and surgery (41% vs. 64%, p<0.0001). Compared to Non-Hispanic Whites, Hispanics were less likely to attempt to lose weight due to financial constraints (20% vs. 6%, p<0.0001); family responsibilities (20% vs. 11%, p=0.007); and lack of knowledge of ways to lose weight (16% vs. 2%, p<0.0001). Non-Hispanic Whites were less likely to attempt to lose weight compared to Hispanics only due to time constraints (35% vs. 27%, p=0.05). There was no significant association between awareness of ways to lose weight and perceptions of body image, overweight status, BMI, and waist size ≥35 inches.
CONCLUSION: The relative impact of barriers to weight loss differs significantly between Caribbean Hispanic women and Non-Hispanic White women. Financial constraints, family responsibilities, and ignorance of weight loss methods are more important among Hispanics versus lack of time among Non-Hispanic Whites. Limited education hinders all women from appreciating that increasing physical activity is a key way to lose weight. Tailoring weight loss education programs is critical for women of different backgrounds to lose weight and thereby decrease the risk of CHD.

REDESIGNING CARE TO STANDARDIZE OUTREACH FOR PATIENTS REFUSING PROCEDURES OR TREATMENTS E.M. Friesema[1]; S. Persell[1]; N.C. Dolan[1]; J.A. Thompson[1]; D.D. Kaiser[2]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL; [2]Northwestern Medical Faculty Foundation, Chicago, IL. *(Tracking ID # 205505)*

BACKGROUND: Many patients not receiving recommended care may have their own reasons for not following their physicians' advice. While well informed patients may decide to forgo recommended tests or treatments, misconceptions should be addressed to ensure that patients make the most informed decisions possible. Patients who cannot afford a test or medication should receive assistance identifying ways to overcome financial barriers. Providing standardized outreach to

patients whose physicians document the refusal of recommended chronic disease or preventive services could help persuade some patients to get recommended care or assist them in overcoming a financial obstacle.

METHODS: We performed an observational study of a quality improvement technique set in a large academic internal medicine clinic which has been using an electron health record system since 2002. 37 attending physicians serve a population close to 44,000 patients. We implemented computerized decision support with mechanisms for physicians to enter standardized documentation into the electronic health record (EHR) when a patient refused a test or treatment needed to satisfy any of 16 chronic disease and preventive care quality measures. From February 2008 until November 2008, a non-clinically-trained care manager reviewed all recorded patient refusals and emailed the treating physicians to provide an opportunity to prevent the outreach. Then the care manager mailed the patient plain language educational brochures and attempted to contact the patient by telephone (up to 3 times and included daytime and early evening attempts). When patients would not take a medication due to cost, the care manager provided counseling on how to reduce out-of-pocket drug costs. The outcome was the proportion of patients with refusals or financial barriers who subsequently received the service as of December 1st, 2008 using automated queries of the EHR. We also recorded the time spent performing outreach.

RESULTS: We performed educational outreach for 415 patient refusals. 401 were for preventive services (cancer screening, pneumococcal vaccination or osteoporosis screening) and 14 were for drug treatments. 56 (13.5%) times patients who had refused subsequently received the service. For preventive services, this ranged from 15 of 184 (8.2%) for colon cancer screening to 15 of 55 (27.3%) for cervical cancer screening. In the case of drug prescribing for cardiovascular diseases, 4 of 14 (29%) received new prescriptions for the drug in question. 199 hours of care manager time was required (3 hours, 32 minutes for each successful conversion).

CONCLUSION: Educational outreach to patients identified by their physician as having refused a recommended service appeared to have a modest effect on the subsequent receipt of that service. This form of patient education appeared to be more effective at promoting some services (e.g. cervical cancer screening) than others (e.g. colon cancer screening). The amount of time required for one patient change was large and the personnel resources could be prohibitive unless efforts are taken to minimize the cost of this form of intervention.

REDUCING RACIAL AND ETHNIC DISPARITIES IN DIABETES: RESULTS FROM AN INNOVATIVE AND CULTURALLY COMPETENT QUALITY IMPROVEMENT PROGRAM A.R. Green[1]; M.R. Renfrew[1]; A. Horta[2]; B.B. Chase[2]; E. Sanchez[2]; J.F. Figueroa[3]; J.R. Betancourt[1]. [1]Massachusetts General Hospital, Disparities Solutions Center, Boston, MA; [2]Massachusetts General Hospital, Chelsea, MA; [3]Harvard Medical School, Cambridge, MA. *(Tracking ID # 205642)*

BACKGROUND: Racial and ethnic disparities in diabetes management are well documented. An assessment of 2005 quality data at Massachusetts General Hospital's Chelsea HealthCare Center, which serves a largely low-income Latino and non-Latino white community, showed that Latinos were significantly more likely to be in poor diabetes control (HbA1c >8.0) compared to non-Latino whites (37 vs 24 percent, p<.001). To address this disparity and improve the quality of diabetes care overall, a culturally competent diabetes management program was implemented to identify and overcome patients' specific barriers to diabetes control. The program centers around three key elements: (1) individual coaching sessions; (2) a Diabetes Self Management Education (DSME) program; and (3) use of an electronic diabetes registry to identify and reach out to patients with poorly controlled diabetes.

METHODS: Between 2006 and 2008, patients with poorly controlled type II diabetes (HbA1c>8.0) were invited to participate in a diabetes management program through a combined approach of physician and nurse referral, letters, and phone calls. Patients could decide to participate in one-to-one coaching with a trained, bilingual diabetes coach (not a clinician), group education (four 2-hour classes) led by a nurse, or both. As this was primarily a quality improvement program there was no randomized control group. HbA1c levels were tracked for all diabetic patients at the health center from 2005 and 2007 using administrative data, and disparities between Latino and non-Latino white patients were analyzed. Thirty patients also participated in qualitative interviews about their experiences in the program. All interviews were audio-recorded and transcribed verbatim. Interviews with Spanish-speaking patients were professionally translated and back-translated for accuracy. The transcripts were reviewed on an ongoing basis to assure non-biased interviewing techniques were upheld and to assess theme saturation. SAS and Atlas.ti was used to perform qualitative and qualitative data analysis respectively.

RESULTS: Between 2005 and 2007, 373 patients enrolled in the diabetes management program (66% Latino, 27% non-Latino white, and 7% other – 53% of all patients were in poor control.) There was a significant decrease in the percentage of Latino patients overall at MGH Chelsea with uncontrolled diabetes (HbA1c>8.0) from 37 to 29 percent, and for non-Latino white patients, from 24 to 20 percent – a 31% decrease in the disparity (p<.001). Patients who participated in the program had a mean reduction of 1.48 in HbA1c level (p<.001). Four key themes emerged from the qualitative analysis: (1) positive relationships with program staff; (2) motivation to care for self; (3) the role of social and psychological barriers; and (4) personal and cultural perspectives on diabetes. Themes were focused on the factors that led to patients' success in the program.

CONCLUSION: Findings suggest that a diabetes management program using both coaching and group education, open to all patients but emphasizing cultural and linguistic competence, may be successful in reducing disparities while improving diabetes management overall. Further, the importance of interpersonal skills and relationship building may be important components of successful programs.

REDUCTION OF MISSED APPOINTMENTS AT A GENERAL MEDICINE OUTPATIENT CLINIC: A RANDOMISED CONTROLLED STUDY N. Junod Perron[1]; M. Dominicé Dao[1]; M.P. Kossovsky[1]; V. Miserez[1]; C. Chuard[1]; A. Calmy[1]; J. Gaspoz[1]. [1]Geneva University Hospitals, Geneva, . *(Tracking ID # 204520)*

BACKGROUND: Missed appointments are known to interfere with appropriate care of acute and chronic health conditions and to misspend medical and administrative resources. The aim of our study was to test the effectiveness of an intervention reminding patients of their upcoming appointment.

METHODS: We conducted a randomised controlled study in a medical outpatient clinic at the Geneva University Hospitals. During 3 months, all patients booked in the clinic were randomly assigned to either receive a reminder 48 hrs prior to the appointment or were submitted to routine booking. The reminder consisted of the following sequential intervention: 1. phone call reminder; 2. if no available phone number or response: a SMS reminder; 3. if no available cell phone number: a postal reminder

RESULTS: 2123 patients were included: 1052 in the intervention group, 1071 in the control group. The intervention reduced the rate of missed appointments in a statistically significant way (7.8% vs 11.4%, p <0.005) and allowed to rebook 54 additional appointments. Thus it proved cost-effective by providing a total benefit of 1800.- USD (after deduction of the additional secretary's salary). A satisfaction survey conducted on a sample of patients showed that 93% patients were not bothered by the reminder and 78% considered it to be useful. A multivariate analysis linked missed appointments to the following characteristics: younger age (OR per additional decade 0.82; CI 0.71–0.94), male gender (OR 1.72; CI 1.18–2.50), follow-up>1year (OR 2.2; CI: 1.15–4.2), being an asylum seeker (OR 2.73: CI 1.22–6.09) and substance abuse (2.09, CI 1.21–3.61).

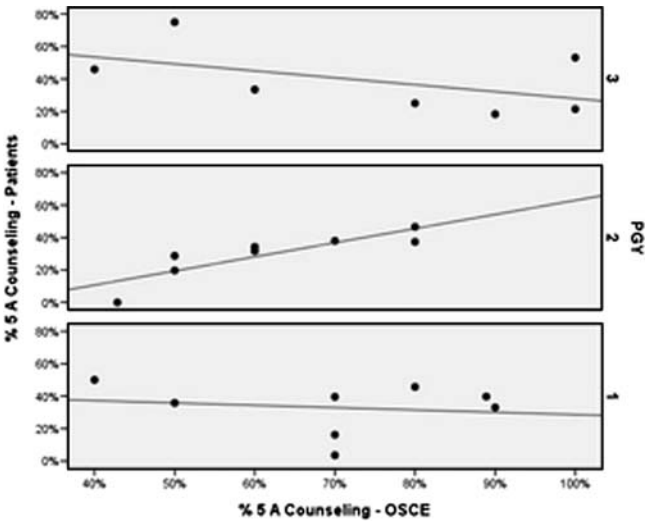
CONCLUSION: A practical reminder system increased patient attendance and allowed to reallocate 28% of cancelled appointments for new consultations. A focused intervention based on specific patient characteristics could further increase the effectiveness of this reminder.

RELAPSE AND RECOVERY AMONG HEPATITIS C-INFECTED PATIENTS WITH A HISTORY OF COCAINE OR HEROIN USE A.Y. Walley[1]; T. Heeren[2]; C. Bliss[2]; P.R. Skolnik[1]; S. Stuver[2]; D. Nunes[1]; D.J. Cotton[1]. [1]Boston University School of Medicine, Boston, MA; [2]Boston University School of Public Health, Boston, MA. (Tracking ID # 205753)

BACKGROUND: Heroin and cocaine dependence are chronic relapsing and remitting conditions, common among patients with hepatitis C. Alcohol use, homelessness, and recent incarceration are factors that may induce relapse or prevent recovery from heroin or cocaine dependence. Among hepatitis C (HCV)-infected outpatients with prior heroin or cocaine use, we describe transitions between active heroin or cocaine use, treatment, and abstinence and determine whether homelessness, recent incarceration, or alcohol use are associated with transitions to relapse or recovery.
METHODS: We studied subjects enrolled in CHARM, a longitudinal cohort study of HCV-infected outpatients interviewed every 12 months, with prior heroin or cocaine use and at least 2 follow-up interviews. At each interview, subjects were classified into one of 5 states: a) active use b) recent detoxification c) residential treatment d) methadone or suboxone treatment e) abstinence without treatment. We categorized intervals of consecutive follow-up interviews as "recurrent use" (e.g., active use to active use), "recovery" (e.g., active use to abstinence), "maintenance" (e.g. abstinence to abstinence) and "relapse" (e.g., abstinence to active use). We defined two sets of outcomes: 1) maintenance vs. relapse among subjects abstinent or in treatment at the start of an interval and 2) recurrent use vs. recovery among subjects with active use or detox at the start of an interval. Using logistic regression with generalized estimating equations, we determined associations between homelessness, alcohol use, and incarceration as time-varying independent variables and maintenance vs. relapse and recurrent use vs. recovery as outcomes.
RESULTS: Among 364 subjects with a mean of 3.4 follow-up visits, 11% had a recurrent use interval, 29% had a recovery interval, 87% had a maintenance interval and 24% had a relapse interval at least once during follow-up. In adjusted models that included age, gender, race, HIV coinfection, subjects with homelessness (OR 3.28; 95%CI: 1.28–8.38), alcohol use (OR 3.09; 95%CI: 1.98–4.84), and incarceration (OR 3.49; 95%CI 1.90–6.40) were more likely to have a relapse than a maintenance interval. No significant differences were detected in adjusted models for recurrent use vs. recovery intervals.
CONCLUSION: Among HCV outpatients with prior heroin or cocaine use, most are abstinent or in treatment most of the time, but relapses and recoveries are common. Homelessness, alcohol use and recent incarceration are associated with relapse, but not recurrent use. Relapse prevention strategies should include focused efforts for patients with homelessness, alcohol use and recent incarceration.

RELATION BETWEEN DEPRESSION AND CHRONIC TENSION TYPE HEADACHE IN PATIENTS OF RURAL EL SALVADOR. G.D. Valdez[1]; F. Aleman[2]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN; [2]University of El Salvador, San Salvador, . *(Tracking ID # 204194)*

BACKGROUND: Headache is the sixth most common presenting complaint in ambulatory clinics in El Salvador. Previous studies have linked depression to functional somatic syndromes including tension type headaches. The aim of this study was to determine the frequency and severity of depressive symptoms in patients with tension headaches and its relationship with the subtypes of tension headaches in a rural clinic in El Salvador.
METHODS: Patients diagnosed with tension type headache based on International Headache Society (IHS) criteria in La Palma, El Salvador were first classified as chronic or episodic. Demographic and clinical data were collected and recorded in a structured format. A validated translation of Zung's Self-rating Depression Scale (SDS) was administered to each subject to determine the presence and severity of depression. Depression severity was divided into 4 categories per SDS guidelines: normal (score<50), mild depression (score 51–59), moderate (score 60 - 69), and severe depression (score >70). Chi2 and P values were then calculated based on demographic variables, headache subtype and depression severity and p values calculated.
RESULTS: We evaluated 146 consecutive patients with tension type headache. Forty-six either declined to participate or met exclusion criteria. The final sample of 100 patients consisted of 91 women ranging in age from 15 to 71 and 88% were from rural areas. Fifty-two percent of the patients had chronic tension headaches and 48% had episodic. Depression was present in 49% of the sample overall. Depressive symptoms were present more frequently in patients with the chronic subtype of headaches compared with patients with the episodic subtype (Chi2: 11.6 , p: 0.006), The mean SDS scores were higher in patients with the chronic subtype (58.6) compared with the episodic subtype (46.2).
CONCLUSION: Patients in this rural El Salvadoran clinic with the chronic subtype of tension headache were more likely to have depressive symptoms and their depression was more severe compared with patients with the episodic subtype of tension headaches. This study highlights the importance of recognizing tension type headaches as a possible functional somatic symptom of an underlying depressive disorder specially in rural populations.



RELATIONSHIP BETWEEN OSCE OBESITY COUNSELING PERFORMANCE AND ACTUAL PRACTICE C. Gillespie[1]; M. Jay[1]; S. Schlair[1]; A.L. Kalet[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 205799)*

BACKGROUND: Objective Structured Clinical Examinations (OSCE) have proven to be a reliable and valid means for assessing learner competence. What is less clear, however, is whether and when OSCE performance is associated with performance in actual clinical settings. We used pilot data to explore the relationship between primary care residents' obesity counseling performance in an OSCE and actual patients' report of their obesity counseling practices.
METHODS: 23 primary care internal medicine residents participated in an annual 10-station OSCE. We assessed their obesity counseling skills in one station involving a 36 year old obese woman with a family history of diabetes who wants to lose weight. Ten checklist items were used to rate residents' performance of the 5A's counseling skills (assess, agree, advise, assist, arrange) on a not done, partly done, well done scale. Counseling score was calculated as % of items done partly or well. Six to 9 months later, obese patients (n=188) seen by these residents at a publically funded ambulatory care center serving an underserved urban community were then invited to participate in a structured interview immediately following the visit. The survey asked patients to report whether the resident they had just seen performed any of the 5As counseling skills (n=19).
RESULTS: 156 patients completed interviews (83%) and 19/23 residents were included in the study based on having at least 2 patients who completed interviews (average of 8 patients/resident). In the OSCE, residents were rated by Standardized Patients as having performed (partly done or well done) 72.1% (SD=18.8%) of the 5As counseling skills. Actual patients (aggregated and averaged by resident) reported that residents performed a mean of 33.9% of the 5As counseling skills (SD=10.4%). Neither OSCE scores nor patient report scores differed significantly by PGY. We found no relationship between OSCE scores and patient report of actual practice (r=.06, p=.82). However, this relationship differed substantially by PGY: PGY1 r=.19, p=.72, n=6; PGY2 r=.88, p=.010, n=7; PGY3 r=-.30, p=.57, n=6.
CONCLUSION: Associations between OSCE performance and actual clinical practice in obesity counseling (as reported by patients) in our

small, pilot study appear to differ substantially by PGY. This may be an artifact of our small sample or measurement issues but it may also reflect test effects (ways in which OSCE performance may not reflect practice behavior for some individuals in some contexts) and/or the degree to which patient characteristics may shape physician practices. This study highlights the need for further studies linking OSCE performance to actual performance.

RELATIONSHIP BETWEEN PROSTATE VOLUME AND PATHOLOGIC GRADE OF PROSTATE CANCER

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BACKGROUND: Prostate volume may influence risk of high-grade (HG) prostate cancer and the likelihood of upgrading at final pathology. We evaluated the relationship of prostate volume to the pathologic grade of prostate cancer and to the rate of upgrading at final pathology.
METHODS: Utilizing a prospectively collected database, we reviewed 959 patients who underwent radical retropubic prostatectomy or robotic assisted laparoscopic prostatectomy between April 2003 and August 2006. Patients on androgen deprivation therapy were excluded. HG cancer was defined as a pathologic Gleason score >7. Clinical variables potentially predictive of tumor grade (including age, body mass index [BMI], prostate-specific antigen [PSA], prostate volume, biopsy Gleason score, clinical stage, and 5-alpha reductase inhibitor use) were compared between the HG and low-grade (LG) groups using Wilcoxon and Fisher's exact tests. A multivariate logistic regression model was used to determine whether prostate volume was an independent predictor of HG disease. To evaluate the rate of upgrading, prostate volume was categorized by quartile and a Chi square test was performed.
RESULTS: Patients in the HG and LG groups differed with respect to age, clinical stage and clinical grade and PSA. Median prostate volume was 43.0 cc (IQR 20) for the HG group compared with 46.7 (IQR 23) for the LG group ($p<0.001$). On multivariate analysis, increasing age (OR 1.2, CI 1.1–1.4), increasing PSA (OR 1.3, CI 1.1–1.4), and pathologic stage T3 (OR 5.4, CI 3.6–8.0) were associated with increased risk of HG prostate cancer while prostate volume was inversely associated with risk of HG prostate cancer (OR 0.91, CI 0.88–0.95). There was a similar likelihood of upgrading across volume quartiles (12% vs. 8% vs. 9% vs. 8% from lowest to highest, $p=0.53$).
CONCLUSION: In addition to the associations between demographic and disease characteristics with prostate cancer grade, we found that low prostate volume was an independent risk factor for HG disease. This intriguing finding could be explained either by a difference in biology or a difference in early diagnosis between small and large prostates. Further studies will be necessary to clarify this association.

REMINDER SYSTEMS TO REDUCE URINARY CATHETER USE AND CATHETER-ASSOCIATED URINARY TRACT INFECTION IN HOSPITALIZED PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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BACKGROUND: Catheter-associated urinary tract infection (CAUTI) is common in hospitalized patients. Given its potential preventability, CAUTI was among the first complications selected for non-payment by the Centers for Medicare and Medicaid Services. The strongest risk factor for CAUTI is prolonged catheterization. Urinary catheters are often placed unnecessarily, in place without physician awareness, and not removed promptly when no longer needed. Catheters also cause discomfort, restrict mobility, and delay discharges. Interventions which prompt removal of catheters when no longer needed may therefore enhance patient safety. We performed a systematic literature review and meta-analysis to summarize the effect of interventions which remind physicians or nurses of urinary catheter presence in order to prompt removal of unnecessary catheters.
METHODS: We comprehensively searched the world's literature for interventions to reduce urinary catheter use and CAUTI in hospitalized adults using MEDLINE, the Cochrane Library, BIOSIS, Web of Science, EMBASE and CINAHL, supplemented by reference list review. We included studies published between 1950 and 26 August 2008 that reported at least one of three outcomes: urinary catheter duration, CAUTI rate, or re-catheterization rate. Two investigators independently abstracted pertinent data and a third investigator resolved differences. Studies with sufficient data detail were statistically pooled by a random effects model to obtain a DerSimonian-Laird estimate of effect.
RESULTS: A total of 14 articles met inclusion criteria (1 randomized trial and 13 before-and-after studies, including 4 concurrent controls). Interventions included "reminders" of catheter presence and "stop orders" to prompt catheter removal at pre-specified times after placement. Decreased catheter use was identified in all 12 studies reporting this outcome, with 8 studies revealing a statistically significant decrease between non-intervention groups and the first post-intervention measure. Only 5 studies published sufficient data to enable statistical pooling to assess the impact of the intervention, yielding a pooled mean difference of 1.69 fewer days of catheter use (95% CI: -3.18 to -0.19; $p=0.027$). A total of 12 studies reported outcomes for CAUTI: 10 studies found decreases in CAUTI but only 5 studies showed statistically significant decreases. Five studies provided sufficient data to enable statistical pooling to assess CAUTI; the relative risk was 0.68 (95% CI: 0.45 to 1.02; $p=0.062$) suggesting a trend towards reduced CAUTI after the intervention. Re-catheterization rates were similar in both groups in the 4 studies reporting this outcome.
CONCLUSION: Our systematic review found that urinary catheter reminder systems appear to significantly reduce urinary catheter duration and perhaps even CAUTI, without evidence of harm.

RESIDENT PHYSICIANS' ATTITUDES AND BEHAVIORS REGARDING UNDERSERVED PATIENTS: A MULTI-INSTITUTIONAL SURVEY

M.L. Wieland[1]; F.S. Mcdonald[1]; T.J. Beebe[1]; S. Cha[1]; T.J. Beckman[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205494)*

BACKGROUND: The U. S. Accreditation Committee for Graduate Medical Education (ACGME) emphasized the importance of training physicians to be altruistic. Resident physicians often encounter underprivileged patients before other providers, yet little is known about residents' attitudes and behaviors regarding these patients. Therefore, we administered a multi-institutional survey to better understand resident attitudes and behaviors regarding underserved patients.
METHODS: In 2007 and 2008, 956 surveys on resident physicians' attitudes and behaviors about underserved patients were distributed to 18 residency programs representing seven different specialties at 10 geographically-separated academic medical centers in the United States. Survey content was based on existing literature and an expert needs assessment. The attitude assessment had 15 items with 3-point scales (1=very important, 2=somewhat important, 3=not at all important). The behavior assessment evaluated volunteering for underserved patients in the past (medical school), present (residency) and future (anticipated practice). Concordance between attitudes and behaviors were determined using the Mantel-Haenszel statistic. Between-group comparisons were determined using t-test and ANOVA statistics.
RESULTS: A total of 497 (response rate=52%) surveys were completed. Attitude assessments revealed that overall, 58.4% of residents considered issues of medically underserved populations to be very important, 39.1% somewhat important, and 2.7% not at all important. Residents (percent) agreed that issues of access to healthcare (63.8%), racial and ethnic health disparities (59.6%), and socioeconomic position and health (51.8%) were very important. Women had more favorable attitudes than men across all 15 items (overall percentages for 'very important' responses: 67% versus 51%; $p=<0.001$). Behavioral assessments revealed that percentages of residents who regularly volunteered their time with medically underserved populations were 76% during medical school, 19% during residency, and 84% anticipated in future practice. Non-white respondents had volunteered more than whites in the past (82% versus 73%; $p=0.013$), and more women than men anticipated volunteering in the future (90% versus 79%; $p=0.001$). When correlating attitudes with behaviors, respondents who volunteered regularly had more favorable attitudes regarding underserved populations than those who did not volunteer (overall percent 'very important' 63% versus 49%; $p=<0.0001$). Finally, relationships between hours volunteered per-week and the favorability of attitudes were significant across all 15 items (p-value range of 0.035 to <0.0001).

CONCLUSION: Our survey revealed that U.S. residents' attitudes towards medically underserved populations are generally favorable. Rates of volunteering for underserved patients were high in medical school and anticipated future practice, yet low during residency. This suggests the need to identify barriers and provide opportunities to volunteer during residency, and to determine whether plans to volunteer in future practice are actualized. Our findings suggest that women have more favorable attitudes and behaviors regarding the underserved, which is consistent with existing demographic data on volunteers in the U.S. The strong association between residents' attitudes and behaviors regarding medically underserved populations indicates that expressed intentions may be a useful criterion for identifying altruistic residents.

RESIDENT RESEARCH SURVEY S. Kumar[1]; F. Irani[2]; T. Vettese[1]; D. Levine[1]. [1]Wayne State University, Detroit, MI; [2]St Vincent Mercy Medical Centre Program, Toledo, OH. *(Tracking ID # 205885)*

BACKGROUND: Medical education and clinical competence are the primary goals of graduate medical education. In 1994, the Residency Review Committee (RRC) for internal medicine mandated resident's participation in scholarly activities such as original research, clinical and research reviews, or case reports. There are several factors that govern successful resident scholarly activities. We are conducting a survey (ongoing) of internal medicine residents to appraise prevailing resident participation in scholarly projects during the course of their training with an attempt to assess variables that may influence resident participation.
METHODS: A survey tool was developed to assess resident ability to complete scholarly projects. It contains a 17 point questionnaire. An encrypted link was emailed to program directors (PDs) via the APDIM list serve. PDs were then asked to forward it to their residents. The survey was approved by Institutional Review Board at Wayne State University. The survey is completely anonymous with respect to both the identity of the residents and the program. We present the responses from our initial 218 participants from both university as well as community programs.
RESULTS: Thus far, we have received 218 responses. Maximum representation was from 2nd year residents (35.3%) followed by 1st year (33.9%). The majority (55.8%) of these participants were from university programs, 29.5% were from university affiliated and 14.7% were from community programs. More than a third of participants (37.5%) had prior experience as a research assistant although, 35.2% reported no background research experience. A small group of residents had advanced degrees e.g. MPH (8.3%) and PhD (4.6%). About 70% of the surveyor's graded their program's enthusiasm as high for encouragement of scholarly activities and availability of a research director/mentor but 60% voiced their concern over lack of funding for research. Most (46.7%) were able to start their own project, while 21.6% worked on their mentor's project. A substantial percentage of residents (35.2%) failed to identify a suitable project. Case reports (47%) and retrospective chart reviews (45.9%) were the among the most common research endeavors. 62.1% residents had protected research time, however, 61.3% were unable to complete their projects. Nearly a third (28%) of resident were able to present their research at a state/national meeting or publish in a peer reviewed journal. The overwhelming majority (94.2%) felt that scholarly activities had an important contribution to their education.
CONCLUSION: Preliminary results of our survey provide valuable insight in determining the factors governing resident's scholarly activities. The data in our survey is from multiple institutions in contrast to previous studies which are based at single centers. Initial analysis reveals that the majority of residents have been involved in some kind of scholarly activity. Although programs seemed to encourage participation in research activities, a significant percentage of residents indicated some deficiency in the infrastructure in terms of unavailability of research projects, mentors, funding, and protected research time. Despite slight overrepresentation of university programs (55.8%), this information helps us to identify barriers to successful scholarly activity and is an initial step towards improving opportunities for resident research.

RESTRUCTURING RESIDENCY EDUCATION IMPROVES THE QUALITY OF INPATIENT CARE G.T. Mcmahon[1]; M.E. Thorndike[1]; M. Coit[2]; M. Laing[2]; J.T. Katz[2]. [1]Harvard Medical School, Brigham and Women's Hospital, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205608)*

BACKGROUND: We designed and implemented an idealized inpatient medical service (ITU) with a focus on education. We sought to determine whether investment in educational development would result in improvements in care quality and patient outcomes.
METHODS: Medical care for a maximum of 15 patients per ITU team was provided by two co-attendings, a pair of residents and three interns. The schedule included daily bedside teaching rounds and additional educational experiences. Outcomes of patients cared for on this service were compared to the standard inpatient care model comprising one resident and 2 interns with a mix of hospitalist and primary care attendings directing care. House officers were randomly distributed between teams and work hours did not differ between services. Patients who were not admitted to the Physician Assistant service were randomly allocated between the GMS and ITU services. We examined mortality, length of stay using the hospital's balanced scorecard dataset. Observed-to-expected mortality and length of stay ratios were adjusted for diagnosis-related group weight. Satisfaction was evaluated by survey. Discharge quality was measured by 2 blinded evaluators using a validated evaluation tool prioritizing required elements. Time motion was recorded using a handheld computer. The protocol was approved by the Institutional Review Board.
RESULTS: Over a 9-month period 1444 and 1571 patients were admitted to the ITU and GMS teams respectively. Patients admitted to the ITU service had a lower absolute mortality (1.4 vs 2.4%, P=0.05) and lower observed to expected mortality ratios (0.9 vs 1.2) after adjustment. Mean length of stay was significantly lower on the ITU team (4.2 vs 4.7 days, P=0.003), facilitating an additional 238 admissions per year. Quality of care indicators were higher for patients discharged from the ITU service where summaries were more frequently complete, and contained significantly more of the required elements describing the patient history (65.7% vs. 36.1%, p<0.001), and discharge planning (20.0% vs. 5.5%, p=0.012). Time-motion evaluation (90-hours) showed that interns on the ITU spent significantly more time in educational activities than the GMS interns (24 vs. 13%, P=0.001), similar time in patient care, and less time in transitions of care and administration. In 166 surveys, overall satisfaction with the care they felt able to provide was significantly higher among ITU as compared with GMS housestaff (78% vs. 55%, p=0.003).
CONCLUSION: As compared to the standard inpatient care model, reduced intern workload and increased attending availability within a restructured residency care model was associated with a significantly lower inpatient mortality and length of stay, higher quality discharge summaries, more time spent in educational activities and higher satisfaction. These findings indicate that an educationally-centered model of care can improve care quality, satisfaction and reduce costs.

RESULTS OF A SUCCESSFUL MODEL FOR DIABETES PREVENTION AMONG AT-RISK POPULATIONS P. Parikh[1]; E. Simon[2]; K. Fei[1]; C. Goytia[1]; G. Arniella[3]; C.R. Horowitz[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Union Settlement Association, New York, NY; [3]North General Hospital, New York, NY. *(Tracking ID # 205487)*

BACKGROUND: Weight loss interventions have proven to be effective in preventing and delaying diabetes among overweight adults with pre-diabetes. Typically, these interventions have not been translated or sustained to scale in community settings. The East Harlem Partnership for Diabetes Prevention employed a community-based participatory research (CBPR) approach to develop and pilot a randomized-controlled trial to measure the effectiveness of a peer-led lifestyle intervention in promoting weight loss among overweight adults with pre-diabetes living in East Harlem (EH), an epicenter of diabetes in New York City.
METHODS: Study recruitment occurred at community events and through collaborations with partner agencies. Recruitment was conducted in two phases: Individuals were first screened for eligibility: 18 years, body mass index (BMI) 25, EH residents, not pregnant, and English or Spanish speaking. Those meeting these criteria were invited to return fasting to undergo an oral glucose tolerance test (OGTT) for pre-diabetes, defined as fasting fingerstick glucose of 100–125 mg/dl and/or post OGTT glucose of 140–199 mg/dl. Trained staff obtained blood pressure and waist circumference, drew blood to measure HbA1C and serum cholesterol, and administered a survey to assess diet and physical activity. Participants were randomized to the intervention or control (delayed intervention) group using blocked randomization (block size=4) by recruitment site. All measurements were repeated at three,

six, and twelve months. The intervention group attended a community-developed, eight-session, peer-led weight loss workshop, focusing on healthy eating and increasing physical activity.
RESULTS: Between April and July 2007, 554 community residents were screened for eligibility and 178 OGTTs were conducted. Ninety-nine (56% of those tested) overweight adults with pre-diabetes glucose levels were enrolled in the study (49 control, 50 intervention). The most successful recruitment strategy involved community partners leading efforts at their own sites (72% of participants). Participants were predominantly female (85%), Latino (87%), lived in poverty (45%), uninsured (49%), undereducated (58% did not complete high school), unemployed (70%), non-English speaking (72%), and food insufficient (25%). Their mean BMI was obese at 32 (standard deviation=5; range: 25 to 47). At six months after recruitment (n=79), the intervention group lost an average of 7.1 lbs or 4.2% of their initial body weight while the control group lost 2.8 lbs or 1.7% of their body weight ($p<0.01$). Weight loss was maintained at twelve months (n=72).
CONCLUSION: A peer-led, community-based, and community-led lifestyle intervention can be successful at identifying, recruiting, and retaining participants, as well as promoting weight loss through behavior change among a vulnerable cohort of adults with pre-diabetes. This study highlights the value of a CBPR approach in translating efficacy research into simpler, more sustainable programs that can be woven into the fiber of communities hardest hit by chronic diseases.

RILONACEPT REDUCES THE OCCURRENCE OF GOUT FLARES THAT MAY BE PRECIPITATED BY INITIATION OF URATE-LOWERING THERAPY H.R. Knapp[1]; R. Schumacher[2]; J.S. Sundy[3]; R. Terkeltaub[4]; S. Mellis[5]; S. King-Davis[5]; R. Wu[5]; S. Weinstein[5]; A. Radin[5]. [1]Billings Clinic Research Center, Billings, MT; [2]University of Pennsylvania, VAMC, Philadelphia, Philadelphia, PA; [3]Duke University, Durham, NC; [4]University of California, San Diego, La Jolla, CA; [5]Regeneron Pharmaceuticals, Inc., Tarrytown, NY. *(Tracking ID # 204571)*

BACKGROUND: Background: Lowering serum urate is a mainstay of long-term gout treatment, yet acute gout flares may be precipitated by initiation of urate-lowering therapies. When elevated serum urate levels are lowered, the resultant dissolution of urate crystals in a gouty joint can stimulate a protein complex, known as the inflammasome, in white blood cells to release interleukin-1 (IL-1). Since recent evidence has implicated IL-1 in the pathogenesis of gout attacks such as these flares, we assessed weekly subcutaneous rilonacept (R) [IL-1 Trap] 160 mg, a soluble IL-1 receptor-Fc fusion protein, compared to placebo (Pbo) for prevention of such gout flares.
METHODS: A US multi-center, randomized, double blind, placebo-controlled, phase 2 study was initiated in adults with gout (1977 ARA criteria), urate $\geq$7.5 mg/dL, and self-reported history of $\geq$2 acute gouty attacks in the previous year. Sixteen weeks (wk) of study drug treatment was initiated along with the urate-lowering agent, allopurinol, 300 mg daily (a lower initial dose was used in those with renal dysfunction), which was titrated to achieve a serum urate <6 mg/dL. Anti-inflammatory agents such as colchicine and NSAIDs were not allowed to be used to prevent flares. Gout flares (those requiring treatment with an anti-inflammatory agent) were confirmed via phone contact with the study site and reported by the patient via interactive voice response diary. Flares were to be treated for 5 to 10 days with an NSAID or oral glucocorticoid, with study treatments continued. Endpoints included the mean number of gout flares (primary endpoint), % of patients with 1 or more flares, and assessments of safety and tolerability during the treatment period.
RESULTS: Eighty-three patients were randomized 1:1 to treatment, 41 to R and 42 to Pbo. Baseline parameters were similar between treatment groups and included: 80 M/3F; mean age, 51 years (27–77); tophaceous gout, 10%; mean number of flares reported in the prior year, 4.5. Ten patients (1 on R/ 9 on Pbo) withdrew prior to the primary 12-week endpoint evaluation. Urate levels decreased similarly in both groups. Through wk 12, the mean number of gout flares per patient was 0.15 [6 flares] for R and 0.79 [33 flares] for Pbo ($p=0.0011$), and the % of patients with 1 or more flares was 15% [6 patients] for R and 45% [19 patients] for Pbo ($p=0.0037$). 21.4% [9/42] of patients experienced more than 1 flare with Pbo whereas none of the R patients experienced more than 1 flare ($p=0.0024$). Reported adverse events (AE) were similar between the two treatment groups, with the most common categories being infections (10% on R, 19% on Pbo) and musculoskeletal system disorders (10% on R, 17% on Pbo). No deaths or serious infectious AEs were reported.
CONCLUSION: Targeted inhibition of IL-1 with rilonacept markedly reduced the occurrence of gout flares that are often seen during initiation of urate-lowering therapy, and demonstrated a generally favorable safety profile.

RISK FACTORS FOR ANTIHYPERTENSIVE MEDICATION NON-ADHERENCE A. Hajjar[1]; M. Ray[1]; J. Tang[1]; J.Y. Wan[1]; J.E. Bailey[1]. [1]University of Tennessee Health Science Center, Memphis, TN. *(Tracking ID # 206084)*

BACKGROUND: Little is known regarding the patient factors and health services exposures associated with improved adherence. This study seeks to determine the most important risk factors for antihypertensive non-adherence among Medicaid enrollees and whether increases in outpatient visits can improve adherence.
METHODS: Secondary analysis of retrospective cohort study database of all chronic drug-treated hypertensives enrolled in Tennessee's Medicaid system for 3–7 years from 1994–2000. Demographic characteristics, comorbidity, health services and medication utilization were evaluated using administrative data during a 2-year baseline period. The study's main outcome measure was baseline antihypertensive refill adherence defined as the percentage of potential medication days for which medication was obtained. All subjects were categorized as either adherent or non-adherent using an 80% cutoff. Associations with non-adherence were assessed using logistic regression modeling.
RESULTS: Using the 80% cutoff criteria, 60.6% (N==29,970) of the 49,479 subjects were classified as non-adherent and 39.4% (N=19,509) as adherent. For non-adherence, significant variables ($p<0.05$) in multivariate analysis included: age (Odds Ratio=0.97), male gender (1.12), black race (1.67), disability (0.62), urban residence (1.12), obesity (1.10), diabetes (0.76), mental illness (1.08), substance abuse (1.43), hypercholesterolemia (0.72) and Charlson Index (0.97). When health care utilization was considered, increases in outpatient visits were associated with decreased risk of non-adherence (Odds Ratio= 0.99), while emergency visits (1.07) and hospital visits (1.12) were associated with increased odds of non-adherence.
CONCLUSION: This study demonstrates that substance abuse, mental illness, black race, emergency visits and hospitalizations serve as potent risk factors for non-adherence and that increases in outpatient visits are associated with improved adherence. An increase by one outpatient visit was associated with a decrease in odds of non-adherence by 1%. This suggests outpatient visits can help improve adherence in patients at risk. This strategy merits further evaluation through clinical trials.

RISK FACTORS FOR DEATH AFTER RELEASE FROM PRISON I.A. Binswanger[1]; P. Blatchford[1]; M.F. Stern[2]. [1]University of Colorado Denver, Aurora, CO; [2]University of Washington School of Public Health, Seattle, WA. *(Tracking ID # 205551)*

BACKGROUND: Nearly 1.6 million people were in prison in 2007 and the population of inmates is growing. The risk of death among inmates after release from prison is high, especially in the first two weeks after release. The aims of this study were to determine demographic, substance dependence and release characteristics associated with an increased risk for death after release from prison. We hypothesized that increasing age, substance dependence, release without subsequent correctional supervision, and increased length of stay in prison would be associated with an increased risk of death.
METHODS: Data were used from a retrospective cohort study of 30,247 inmates with 38,809 releases from the Washington State Department of Corrections from July 1999-December 2003. Deaths were identified using the National Death Index. The electronic database (Offender-Based Tracking System) of the Department of Corrections provided information about sex, race/ethnicity, age, length of incarceration, lifetime chemical dependency screen result using the Diagnostic and Statistical Manual of Mental Disorders criteria (positive, negative or missing, determined in prison), and release status (release without supervision or release with community supervision or parole). Cox proportional hazards regression was used to determine risk factors for death after release from prison, accounting for multiple releases by the

same individual, and including all the potential risk factors in the model.
RESULTS: Each increase in age by one decade was associated with a 1.91-fold increase in the risk of death (95% confidence interval [CI] 1.74–2.09). Compared to men, women were at no increased risk for death after release from prison (hazard ratio [HR] 0.86, 95% CI 0.64, 1.15). Hispanics were at decreased risk of death compared to non-Hispanic whites (HR 0.09, 95% CI 0.06, 0.12) and non-Hispanic blacks had a similar risk of death compared to non-Hispanic whites (HR 0.83, 95% CI 0.65, 1.07). Individuals who were missing the results of a chemical dependency screen were at higher risk (HR 1.81, 95% CI 1.31, 2.49) than those with a negative screen, whereas the results for a positive screen compared with a negative screen did not reach statistical significance (HR 1.25, 95% CI 0.98, 1.68). Length of incarceration and type of release were not significantly associated with risk of death.
CONCLUSION: Former inmates who were missing results of screening for chemical dependency while in prison were at increased risk for death after release from prison, and had likely not been screened during their incarceration. Being Hispanic was associated with a decreased risk of death. Greater screening for chemical dependency in prison settings may reduce the risk of death among former inmates by increasing access to treatment.

RISK OF DIABETES MELLITUS IN OLDER BREAST CANCER SURVIVORS K.B. Stein[1]; H. Yeh[1]; C. Snyder[1]; A.C. Wolff[1]; F.L. Brancati[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205478)*

BACKGROUND: Older women who survive breast cancer may develop multiple risk factors for incident type 2 diabetes (e.g., weight gain, suboptimal nutritional intake, physical inactivity) that increase their risk compared to their cancer-free counterparts. This raises concern that breast cancer survivors might be at elevated risk for incident type 2 diabetes mellitus.
METHODS: To determine the risk of diabetes associated with incident breast cancer and its treatment, we analyzed data from the Surveillance, Epidemiology, and End-Results (SEER)-Medicare linked database. At baseline in 2000 – 2002, we identified 16,343 women aged 67 or older diagnosed with a first Stage I – Stage III breast cancer. For comparison, we identified 92,197 cancer-free female controls from the 5% random sample of Medicare population living in SEER regions. We required continuous enrollment in Parts A and B fee-for-service Medicare from 2 years prior to analysis thru 2005 or death. Exclusion criteria included 1) diagnosis of breast cancer on autopsy or death certificate; 2) death within 12 months of breast cancer diagnosis or the year 2000 for women without cancer; 3) breast cancer recurrence or development of a second malignancy during the analysis period; or 4) diagnosis of diabetes mellitus in the 2 years prior to study enrollment. We calculated the 5-year incidence of diabetes mellitus, and we used the Cox proportional hazards model to determine the relative hazard of diabetes mellitus among breast cancer survivors and non-cancer female controls, adjusting for potential confounding factors.
RESULTS: During 5 years of follow-up, 3,444 breast cancer survivors and 22,969 women without breast cancer developed incident diabetes mellitus. The corresponding diabetes incidence rates were 58.6 versus 53.0 per 1,000 person-years, respectively. In univariate analyses, there was increased risk of diabetes mellitus with age greater than 75 years (Hazard Ratio [HR] 1.05; 95% Confidence Interval [CI] 1.02, 1.08), African-American race (HR 1.74; CI 1.66, 1.82), other non-white race (HR 1.53; CI 1.46, 1.60), urban/suburban location (HR 1.26; CI 1.15, 1.38), highest quartile of physician visits in the year prior to study enrollment (HR 1.70, CI 1.64, 1.75), and lowest quartile of income (HR 1.11; CI 1.07, 1.14). After adjusting for age, race, income, urban/rural location, and physician visits, women with breast cancer appeared to be about 11% more likely to develop incident diabetes compared to their counterparts without breast cancer (HR 1.11, CI 1.07; 1.15; $p< 0.001$). The associations were robust in women <= 75 years (HR 1.12, CI 1.07, 1.19; $p<0.001$) and >75 years (HR 1.10, CI 1.04, 1.15, $p<0.001$).
CONCLUSION: In US women aged 67 and older, breast cancer survivors are at 11% higher risk for diabetes mellitus compared to women without cancer. Future research should determine pathways to diabetes risk with an eye towards prevention.

ROLE OF PRICE INCENTIVES IN FOOD CHOICE. R. Alavi[1]; N. Ebrahimi[2]; J.M. Clark[1]; S.A. Abookire[3]. [1]Johns Hopkins University, Baltimore, MD; [2] N/A, Baltimore, MD; [3]Harvard University, Cambridge, MA. *(Tracking ID # 205079)*

BACKGROUND: Food choice is known to be affected by many factors including price. We examined the role of price as a food choice determinant, and the role of price incentives in promoting healthier food choices.
METHODS: As a pilot study, we conducted a cross-sectional self-administered survey of adult patients in three general primary care clinic waiting rooms in Cambridge, MA in 2007–2008. Subjects rated the degree that taste, calorie content, or price affected their food choice on a Likert scale of 1–5. They were presented with a choice among more or less healthy items (diet vs. regular soda) that were the same price. They then responded to the same choices when price incentives were presented in increasing amounts. The three price incentive surveys differed only by the price incentive amounts, which varied between 5%, 10%, and 20%. Change in food choice was measured both at the individual level, and at the food pair level.
RESULTS: Of the 151 people who completed the survey, 80% were women, median annual household income was $71,000, and the mean BMI was 26.2 kg/m2 (range 17–45). The survey completion rates were evenly distributed among the three different price incentive amounts. 15% rated price, 25% rated calorie content, and 55% rated taste as the most important determinant for purchase. 15% of the people changed at least one item from their usual choices to the healthier choice when presented with a 5%, 10%, or 20% price incentive. Table 1 shows rates of change for each food pair, which ranged from 0 to 19%. The likelihood of altering food choice given a price incentive was directly correlated with self reported importance of price ($r=.30$, $p<.01$) and inversely correlated with income ($r=-.20$, $p<.05$). There was no statistical difference detected between the different price incentive levels.
CONCLUSION: Price is an important determinant of food choice in a subset of patients, particularly those with lower income. Incentive-based interventions may have a role in promoting healthier food choices; however intervention trials are needed to test changes in consumption patterns.

Behavior change with price incentive

Food options	Unhealthy chosen when same price	Changed to healthy with price incentive	Percent change
Regular ground beef vs. Extra lean ground beef	9	0	0.0%
Regular soda vs. Diet soda	43	4	9.3%
Whole milk vs. Skim milk	32	3	9.4%
Regular potato chips vs. Baked potato chips	38	7	18.4%
Ice cream vs. Fat-free frozen yogurt	75	14	18.7%

RURAL/URBAN DIFFERENCES IN DIABETES SELF-CARE AND QUALITY OF CARE IN THE UNITED STATES IN 2007 C.P. Lynch[1]; L.E. Egede[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 206010)*

BACKGROUND: There is limited recent population-based data comparing diabetes self-care behaviors and quality of care among people diagnosed with diabetes in rural versus urban areas. This analysis examined differences in multiple diabetes self-care behaviors and quality of care indicators by residence status in a large nationally representative population-based sample.
METHODS: Data from 430,912 individuals from the 2007 Behavioral Risk Factor Surveillance Survey were analyzed. Consistent with the

Office of Management and Budget definition, rural residence was defined as living in a nonmetroplitan statistical area. Diabetes was based on self-report. Self-care behaviors included eating ≥5 servings of fruits and vegetables daily, meeting physical activity (PA) recommendations, checking feet for sores or irritations daily, testing blood sugars at least once daily. Quality of care indicators included the following: having ≥2 office visits, ≥2 glycosylated hemoglobin checks, ≥1 foot exams by provider, ≥1 dilated eye exams by provider, daily aspirin use, and flu shot in the past 12 months, as well as ever having a pneumonia shot. In unadjusted analyses, self-care behaviors and quality of care indicators were compared between rural and urban dwellers. Multiple logistic regression was used to determine the independent effect of rural residence on self-care behaviors and quality of care indicators controlling for relevant covariates. Covariates included age, sex, race/ethnicity, education, income, health insurance, and attendance of diabetes education classes. STATA version 10 was used for statistical analysis to account for the complex survey design and to yield population estimates.
RESULTS: Of the total sample, 9.6% had diabetes and 18.5% were rural dwellers. Of those with diabetes (n=52,817), rural dwellers comprised 20.9% of the sample. Compared to urban dwellers, rural dwellers with diabetes were more likely to be non-Hispanic white and married, but were less educated, had lower income, poorer self-rated health status, and were less likely to have attended diabetes education classes. For self-care behaviors, multivariate models adjusting for all covariates showed that rural dwellers were more likely to perform home glucose testing (OR 1.13; 95% CI 1.02–1.26) and self foot exams (OR 1.42; 95% CI 1.28–1.59). However, other self-care behaviors were not significantly different. For quality of care indicators, after adjusting for covariates, there were no significant differences by rural versus urban residence.
CONCLUSION: These findings suggest that in 2007, rural dwellers with diabetes had significantly better self-care behaviors than urban dwellers. However, quality of care did not appear to differ significantly, suggesting that rural/urban disparities in quality of care for diabetes may be narrowing.

RUSH AND TIMI RISK SCORES FOR UA/NSTEMI PREDICT IN HOSPITAL COMPLICATIONS IN PATIENTS WITH UA/NSTEMI IN EL SALVADOR. G.D. Valdez[1]; C. Rubio[2]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN; [2]Social Security Institute of El Salvador, San Salvador, . *(Tracking ID # 204200)*

BACKGROUND: Several scoring systems have been proposed for risk stratification in patients with unstable angina/non-ST-segment elevation myocardial infarction (UA/NSTEMI). Studies have shown that TIMI lacks predictive value in nonselected populations. The objective of this study was to prospectively compare the predictive value of TIMI vs. RUSH scores for UA/NSTEMI patients in a metropolitan hospital in El Salvador with regard to cardiovascular morbidity and mortality.
METHODS: All patients with the diagnosis of UA/NSTEMI admitted to the Social Security Institute of El Salvador (SSIES) between June 2005 and December 2006 that met inclusion/exclusion criteria were analyzed prospectively comparing TIMI and RUSH risk scores. Patients were stratified into low risk (TIMI<3, RUSH classes I, II) or high risk (TIMI4, RUSH classes III and IV) accordingly. An investigator blinded to the initial risk stratification performed a chart review on days 2 and 7 for the presence of endpoints (heart failure, recurrent angina, ST-elevation MI, and death). A structured interview was done one month later in the cardiology clinic or by phone to assess for the presence of endpoints. Statistical analysis was performed comparing inpatient complications/endpoints in each risk category.
RESULTS: A total of 248 consecutive patients with UA/NSTEMI were evaluated 218 met inclusion/exclusion criteria and consented to participate. The mean age was 59 (SD±11.5), 70% were male, and 32% of the patients were diabetics. According to initial TIMI score 45% of the patients were classified as high risk compared to 59% according the RUSH score. Endpoints were met by 23% of the patients overall as follows: CHF 10%, STEMI 8%, ventricular tachycardia 7%, and death 5%. Thirty-one percent of patients judged as high risk on TIMI met endpoints compared with 16% of patients stratified as low risk by TIMI (Chi square: 6.4, p=0.01). Twenty-eight percent of the patients stratified as high risk with RUSH met endpoints compared with only 14.6% of the patients stratified as low risk by RUSH (Chi square: 5.2, p=0.02).
CONCLUSION: This study shows promising results for the use of two different predictive models for complications in patients with UA/NSTEMI in a large public hospital in El Salvador. Patients stratified as high risk based on TIMI or RUSH risk scores were significantly more likely to develop complications at 48 hours and 30 days. This knowledge can help practitioners stay particularly attuned to high risk patients in an effort to reduce the potential associated increased morbidity and mortality. The RUSH score does not require troponins and hence could be an option for risk stratification in patient with UA/NSTEMI in developing country settings where troponins are not readily available.

RUSH risk score

RISK FACTOR	POINTS
No use B bloquer	4 pts
ST segment deviation	3 pts
Diabetes mellitus	2 pts
Chest pain	2 pts
Age >75 year old	2 pts
Age 65–75	1 pt
Nitroglycerin IV	1 pt
AMI within 14 days	6 pts

SCREENING FOR OBSTRUCTIVE SLEEP APNEA IN AN INTERNET WEIGHT LOSS COMMUNITY: A PILOT, DOUBLE-BLIND, RANDOMIZED, CONTROLLED TRIAL K.O. Hwang[1]; A.M. Hamadah[1]; C.W. Johnson[2]; E.J. Thomas[1]; G.K. Goodrick[1]; E.V. Bernstam[2]. [1]The University of Texas Medical School at Houston, Houston, TX; [2]The University of Texas School of Health Information Sciences at Houston, Houston, TX. *(Tracking ID # 204585)*

BACKGROUND: Internet weight loss communities offer social support for overweight and obese individuals trying to lose weight. These communities also represent a novel target population for Internet-based screening interventions. Since obstructive sleep apnea (OSA) is underdiagnosed and obesity is the strongest known risk factor for OSA, screening for OSA in Internet weight loss communities may be a low-cost and effective strategy. We evaluated an online OSA screening intervention among members of an Internet weight loss community with a pilot, double-blind, randomized, controlled trial.
METHODS: Members of an Internet weight loss community who have never been diagnosed with OSA or discussed OSA with their healthcare provider were randomized to intervention (online OSA risk assessment and risk-tailed OSA presentation) or control. The primary outcome was discussing OSA with a healthcare provider at 12 weeks. Diagnosis or treatment of OSA were secondary outcomes.
RESULTS: One hundred sixty-eight individuals [age 39.5 (11.7), BMI 30.3 (7.8), 97% female, 90% white] were randomized to intervention (n=84) or control (n=84). Of 82 intervention subjects who completed risk assessment, 50 (61%) were low risk and 32 (39%) high risk for OSA. Intervention subjects were more likely than control subjects to discuss OSA with their healthcare provider within 12 weeks [11% (9/84) vs 2% (2/84), P=.02, RR=4.50, 95% CI 1.002 to 20.21]. The number needed to treat was 12. High risk intervention subjects were more likely than control subjects to discuss OSA with their healthcare provider [19% (6/32) vs 2% (2/84), P=.004, RR=7.88, 95% CI 1.68 to 37.02]. One high risk intervention subject was diagnosed with and started treatment for OSA.
CONCLUSION: This pilot study suggests that a low-cost online OSA screening intervention is feasible and effective in encouraging members of an Internet weight loss community to discuss OSA with their healthcare provider. The next steps are to automate the intervention with computer programming and confirm results in a larger sample size.

"SEARCHING FOR A REFUGE:" PROVIDER BELIEFS REGARDING INTIMATE PARTNER VIOLENCE SURVIVOR PREFERENCES IN COLOMBIA A.A. Baig[1]; G. Ryan[2]; M.A. Rodriguez[3]. [1]University of Chicago, Chicago, IL; [2]RAND, Los Angeles, CA; [3]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205222)*

BACKGROUND: Intimate partner violence (IPV) is a pervasive global public health problem. Understanding the attitudes and beliefs that providers have regarding patient's goals and expectations in addressing

IPV and in approaching the medical system for assistance are key in designing interventions to improve the medical care for these survivors. We sought to understand Colombian healthcare providers' beliefs and attitudes regarding the types of assistance female survivors of IPV seek and who they turn to for assistance.
METHODS: Semi-structured interviews were conducted with 27 healthcare personnel from a diverse sample of eight hospitals in Bogotá, Colombia from March 2008 to April 2008. We purposefully sampled public and private hospitals that delivered primary, secondary, and tertiary level of care in Bogotá and then interviewed physicians, nurses, social workers, and psychologists whose patient populations were at least 50% women of reproductive age. We used a structured protocol to guide all our interviews. Respondents were asked "What types of assistance do you believe survivors of IPV are searching for? and "Where do IPV survivors go for help?" We used systematic qualitative analysis techniques to identify the range and consistency of beliefs and practices across different hospitals and types of healthcare professionals.
RESULTS: Of the 27 healthcare personnel, 18 providers responded to our interview questions: 10 physicians, 6 nurses, one social worker, and one psychologist. Most respondents noted that female survivors of IPV wanted to talk about the abuse and have someone listen to them. Aside from offering emotional support, providers noted that women wanted their physical problems treated and improved access to mental health services. Many noted that the survivors' primary interest was not in reporting the abuse to law enforcement. In terms of where and to whom women reach out, most respondents noted that initially women turn to their family and friends, the church, and governmental institutions. Providers also noted that women were turning to the healthcare for assistance increasingly more than before.
CONCLUSION: Providers believe that female survivors of IPV desire a range of assistance, from emotional support to treatment for physical symptoms. Victims tend to reach out to family members and friends for support initially, with healthcare providers increasingly being sought out for assistance. Further studies in understanding the treatment goals of female Colombian IPV survivors would allow confirmation of these findings and assist in meeting the expectations of these survivors. Improving the care for VI survivors within the Colombian healthcare system will involve educating healthcare providers on patients' goals and expectations and working with patients to design systems to address their needs.

SELF-EFFICACY PREDICTS WALKING ABILITY IN PERSONS WITH DIABETES MELLITUS AND PERIPHERAL ARTERIAL DISEASE T.C. Collins[1]; S. Lunos[1]; N. La[2]; K. Gujral[3]; J. Ahluwalia[1]. [1]University of Minnesota, Minneapolis, MN; [2]University of Minnesota, Minneapolis, Minnesota; [3]University of Minnesota, St Louis Park, Minnesota. *(Tracking ID # 205548)*

BACKGROUND: Peripheral arterial disease (PAD) is a debilitating disease. Diabetes mellitus is a prevalent and important risk factor for PAD. Walking therapy improves walking ability in persons with PAD but adherence to therapy is limited. Self-efficacy or confidence to perform a specific activity is a known predictor for behavior change. Little is known about the association of self-efficacy with actual walking ability in persons with diabetes mellitus and PAD. We sought to determine the association of self-efficacy with walking ability in persons with diabetes mellitus and PAD.
METHODS: We analyzed baseline data from persons with diabetes mellitus type 1 or 2 and PAD (as defined by an ankle-brachial index<0.9 or, for persons with vascular calcification, a toe-brachial index of <0.7) who were enrolled in a walking intervention trial funded by the American Diabetes Association. As part of the baseline assessment, persons completed questionnaires to ascertain self efficacy and co-existing illnesses. In addition, participants completed a treadmill walking test and, to better assess community-based walking ability, a 6-minute walking test.
RESULTS: To date, 124 persons (mean age 66.6±11.8 years) with diabetes mellitus and PAD have been enrolled. The cohort is composed of 33% women and 92% European Americans/whites. The mean ABI is 0.69 (0.18 – 2.20). Among the 124 persons enrolled to date, 16 (13%) have congestive heart failure, 12 (10%) have renal insufficiency, and 30 (24%) have had a prior myocardial infarction (MI). The mean glycosylated hemoglobin value is 7.1 (SD 1.2). Mean distance walked, as per the treadmill walking test, was 0.26 miles (SD 0.16) and mean distance walked, as per the 6-minute walking test, was 0.17 miles (SD 0.05). As measured by the treadmill walking test, variables univariately associated with walking ability, at a significance level of P<0.10, included age, a prior MI, renal failure, and self efficacy. In the multivariate linear regression model, self-efficacy remained significantly associated with treadmill walking distance (P<0.05). As measured by the 6-minute walking test, variables univariately associated with walking ability, at a significance level of P<0.10, included the ankle-brachial index and self-efficacy. In the multivariate model, self-efficacy remained significantly associated (P<0.05) with distance walked during the 6-minute walking test.
CONCLUSION: Self-efficacy, a psychosocial mediator for behavior change, was significantly associated with walking ability in persons with diabetes mellitus and PAD. As walking improves walking distance and atherosclerotic risk factor profiles in persons with PAD and diabetes mellitus, future interventions should target self-efficacy to improve adherence to therapy.

SELF-MANAGEMENT INTERVENTION TO IMPROVE HYPERTENSION CONTROL: THE TAKE CONTROL OF YOUR BLOOD PRESSURE (TCYB) STUDY H.B. Bosworth[1]; M.K. Olsen[1]; J.M. Grubber[2]; A. Neary[2]; M. Orr[2]; B.J. Powers[1]; M. Adams[1]; L.P. Svetkey[1]; S. Reed[1]; R.J. Dolor[1]; E.Z. Oddone[1]. [1]Duke University, Durham, NC; [2]Durham Veterans Affairs Medical Center, Durham, NC. *(Tracking ID # 204348)*

BACKGROUND: Among the 65 million Americans with hypertension, approximately 37 percent have their blood pressure (BP) under control.
METHODS: Objectives: Examine the effectiveness of two patient-directed interventions designed to improve BP control. Design: A 2 by 2 randomized trial with two-year follow-up. Four groups examined: 1) usual care; 2) home BP monitoring; 3) tailored behavioral self-management intervention administered via telephone by a nurse, or; 4) a combination of the home BP monitoring and tailored behavioral phone intervention. Setting: Two university-affiliated primary care clinics. Patients: Of the 1728 potentially eligible patients with hypertension, 458 were excluded, 634 declined, and 636 patients were enrolled. The mean age was 61 years; 49% were African American; 73% had adequate baseline BP control. Measurements: The primary outcome was BP control (SBP<130 and DBP<80 for patients with diabetes; SBP<140 and DBP<90 for all other patients) evaluated at six-month intervals over 24 months. Interventions: Patients receiving the home BP monitoring were provided a device, instructed in its use, and asked to measure their BP three times per week. The behavioral intervention involved tailored nurse-administered modules targeting specific health behaviors known to improve BP control delivered by telephone every other month.
RESULTS: 486 (76%) completed the 24-month follow-up. Patients randomized to the combined behavioral and home BP monitor group showed the greatest improvement in proportion of BP control over the study period (70.4% at baseline to 83.2% at 24 months). Relative to usual care, rates of BP control improved over time in the combined home BP monitoring/behavioral intervention arm (p=0.01). Improvements in BP control for the home BP monitoring and behavioral group were non-significant relative to usual care. Over the 24 months, there were no statistically significant differences in inpatient or outpatient medical resource use between study groups.
CONCLUSION: Combined home BP monitoring and a telephone tailored- behavioral intervention resulted in a significant improvement in BP control over 24 months.

Proportion in Blood Pressure Control and Mean Systolic and Diastolic Blood Pressures, Take Control of Your Blood Pressure (TCYB) Study

	Baseline (N=629)	24 Months (N=475)
BP in control (JNC 7) (N, (%))		
Usual Care	114 (71.7)	89 (67.4)
Home BP Monitor	122 (77.2)	94 (82.5)
Behavioral	115 (71.9)	94 (74.0)
Home BP & Behavioral	112 (70.4)	94 (83.2)
Systolic BP Mean (SD)		
Usual Care	124.2 (17.6)	123.76 (19.9)

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Home BP Monitor	125.5 (15.2)	122.20 (18.3)
Behavioral	124.40 (18.3)	124.44 (18.7)
Home BP & Behavioral	125.9 (19.7)	120.22 (15.3)
Diastolic BP Mean (SD)		
Usual Care	70.4 (°0.3)	68.86 (11.8)
Home BP Monitor	72.2 (10.9)	69.12 (11.8)
Behavioral	71.2 (10.3)	70.68 (11.6)
Home BP & Behavioral	71.6 (11.7)	68.16 (10.0)

SELF-REPORTED ADHERENCE WITH TREATMENT RECOMMENDATIONS IS ASSOCIATED WITH HEALTH-RELATED QUALITY OF LIFE AND MOOD SYMPTOMS BUT NOT 8-MONTH CLINICAL OUTCOMES FOLLOWING CABG SURGERY R. Saghafi[1]; B. Herbeck Belnap[1]; D. Singhabahu[1]; S. Mazumdar[1]; C.F. Reynolds[1]; B.L. Rollman[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205978)*

BACKGROUND: Patients afflicted with cardiac disease are often required to adhere with complex pharmacologic and behavioral treatment regimens to reduce their risk of premature morbidity and mortality. Depression is commonly reported by patients with cardiovascular disease and may affect their ability to adhere with their treatment regimen and subsequent clinical outcomes. To investigate this issue further, we examined data collected as part of an NHLBI-funded clinical trial that successfully demonstrated the impact of collaborative care at treating post-CABG depression (8-month Hamilton Rating Scale for Depression (HRS-D) effect size: 0.36).
METHODS: We enrolled 453 patients from 7 Pittsburgh-area hospitals. They included 302 patients who met criteria for depression on the 9-item Patient Health Questionnaire at 2-weeks following discharge (PHQ-9 10) and were randomized to either their physician's "usual care" or to 8 months of telephone-delivered collaborative care for depression. To facilitate study comparisons, we also randomly selected a cohort of 151 non-depressed (PHQ-9<5) patients to serve as a control cohort. We collected sociodemographic and clinical data at baseline, and monitored patients through periodic blinded telephone assessments. We used the SF-36 scales to measure health-related quality of life (HRQoL), the HRS-D to assess mood symptoms, and the 5-point Healthy Lifestyle Questionnaire for measurement of self-reported adherence with physician-recommended care in populations with cardiac disease (Ziegelstein Arch Intern Med 2000; 160:1818). We classified patients as "adherent" with recommended care if they responded "all" or "most of the time" to the question: "In the past 2 weeks, I found it easy to do the things my doctor suggested I do" and "non-adherent" if they answered otherwise. We used logistic regression among patients randomized to our trial's intervention arm to assess the relationship of adherence level with recovery from depression at 8-month follow-up as defined by a 50% reduction in the HRS-D from baseline score, and Kaplan-Meier analyses to determine time to first rehospitalization by level of treatment adherence for our total study cohort.
RESULTS: At baseline, post-CABG patients who reported higher levels of treatment adherence with their doctors' recommendations were more likely than non-adherent patients to be male (63% vs. 53%; p=0.05), non-smokers (31% vs. 19%; p=0.003), have higher levels of both mental (SF-36 MCS 52 vs. 42; p<0.0001) and physical HRQoL (SF-36 PCS 43 vs. 30; p<0.0001), and fewer mood symptoms (HRS-D: 10 vs. 16.1; p<0.0001). However, they were similar on other sociodemographic (e.g., age, marital status) and clinical characteristics (e.g., history of HTN, CHF, COPD, number of daily medications). Finally, we found no relationship between baseline level of self-reported adherence and 8-month recovery from depression (52% adherent vs. 43% non-adherent; p=0.24) or of incidence of all-cause rehospitalization (27% adherent vs. 33% non-adherent; p=0.19).
CONCLUSION: Self-reported adherence with medical treatment following CABG surgery is strongly associated with patients' HRQoL and mood symptoms, but not with most other sociodemographic and clinical characteristics. Further study is necessary to determine the lack of association between self-reported adherence and clinical outcomes.

SELF-REPORTED AND ACTUAL BETA-BLOCKER PRESCRIBING FOR HF PATIENTS: PHYSICIAN PREDICTORS S. Sinha[1]; M.D. Schwartz[2]; J.S. Ross[3]. [1]James J. Peters VA Medical Center, Bronx, NY; [2]New York University, New York, NY; [3]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205228)*

BACKGROUND: Beta-blockers reduce mortality in patients with systolic heart failure (HF), yet prescription rates have remained low among primary care providers. Although the relationship between patient characteristics and beta-blocker prescription in HF has been studied, less is known about physician factors as predictors of prescription. We sought to examine the association between physician characteristics and their confidence in HF management, with self-reported and actual prescription of beta-blockers among patients with HF being managed within a primary care clinic.
METHODS: We conducted a cross-sectional survey of primary care providers at three New York City VA medical centers, with supplementary retrospective chart review of a random sample of their HF patients. The questionnaire measured demographic and clinical characteristics of physicians including practice patterns and confidence in HF management. The two main outcomes were: 1) self-reported prescribing of beta-blockers among HF patients, and 2) actual prescribing of beta-blockers among HF patients, as documented in the medical record. For actual prescribing, we matched surveyed physicians to HF patients for whom they were identified as the primary care provider. For self-reported prescribing of beta-blockers among HF patients, we used non-parametric Spearman Correlation and Wilcoxon Rank-Sum tests to examine the independent effects of physician characteristics. For actual prescribing of beta-blockers among HF patients, we used Generalized Estimation Equation modeling to examine the independent effects of physician characteristics on actual prescribing.
RESULTS: Sixty-nine of 101 physicians (68%) identified as practicing in the primary care clinics at one of the three VA medical centers completed the survey. Nearly half (46%) were responsible for outpatient precepting of post-graduate trainees at least once a week and 71% served as attendings on the inpatient wards at least one month per year. On average, physicians reported that 23% of their patients had been diagnosed with HF; 30% were very confident in management of HF patients and 49% reported not often consulting cardiologists for management input for these patients. Physicians whose teaching responsibilities included serving as attendings on the inpatient wards self-reported significantly higher rates of beta-blocker prescribing among their HF patients when compared with physicians who did not attend (78% vs. 58%; p=0.002). Physicians who were very confident in managing HF patients self-reported higher rates of beta-blocker prescribing among their HF patients when compared with physicians who were not (82% vs. 68%; p=0.009). Physicians with greater self-reported rates of prescribing beta-blockers among their HF patients were significantly more likely to actually prescribe beta-blockers to their HF patients (p=0.02), however no individual physician characteristics were significantly associated with actual prescribing of beta-blockers among HF patients.
CONCLUSION: Our findings suggest that some physician clinical characteristics such as teaching responsibilities and confidence levels, are associated with self-reported beta-blocker prescribing in HF patients. Focusing on improving physician confidence levels in HF care and increasing their exposure to teaching may improve beta-blocker presciption in HF patients followed in primary care settings.

SEROPREVALENCE OF HIV IN AN URBAN EMERGENCY DEPARTMENT J.M. Collins[1]; S. Eldakar-Hein[1]; R. Bettiker[1]; H. Clauss[1]; B. Palermo[1]; N.T. Gentile[1]; C. Duffalo[1]; J. Menajovsky[1]; W. Pace[1]; J. Stechel[1]; D. Zachary[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 204184)*

BACKGROUND: The Centers for Disease Control and Prevention recommends offering HIV testing to persons admitted to emergency departments (ED). A seroprevalence of approximately 1% has been documented when rapid testing is offered to patients in this setting. However, the true seropositivity rate is unknown.
METHODS: For two weeks in the fall of 2007, demographic and clinical data was extracted from the charts of all ED patients the day after care was provided. Remaining blood samples from these patients were linked to the extracted data by a random seven-digit number and all identifying information was promptly destroyed. HIV testing was then performed with the OraQuick Advance Rapid HIV-1/2 Antibody Test (OraSure Technologies, Bethlehem, PA) on the blood samples. Local and state institutional review boards approved this study.

RESULTS: Over the two-week period, 2427 patients were seen in the ED and 2019 charts were available for review. Blood was available for 942 patients for rapid HIV testing. Fourteen percent (133/942) of samples were reactive. Twelve percent (64/515) of women tested were reactive and 16% (69/427) of men were reactive. The seropositivity rates stratified by race were: 15% (95/649) for African Americans, 13% (15/119) for Latinos, and 9% (9/96) for Caucasians. There were 26 samples for which race was unknown, of which 42% (11/26) were reactive. Seropositivity rates by insurance were: 18% (31/209) for self-pay or unknown insurance status, 15% (43/292) for HMOs, 14% (20/142) for Medicare, and 10% (13/126) for Medicaid. The most common chief complaints associated with HIV seropositivity were seizures (22%, 16 samples were reactive out of 71 samples tested from patients with complaints of seizures), chest pain (14%, 25/181), and gastrointestinal upset (14%, 20/147). Sore throat and fever were the most common symptoms associated with HIV seropositivity: 30% (6/20) of patients with sore throat and 24% (20/82) of patients with fevers had reactive tests.
CONCLUSION: HIV seroprevalence in this urban ED is high. Approximately the same number of men and women tested positive, although more women were tested. The seroprevalence rates were high across all races and all insurance types. The chief complaints and symptoms that were most commonly associated with HIV seropositivity in this study are frequently encountered by primary care physicians. Therefore, clinicians must maintain a high index of suspicion for diagnosing HIV infection and should consider all patients for screening. Interestingly, a seroprevalence of only 0.8% to 1.5% is found when rapid testing is offered directly to patients in the ED, which may underestimate the true prevalence of HIV in these patients.

SHELTER-BASED HEALTH CARE FOR IMPOVERISHED WOMEN IN BOSTON: D. Blazey-Martin, Md[1]; A. Liess, Md[2]; R.H. Means, Md[3]. [1]Tufts University School of Medicine, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Harvard Medical School, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205573)*

BACKGROUND: Background: Homeless and impoverished women represent a rapidly growing population at risk for poor health outcomes. Previous studies have identified barriers to traditional models of healthcare delivery for homeless women in favor of shelter-based medical care. Objective: To describe a unique shelter-based medical care model and characterize the women who continue to utilize these services over a period of at least five years.
METHODS: Design: Cross-sectional survey of underserved women, utilizing structured interviews. Setting & Participants: Fifty women, aged 29–65, who sought medical care repeatedly at two daytime shelters in Boston, Massachusetts since program inception in 1999. Main Outcome Measures: Survey measures included self-reported questions about socio-demographics, physical and mental health comorbidities, health care needs, health care utilization patterns, and perceived barriers to care.
RESULTS: Results: The response rate was 64%. The average age of respondents was 52 years. All women had health insurance. Seventy-two percent reported stable housing. Ninety-four percent reported multiple medical problems—the most common diagnosis being depression (72%). Eighty-eight percent reported having a PCP, but only one respondent had been with the same provider over the past five years. Subjects preferred obtaining medical services through our organization due to preference for providers who understand their issues (86%), ability to obtain free over-the-counter medicines and medical supplies (86%), and assistance with accessing traditional healthcare delivery systems (79%).
CONCLUSION: Conclusions: Impoverished women continue to access medical services at day shelters even after obtaining housing, health insurance, and PCPs. Our unique model of care is one applicable approach to overcome perceived barriers to accessing the traditional healthcare system.

SHORTER OFFICE VISITS TEND TO BE LESS PATIENT-CENTERED L. Epstein[1]; M. Laws[2]; Y.S. Bradshaw[3]; Y. Lee[1]; A. Greenhill[1]; T. Taubin[1]; E. Howe[1]; M. Nguyen[1]; W. Rogers[1]; I.B. Wilson[1]. [1]Tufts Medical Center, Boston, MA; [2]Latino Health Institute, Boston, MA; [3]Tufts University, Boston, MA. *(Tracking ID # 205743)*

BACKGROUND: Current reimbursement systems create incentives for providers to shorten the length, and increase the number, of visits, and little is known about whether shorter visits are less patient-centered. Patient-centered care should have the greatest impact on health outcomes in persons with serious chronic conditions. We therefore studied the relationship between visit length and patient-centeredness in persons with HIV infection.
METHODS: We have developed and validated a new system to analyze audiotapes of physician (MD) – patient (PT) visits grounded in speech act theory called the Generalized Medical Interaction Analysis System (GMIAS). GMIAS assigns each utterance in a dialogue both a topic and a speech act code. Topic codes include physical health, psychosocial, logistics, socializing, and medication-related dialogue. Speech act codes include questions, information giving, conversation management, empathy, directives, and comissives (i.e., promises/commitments). For this analysis, we used audiotapes from a 5-site adherence intervention study in which each of 58 patients had an intervention and control study visit taped. We developed six measures of patient-centeredness (after concepts developed by Kaplan) including the percent of PT speech acts that were questions, the percent PT speech acts that were "control attempts," the ratio of PT to MD utterances, the ratio of MD information-giving to PT control utterances, the ratio of PT information-giving to MD control utterances, and the fraction of total utterances that represented interpersonal communication. Visit length in minutes was highly correlated (r=0.81) with the total number of utterances, so we used the latter in analyses. We measured the strength of the relationship of these measures, and the percent of total utterances devoted to each topic code, to the total number of utterances in a visit using Spearman correlation coefficients (r).
RESULTS: Of the 58 patients, 18% were women, 51% were non-white, and mean age was 42.7 years. For the 116 visits, median visit length was 330 utterances (median time, 15.5 minutes). A mean of 5.3% of PT utterances were questions and 3.5% were control attempts. The mean percent of total utterances that were PT utterances was 43%, and the mean ratio of PT information-giving to MD control utterances was 1.8. For topic codes, a higher percent of psychosocial utterances (r=0.28, p=0.003) and utterances related to non-HIV medications (r=0.25, p=0.006) were associated with longer visits; other topic codes were not related to visit length. Of the 6 measures of patient centeredness, 4 were positively and significantly associated with visit length (r=0.22 to 0.37, all p<0.02). Two, the ratio of MD information to PT control utterances (r=-0.18, p=0.054) and the fraction of total utterances representing interpersonal communication 0.15, p=0.11), were not significantly associated with visit length.
CONCLUSION: In summary, shorter visits for these patients with HIV had less psychosocial content and tended to have fewer of the speech acts designated as patient-centered, but the strength of the relationships we observed was moderate at best. An awareness that there is a risk that shorter visits will be less patient-centered may help physicians take steps to counter this effect.

SHOULD ADULTS WHO SCREEN NEGATIVE FOR UNHEALTHY SUBSTANCE USE BE RESCREENED ANNUALLY? D.P. Alford[1]; A.B. Almeida[2]; R. Saitz[1]; M. Brolin[3]; T.W. Kim[1]; C.W. Shanahan[1]; M. Botticelli[4]; J.H. Samet[1]. [1]Boston University School of Medicine/Boston Medical Center, Boston, MA; [2]Boston Medical Center, Boston, MA; [3]Brandeis University, Waltham, MA; [4]Massachusetts Department of Public Health, Boston, MA. *(Tracking ID # 205523)*

BACKGROUND: Universal screening of adults for unhealthy alcohol use (i.e., risky use, abuse or dependence) is recommended and clinicians should be alert for signs of prescription and illicit drug misuse. But the optimal frequency of screening for adults who initially screen negative is unknown. To inform this question, we assessed the incidence of unhealthy substance (alcohol or drug) use in adult patients who initially screened negative.
METHODS: As part of a nationwide initiative, the Massachusetts Screening, Brief Intervention, Referral and Treatment (MASBIRT) program screened inpatients and outpatients (primary care, specialty clinic, and emergency room) arriving in general healthcare settings in an urban health system for unhealthy substance use (risky, abuse/dependence). Trained health promotion advocates asked three questions to identify unhealthy substance use. Patients who initially screened negative were rescreened if and when they reappeared for

care, not less than 12 months or more than 24 months from the initial screen. Demographic information (i.e., age, gender, race/ethnicity), family history of substance abuse, and lifetime (but not current) personal history of substance abuse at initial and follow-up screening was collected. We report the annual incidence of unhealthy substance use, and factors associated with unhealthy use identified in a logistic regression model adjusting for the aforementioned variables.

RESULTS: From March 2007 through December 2008, 41,302 adult patients were screened for unhealthy substance use in general healthcare settings; 6,890 (17%) screened positive, and 34,412 (83%) screened negative. Of the patients who screened negative, 1,014 reappeared to medical care at least 1 year (median months [range]: 13.9 [12–21]) after their initial screen and were rescreened. Of those rescreened, 34 (3.4%) screened positive for unhealthy substance use. Of patients positive at rescreening, 59% (20/34) reported unhealthy alcohol use only, 32% (11/34) reported unhealthy drug (prescription or illicit) use only, and 9% (3/34) reported both unhealthy alcohol and drug use. In a logistic regression model, patients under 60 years of age (aOR 35.6 [CI 4.8–263.1]) and men (aOR 2.3 [CI 1.1–4.7]) were more likely to report incident unhealthy use. Race/ethnicity and past and family history of substance abuse were not predictive of unhealthy use at rescreening.

CONCLUSION: Annual rescreening of patients for unhealthy substance use who initially screened negative identified a modest number of incident cases. Men and younger adults were at higher risk. These findings need replication in other settings and with other populations and set the stage for informed consideration of appropriate timing of re-screening for unhealthy substance use. Such a policy should be informed by the incidence of unhealthy use among those who initially screen negative and by other relevant parameters examined using cost-effectiveness analyses.

SHOULD DIABETICS WITH PERIPHERAL ARTERIAL DISEASE BE SCREENED BEFORE JOINING A WALKING PROGRAM? N. La[1]; K. Gujral[2]; S. Lunos[1]; T.C. Collins[1]. [1]University of Minnesota, Minneapolis, MN; [2]University of Minnesota, St Louis Park, MN. *(Tracking ID # 205918)*

BACKGROUND: Occult coronary artery disease (CAD) is common among persons with diabetes mellitus with a prevalence ranging from 20% to 50%. The American Diabetes Association recommends screening for CAD in diabetics with a history of peripheral arterial disease (PAD). The ACC/AHA recommends a treadmill-walking test prior to beginning a walking program for persons with PAD. We sought to determine the prevalence of occult coronary ischemia in a very high risk group – persons with coexisting diabetes mellitus and PAD.

METHODS: We analyzed baseline data of persons with diabetes mellitus and peripheral arterial disease (PAD) who underwent a treadmill walking test as part of screening eligibility for a walking trial funded by the American Diabetes Association. Diabetes mellitus was defined by self-report and peripheral arterial disease (PAD) was defined by an ankle-brachial index (i.e., the ratio of systolic blood pressure in the ankle to that in the arm) of <0.9. Prior to the baseline walking test, we conducted an extensive medical history to exclude overt symptoms of CAD. For the treadmill walking test with 12-lead electrocardiographic monitoring, we used the Gardner protocol (speed of 2 mph with a 2% increase in grade every 2 minutes). Persons were asked to walk until maximal leg pain. EKGs tracings were monitored for the ischemic changes and printed per increase in leg pain symptoms. Concerning changes on the EKGs were reviewed by a vascular internist and/or cardiologist who provided recommendations of the need of further stress testing.

RESULTS: Of the 101 persons with diabetes mellitus and PAD who were enrolled, the mean age was 67.4 years (SD±10.5). Ten (9.9%) of persons developed EKG changes consistent with ischemia and, of the ten, only 2 (20%) had evidence of coronary ischemia by nuclear stress testing. The prevalence of additional atherosclerotic risk factors did not differ between those with and without evidence of ischemia. Specifically, current smoking was present in 10% of those with evidence of ischemia vs 9.9% in those without(p>0.20). A previous history of CAD was present in (20% of those versus 34.1% of those p>0.20), sedentary lifestyle (10% vs11%,p>0.20), hypertension (100% vs. 78%,p=0.20), hypercholesterolemia (66.7%vs79.1%,p>0.20), HbA1c>7(55.6% vs61.1%,p>0/20),and BMI>30 50%vs 63.7%,p>0.20). There was no difference in PAD severity between those with and without evidence of coronary ischemia.

CONCLUSION: Our findings suggests that a detailed history including an assessment of concerning symptoms, and in the absence of a prior cardiac events, may alleviate the need for a treadmill walking test prior to initiating a walking program in persons with diabetes mellitus and PAD. For a subset of the cohort, the finding of EKG changes with subsequent negative stress test was likely due to a higher rate of false positive results on EKG stress testing in persons with diabetes mellitus.

SIMILAR RETENTION IN BUPRENORPHINE TREATMENT AMONG PATIENTS WITH HOME- AND OFFICE-BASED INDUCTIONS C.O. Cunningham[1]; A. Giovanniello[2]; G.M. Sacajiu[1]; S. Whitley[1]; H.V. Kunins[1]; X. Li[2]; J. Rivera[2]; N. Sohler[3]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY; [3]City University of New York, New York, NY. *(Tracking ID # 205025)*

BACKGROUND: Novel strategies to treat opioid addiction with buprenorphine can occur in primary care settings. Despite this, buprenorphine treatment remains limited. One challenging element of buprenorphine treatment is the induction (treatment initiation) which requires patients to be in opioid withdrawal and physicians to repeatedly titrate buprenorphine doses. To address this potential barrier, we developed a novel home-based induction protocol to initiate buprenorphine treatment. We compared treatment retention among patients with home-based versus office-based inductions.

METHODS: Opioid-dependent individuals presenting to a Bronx community health center who were clinically appropriate for buprenorphine treatment received office-based inductions from 9/21/04 to 12/31/06 (n=27), and then were offered home- or office-based inductions from 1/1/07 to 12/28/08 (n=81). Home-based inductions included a preparatory office visit and a home-based induction kit that included an instruction sheet, buprenorphine/naloxone, clonidine, loperamide, and ibuprofen. Office-based inductions included a preparatory office visit and two induction office visits. Physicians prescribed the same medications as above at their discretion. We extracted medical record data using standardized clinical forms, including sociodemographic information, substance use in the past 30 days, substance abuse treatment history, and treatment retention (defined as at least 1 visit and an active buprenorphine/naloxone prescription 90 days after induction). We tested whether retention differed by type of induction adjusting for patient characteristics using logistic regression.

RESULTS: Of the 108 patients treated with buprenorphine, the mean age was 45, and most were men (71.3%), Hispanic or black (89.8%), unemployed (68.5%) and heroin users (71.3%). Forty-seven (44.8%) had home-based inductions, and 58 (55.2%) had office-based inductions. Treatment retention at 90 days was similar for those who had home- and office-based inductions (59.6% vs. 60.3%, OR=0.97, 95% CI=0.44–2.12). After adjusting for patient characteristics, this finding remained (AOR=0.82, 95% CI=0.29–2.28).

CONCLUSION: In an inner-city community health center, home-based buprenorphine inductions were as successful in retaining opioid-dependent patients in treatment as office-based inductions. Because home-based inductions have the potential to reduce barriers to opioid addiction treatment, it is important to further develop and evaluate such innovative treatment strategies to address the growing opioid addiction epidemic.

SMOKING CESSATION IN PERIPHERAL ARTERY DISEASE PATIENTS D. Hennrikus[1]; A. Joseph[2]; A.T. Hirsch[1]; H.A. Lando[1]; S. Duval[1]; M. Kodl[3]; L. Ukestad[1]. [1]University of Minnesota, Minneapolis, MN; [2]University of Minnesota Medical School, Minneapolis, MN; [3]Veterans Affairs Medical Center, Minneapolis, MN. *(Tracking ID # 205263)*

BACKGROUND: Peripheral artery disease (PAD) is a highly prevalent atherosclerotic disease that markedly decreases functional capacity and may progress to cause ischemic rest pain, gangrene, or amputation. Use of tobacco is the leading risk factor for PAD, but few prospective clinical trials have evaluated the impact of smoking cessation interventions in patients with PAD.

METHODS: Outpatient cigarette smokers with lower extremity PAD at Abbott Northwestern Hospital or the VA Medical Center in Minneapolis, Minnesota, were recruited for the study over 21 months. Inclusion criteria included willingness to attempt to quit smoking in the next 30 days, smoking at least one cigarette per day, and consumption of alcohol not greater than 21 drinks per week. Participants were randomly assigned to either an intensive PAD-specific intervention that was tailored to participants' circumstances and desire for contact or a minimal intervention, in which they were provided with information about available quit-smoking programs. Features of the intensive program included in-person and/or phone counseling, use of motivational interviewing and standard cognitive-behavioral counseling techniques, explanation of the relationship between smoking and PAD, and encouragement to use pharmacological aids obtained through their existing insurance. The number of sessions, conducted over a period of five months, was largely determined by patient preference. Subjects completed surveys at baseline and at 3- and 6-month follow-up. The primary outcome was 7-day point prevalent smoking abstinence on the 6-month survey validated by assessment of cotinine in saliva samples or carbon monoxide in breath samples.
RESULTS: Of 687 patients identified from records as probable smokers with lower-extremity PAD, 232 patients met study eligibility requirements and were invited to participate and 124 (53% of eligible) enrolled. Subjects were predominantly male (85%) and Caucasian (94%); the median age was 60 years (range: 40–81 years). The median age of initiation of smoking was 16 years and participants smoked a median of 20 cigarettes per day. Only 20% had ever taken part in a formal quit smoking program. Of the 64 subjects randomized to intensive intervention, 69% used at least one pharmacological aid. Subjects were generally receptive to counselor contact: only two could not be contacted for at least one counseling session; the median number of sessions was 8 (range 0–18). Subjects randomized to the intensive intervention group were significantly more likely to be confirmed abstinent at 6-month follow-up; 20.3% vs. 6.7% in the minimal intervention group (chi-square=4.874, p= 0.0273).
CONCLUSION: The results of this study suggest that a large proportion of long-term smokers with PAD are willing to initiate a serious quit attempt and willing to engage in an intensive smoking cessation program. The study demonstrated a significant effect of intensive PAD-specific intervention on smoking abstinence.

SOCIOECONOMIC DISPARITIES AND LONG-TERM BREAST CANCER SCREENING RATES AFTER SWITCHING TO A HIGH DEDUCTIBLE HEALTH PLAN J.F. Wharam[1]; A.J. Graves[1]; F. Zhang[1]; B.E. Landon[2]; D. Ross-Degnan[1]. [1]Harvard Medical School and Harvard Pilgrim Health Care, Boston, MA; [2]Harvard Medical School, Boston, MA. *(Tracking ID # 205772)*

BACKGROUND: Breast cancer screening improves mortality but the increasing prevalence of high-deductible health plans could reduce mammography rates, especially among vulnerable populations. We previously found that breast cancer screening rates remained stable in the first year after transition to a high-deductible health plan. No published studies, however, have examined long-term utilization patterns or effects on socioeconomic disparities.
METHODS: We studied administrative claims of 3852 Massachusetts health plan members insured between March 2001 and February 2008 who were eligible for breast cancer screening. We analyzed mammography rates for one year before and up to 3 years after their employers mandated a switch from traditional HMO plans to a high deductible plan, compared with rates among 22,918 contemporaneous controls whose employers chose to remain in traditional HMO plans. To minimize selection bias, we included only members who were not offered a choice of health plan during follow-up years. Both the HMO and high-deductible plans fully covered mammography with no deductible. We considered members to have low socioeconomic status if they lived in a census block with greater than 10% of households below poverty level or 25% of adult household members with less than a high school education (comprising 21% of our study population). We used logistic regression to adjust for member characteristics including age, gender, morbidity, and individual versus family plan. We stratified analyses by socioeconomic status.
RESULTS: After adjustment, breast cancer screening rates in the the high deductible group relative to the control group did not change significantly from the baseline to the first, second, or third follow-up years (ratios of change, 1.03, 95% C.I., 0.93 to 1.14; 0.97, 95% C.I., 0.85 to 1.11; and 1.14, 95% C.I., 0.94 to 1.39, respectively). Socioeconomic disparities in mammography rates among high-deductible plan members relative to controls did not change substantially during the three follow-up years (Figure, unadjusted ratios of change 1.00, 1.00, and 1.07, respectively).

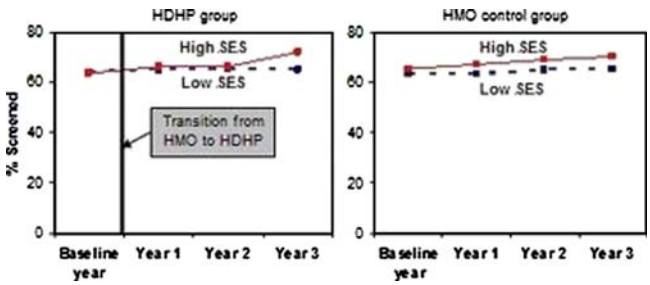


Figure: Differences in breast cancer screening rates by socioeconomic status, HDHP versus control group.

CONCLUSION: Switching from a traditional HMO plan to a high-deductible health plan that fully covered mammography did not substantially affect breast cancer screening rates after up to 3 years. The transition also did not appear to substantially alter pre-existing socioeconomic disparities in breast cancer screening rates.

SOCIO-SPATIAL AND QUALITATIVE METHODS DEFINE SOCIAL AND PHYSICAL ENVIRONMENTAL CONTRIBUTORS TO HIV RISK IN RURAL MINORITY COMMUNITIES G.M. Corbie-Smith[1]; B. Banks[1]; R. Malika[1]; R.P. Strauss[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 204941)*

BACKGROUND: Mapping and photography allow community members to create and present their definitions of community and disease risk. Individually these methods are used to understand physical and social environmental contributors to risk and disease. As part of a larger study, we combined methods of mapping, photography and qualitative interviews to determine the social and physical context and lived experience of minority residents of rural communities with some of the highest rates of HIV in the Southeast.
METHODS: Using large-scale maps of 6 counties, members of our Community Advisory Board (CAB) identified locations where they thought HIV transmission took place in their communities ("hot spots"). Participants used these maps and cameras to take images that showed the social and physical environmental forces facilitating HIV transmission. We interviewed CAB members individually and in small groups and used Atlas.ti to manage text and image data. Our analysis used the principles of grounded theory and theme identification through content analysis. We verified findings with CAB members in subsequent CAB meetings.
RESULTS: CAB members (n=14) mapped 16 "hot spots" and took 234 images across 6 counties. Four themes emerged in analysis. Importance of Geography: CAB members highlighted the impact of major thoroughfares in rural communities. Many noted interstate highways and resultant truck stops, drug trafficking and sex trade. Impact of Eroding Infrastructure: All CAB members took images of abandoned buildings or buildings that had fallen into disrepair. Several described the egress from the rural south of more recent generations of families. Many family owned farms were left abandoned as a result of this egress; CAB members noted the negative economic and physical impact on communities. CAB members also described the psychological consequences and financial impact of poorly kept residences and buildings that once housed community businesses. Residential Segregation and Limited

Economic Opportunities: CAB members described the profound impact of residential segregation on concentrating HIV risk and the HIV epidemic in the south. Residential segregation in low-income areas was coincident with no recreational outlets, limited or no access to groceries, public transportation or other necessities. Physical isolation coupled with overall economic decline has led to bartering systems where sex and drugs are traded as a means of accessing goods and services or paying bills. From Apathy to Collective Action: CAB members felt the combination of concentrated poverty, lack of economic opportunity and degradation of physical surroundings has led to an acceptance for some community members of existing conditions. However, CAB members also noted examples where citizen groups have started to address these issues.

CONCLUSION: Triangulation of mapping, photography and interview methods demonstrate the importance of a layered approach to understanding contributors to HIV risk in rural minority communities. A combined methodology recognizes the value of community perception and interpretation of context, informs intervention development with community members as active participants in sharing understanding of their experience and designing appropriate responses, and proposes causal relationships for the role of environmental factors in disease risk.

SOLIFENACIN SIGNIFICANTLY IMPROVES SYMPTOM BOTHER, HEALTH-RELATED QUALITY OF LIFE, AND OTHER PATIENT-REPORTED OUTCOMES IN PATIENTS WITH OVERACTIVE BLADDER: RESULTS FROM VIBRANT, A LARGE PLACEBO-CONTROLLED TRIAL D.G. Young[1]; T. Samuels[2]; M.D. Vardy[2]; G. Gilmet[3]; T. Marshall[3]; J. Shannon[4]. [1]Northern California Research Corp., Carmichael, CA; [2]Mount Sinai School of Medicine, New York, NY; [3]Astellas Pharma US, Inc., Deerfield, IL; [4]GlaxoSmithKline, Research Triangle Park, NC. *(Tracking ID # 203728)*

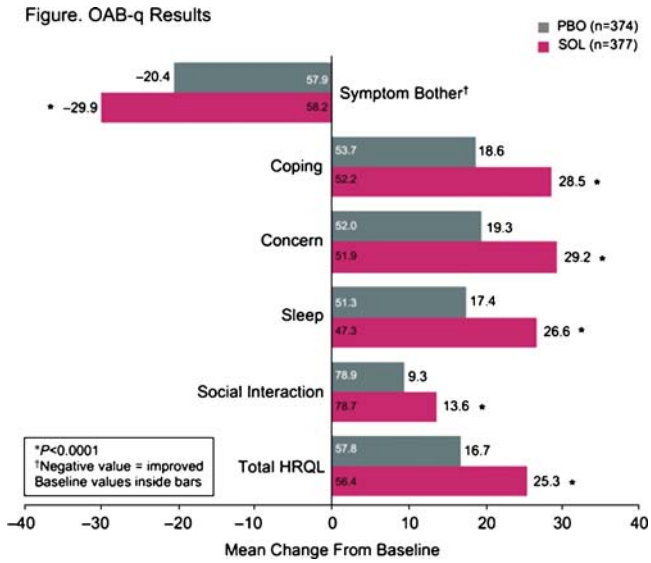
BACKGROUND: Overactive bladder (OAB) can be bothersome and negatively affects health-related quality of life (HRQL). This double-blind, placebo-controlled trial assessed the efficacy of the antimuscarinic solifenacin on symptom bother using the Overactive Bladder Questionnaire (OAB-q).

METHODS: Patients (mean age, 59 y) with OAB (ie, 8 micturitions and 1 urgency episode, with or without incontinence, per 24 h) for 3 months were randomized to flexibly dosed solifenacin (n=386; 5–10 mg) or placebo (n=382) for 12 weeks. At baseline and Week 12, patients completed the OAB-q, comprised of a Symptom Bother scale and HRQL scale with 4 domains (Coping, Concern, Sleep, Social Interaction); the Patient Perception of Bladder Condition (PPBC); a 100-mm Treatment Satisfaction Visual Analog Scale (TS-VAS); the benefit, satisfaction, and willingness to continue (BSW) measure, and 3-day bladder diaries. The primary efficacy endpoint was the change from baseline to end of treatment (EOT) on the OAB-q Symptom Bother scale. Secondary endpoints included the OAB-q total HRQL and domains; PPBC; TS-VAS; BSW; and diary-documented urgency, incontinence, frequency, and nocturia. Adverse events (AEs) were monitored throughout the study.

RESULTS: By EOT, solifenacin versus placebo significantly improved mean OAB-q Symptom Bother, HRQL total, and all domain scores (Figure). Solifenacin vs placebo significantly improved mean PPBC (1.5 vs 1.0, ***P***<0.0001) and TS-VAS scores (38.2 vs 18.4, ***P***<0.0001). More solifenacin than placebo patients showed improvement on the PPBC (76% vs 64%, ***P***<0.001). On the BSW, more solifenacin than placebo patients reported a benefit from treatment (84% vs 63%), treatment satisfaction (80% vs 59%), and willingness to continue (79% vs 60%; all ***P***s<0.0001). Solifenacin vs placebo also significantly reduced mean daily episodes of urgency (3.05 vs 1.84; ***P***<0.0001), incontinence (1.85 vs 1.24; ***P***=0.003), and frequency (2.23 vs 1.36; ***P***< 0.0001) but not nocturia (0.63 vs 0.48; ***P***=0.34).The most commonly reported treatment-related AEs in solifenacin vs placebo patients were dry mouth (13% vs 2%), constipation (8% vs 2%), and dry eye (2% vs 0.3%).

CONCLUSION: Flexibly dosed solifenacin significantly improved OAB symptom bother vs placebo. Solifenacin also significantly improved HRQL; patient perception of their bladder condition; treatment benefit, satisfaction, and willingness to continue; and daily symptoms of urgency, incontinence, and frequency.

Figure. OAB-q Results



SOLO PRACTICES: THEIR PATIENTS, QUALITY OF CARE, AND RESOURCE USE L.M. Chen[1]; A.K. Jha[1]. [1]VA Boston Healthcare System, Boston, MA. *(Tracking ID # 205709)*

BACKGROUND: Given the imperative to improve the quality and costs of care for chronically ill patients, policymakers have focused on reforming primary care, especially in large group settings. However, not all Americans receive their care in such settings. Understanding how care is delivered in small practices will be critical to any national effort to improve primary care. Therefore, we sought to determine: 1) What proportion of primary care visits occur in solo practices? 2) What types of patients visit solo practitioners? 3) And, do solo practitioners provide comparable quality at similar cost to non-solo-practitioners?

METHODS: We used the National Ambulatory Medical Care Survey (NAMCS) to examine all visits by adults to non-federally funded, office-based primary care physicians in the United States between 1999 and 2005. We compared quality and resource use between solo practices, and all other practices. We defined high quality care as meeting one of nine validated counseling (diet, exercise), screening (blood pressure), and medication (appropriate treatment for atrial fibrillation, congestive heart failure, hypertension, hyperlipidemia, coronary artery disease, the elderly) indicators. The measures of resource use included visit duration and the proportion of visits resulting in referral to another physician, at least one laboratory test, or at least one imaging test. To account for potential confounders, we used multivariate regression models as appropriate with performance on individual quality or resource indicators as the primary outcome and practice size as the primary independent variable.

RESULTS: Between 1999 and 2005, 38% of adult primary care visits to physicians were made to solo practitioners. There was no trend in the proportion of visits to solo practices over time (p-value for trend=0.10). Compared to visits to non-solo-practitioners, a greater proportion of visits to solo practitioners were made by patients who were elderly (34% versus 30%, p<0.001), non-whites (26% versus 20%, p=0.005), and those without private insurance (51% versus 42%, p<0.001). Solo practitioners were less likely to provide appropriate care for seven of the nine indicators examined, although only one was statistically significant: diuretic or beta-blocker use for hypertension (OR 0.77, p=0.005). Solo practitioners spent more time with their patients in a typical visit (21.1 minutes versus 20.1 minutes, p=0.01) than non-solo-practitioners. Solo practitioners referred patients less frequently to other physicians (OR=0.74, p<0.001) and ordered fewer laboratory tests (OR=0.89, p=0.03). They also ordered fewer imaging tests, but this was not significant (OR=0.91, p=0.12).

CONCLUSION: Nearly four in ten primary care visits in the United States are made to solo practices. Solo practitioners were more likely to see elderly, minority patients and those without private insurance. Although solo practitioners spent more time with their patients, they made fewer referrals, ordered fewer tests, and generally provided lower quality of care. Understanding how to improve the quality of care

delivered by solo practices without raising costs of care, will be critical to improving primary care for Americans.

STATIN UTILIZATION IN NURSING HOME PATIENTS AFTER CARDIAC HOSPITALIZATION S. Parikh[1]; W. Shrank[1]; H. Mogun[1]; N.K. Choudhry[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205542)*

BACKGROUND: Coronary artery disease (CAD) is highly prevalent in a nursing home (NH) population and is a common cause of hospitalization, morbidity and mortality. Statins have been shown to reduce mortality and hospitalization rates in older patients with CAD living in NHs and their use is endorsed by practice guidelines. The underuse of essential preventive medications for several chronic diseases has been documented, but little is known about use of cardiovascular therapeutics. Accordingly, we studied patterns and predictors of statin use in elderly patients admitted to a NH after a hospital admission for symptomatic CAD.
METHODS: We performed a retrospective cohort study by linking pharmacy claims from a large state-run pharmacy assistance program to Medicaid and Medicare data from 1994–2005. Rates of statin use within 60 days were estimated for patients hospitalized with one of three diagnoses: an acute coronary syndrome (ACS), an ACS with revascularization (angioplasty, stent or bypass surgery), and congestive heart failure (CHF) with revascularization. Patient level predictors were determined using a multivariate logistic regression model controlling for age, gender, co-morbidities and concurrent cardiac medication use.
RESULTS: Of the 21328 patients identified over an 11-year period, only 16.4% received a statin within 60 days of hospital discharge. Sub-group analyses revealed variation. Of patients admitted with an ACS only, 21.2% received a statin during the follow-up period. Of patients admitted with ACS requiring revascularization, 19.2% received a statin. Among patients admitted for CHF with revascularization, the rate of statin utilization was only 15.3%. In all cohorts there was an increase in utilization over time. By the end of our study period, 31.8% of patients received a statin after hospital discharge. Having had a prior cardiac hospitalization and having received a statin prior to the index admission were significant predictors of increased statin use in all 3 subgroups. Patients who filled a prescription for digoxin and those with greater numbers of total hospitalizations were less likely to receive a statin after hospital discharge. Interestingly a history of prior stroke, diabetes, hypertension or hyperlipidemia did not predict receipt of statin therapy across the 3 cohorts studied.
CONCLUSION: While prescribing in elderly nursing home patients is difficult, statin therapy is underutilized among high-risk patients admitted to nursing homes. Given the burden of cardiovascular disease in this population more appropriate prescribing is required.

STEWARDSHIP DECISIONS AMONG INTERNAL MEDICINE RESIDENTS. J. Green[1]; D.S. Bell[1]; N.S. Wenger[1]. [1]UCLA Division of General Internal Medicine and Health Services Research, Los Angeles, CA. *(Tracking ID # 205676)*

BACKGROUND: More than one third of healthcare dollars are spent on treatments that do not improve health. Physicians direct a considerable proportion of healthcare spending and therefore are largely responsible for wasted healthcare resources. Situational factors and external pressures often make resource decisions difficult. While many believe that physicians have a professional responsibility to steward healthcare resources, little is known about how physicians in training select treatments when pressured to provide modalities with limited or no health benefit.
METHODS: We administered an anonymous survey to internal medicine residents in one training program to assess clinical decisions involving stewardship of healthcare resources and their comfort with the decisions. Four scenarios presented situations in which the resident was asked to choose between conservation of healthcare resources or providing care to please a patient or proxy, or for expedience. The resident was asked whether s/he would provide the treatment (1= definitely yes, 5=definitely no) and confidence in the clinical appropriateness of the decision and level of bother with the decision (1=not at all, 9=extremely). The scenarios addressed a patient requesting a brand proton pump inhibitor (PPI) when a generic had not been tried, the option to repeat or await previously performed high-resolution imaging on a stable patient transferred from another facility, readmission of a recurrently admitted chest pain patient with non-intervenable cardiac disease, and a patient demanding high-intensity evaluation of new, low-risk reflux symptoms.
RESULTS: Sixty-eight residents (65% response rate) completed the online survey. Only 15% of residents chose to repeat imaging tests for expediency and 8% ordered the clinically non-indicated CT and endoscopy demanded by the reflux patient, however 83% prescribed the requested brand PPI and 92% readmitted the recurrent chest-pain patient at the proxy's request despite a lack of indication. Residents choosing stewarding actions, compared to those providing discretionary or non-indicated care, were more confident in the appropriateness of their actions (mean 7.5 versus 5.1, $p<0.001$) and were less bothered by their decisions (mean 3.0 versus 4.9, $p<0.001$). For example, the 56 residents who chose to wait for imaging to be brought the following day reported a mean confidence level of 7.8 and bother of 1.9, whereas the 10 residents ordering the repeat high-resolution diagnostic tests reported a mean confidence of 5.7 and bother of 3.9 ($p=0.003$ and 0.02, respectively).
CONCLUSION: While medical residents feel more confident and less bothered when making care decisions that steward healthcare resources, even in the context of a scenario-based survey, many choose to order tests and treatments that are non-indicated or non-beneficial. Whether through modeling, guidelines or other modes, medical training must identify ways to guide residents toward stewardship if this is a professional responsibility to be inculcated into future practicing physicians.

STORIES TO IMPROVE BLOOD PRESSURE: A CULTURALLY SENSITIVE RANDOMIZED TRIAL T.K. Houston[1]; J.J. Allison[1]; M. Sussman[2]; W. Horn[2]; J. Trobaugh[1]; S. Hullett[2]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]Cooper Green Mercy Hospital, Birmingham, AL. *(Tracking ID # 205686)*

BACKGROUND: Storytelling is a basic mode of human interaction. Patient stories are touted as potent, culturally sensitive tools to promote healthy behaviors in vulnerable populations. However, stories as interventions remain untested in rigorous RCTs.
METHODS: We developed a story-based interactive DVD intervention designed to improve blood pressure control behaviors (adherence with diet, medications) in African-Americans. First, four focus groups were conducted with 42 participants purposefully selected to include African-American men and women hypertensive patients with varying levels of blood pressure control. Based on these groups, we developed an interview guide designed to encourage free-style storytelling related to success in managing blood pressure. We then video-taped interviews with 14 low-income African-American men and women hypertensive patients at a safety-net hospital. Three reviewers rated strength and clarity of constructs from the health belief model (perceived severity, perceived susceptibility, perceived benefits, and effective cues to prompt action) in the stories. Based on ratings, six high-priority stories were selected for editing and inclusion in a baseline and follow-up booster interactive DVD. We then conducted a randomized trial. In the same safety-net hospital, after a primary care visit, 300 hypertensive patients were randomized to receive the intervention or an attention control. After 3 months, we assessed change in blood pressure (using the average of 3 measures at baseline and 3 at follow-up), comparing intervention and control using ANOVA.
RESULTS: The 300 African-American hypertensive patients had mean age 54 (SD 10), 74% had household income <$16,000, 44% had diabetes, 26% had chronic kidney disease, and 46% had uncontrolled BP (>140/90) at baseline. These characteristics were similar in intervention and control, but more women were in the control (72%) versus the intervention (58%) groups. Baseline and 3-month follow-up data were available for 76% (N=229). Baseline systolic blood pressure (SBP) was 132.5 for intervention, and 131.1 for control. Reduction in SBP favored the intervention group (-5.0 mmHg intervention, + 1.1mmHG control, p 0.038). This difference persisted after adjustment for the imbalance in percent women. A subset analysis revealed that the beneficial effect was greatest among those with uncontrolled BP at baseline, (change in SBP -17 mmHg intervention, -7 mmHg control, $p=0.03$).
CONCLUSION: The culturally sensitive story-based DVD resulted in a potent 5 mmHg reduction in BP. In the INTERSALT study a reduction in SBP of 5 mmHg corresponded to a 9% lower risk of coronary death and a 14% percent lower risk of stroke death. (Funded by RWJF Finding Answers program #59741).

STRATEGIES CORRELATED WITH SUCCESSFUL WEIGHT LOSS AMONG OBESE AMERICANS J.M. Nicklas[1]; K.W. Huskey[2]; R.B. Davis[3]; C.C. Wee[2]. [1]Division of Research and Education in Complementary & Integrative Therapies, Harvard Medical School, Boston, MA; [2]Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Harvard Medical School, Brookline, MA; [3]Harvard University, Boston, MA. *(Tracking ID # 205377)*

BACKGROUND: Nearly one-third of adults in the United States are obese, and every year a large proportion of these individuals attempt to lose weight. While randomized trials show that several weight control strategies are efficacious, evidence suggests that among the general US population, only a small fraction of those trying to lose weight actually succeed. Few data exist about weight control strategies that correlate with successful weight loss among obese Americans.
METHODS: We analyzed data from 20470 participants in the 2003–2006 NHANES, a cross-sectional US population-based study that included an in-person interview and physical examination. We fit a multivariable logistic regression model to ascertain weight control strategies among obese respondents that correlated with "successful weight loss" (defined as reporting weighing at least 10 lbs fewer than the previous year). We weighted analyses to reflect population estimates and used SAS callable SUDAAN to account for the complex sampling of NHANES.
RESULTS: Among non-pregnant obese adults (BMI≥30 kg/m2) age ≥20 yrs, 1778 (64%) reported trying to lose weight in the previous year. Among these, 29% weighed at least 10 lbs less than the previous year (mean weight loss 26.5 lbs). Obese respondents trying to lose weight who did not lose at least 10 lbs had a mean weight gain of 7.8 lbs. The table shows weight control strategies correlated with successful weight loss adjusting for age, sex, education, race, smoking status, BMI, physical activity in METS, diabetes, and overall health status. Strategies not correlated with successful weight loss included eating less, liquid diet formulas, joining a weight loss program (e.g. Weight Watchers), prescription weight loss medications, non-prescription diet pills, drinking more water, and following a special diet (including Atkins, Zone, or Pritikin). Physical activity, as measured in METS, was not consistently associated with successful weight loss.
CONCLUSION: Obese Americans trying to lose weight were more likely to have lost at least ten pounds if they also reported cutting back on fat or switching to lower calorie foods. Those choosing to skip meals or eat diet products were less likely to succeed. Interestingly, many strategies commonly perceived to be effective, including commercial weight loss programs, popular diets, and diet pills, were not correlated with successful weight loss among obese Americans trying to lose weight.

Weight control strategies correlated with successful weight loss (n= 1778)

Strategy	Percent employing strategy	Success of strategy (% who lost ≥10 lbs)	Odds Ratio (95% CI)
Eating less fat	41% (n=748)	33%	1.38 (1.07, 1.78)
Switching to lower calorie foods	40% (n=680)	34%	1.45 (1.09, 1.93)
Skipping meals	21% (n=391)	22%	0.60 (0.45, 0.82)
Eating diet foods or products	14% (n=231)	11%	0.64 (0.44, 0.94)
Other method	3% (n=45)	60%	3.55 (1.88, 6.70)

STUDENT PROFESSIONALISM DID NOT INCREASE WITH THE IMPLEMENTATION OF A NOVEL CURRICULUM PROMOTING AAMC PROFESSIONALISM DOMAINS IN THE INTEGRATED INPATIENT INTERNAL MEDICINE/PEDIATRICS JUNIOR CLERKSHIP M.L. Cannarozzi[1]; M.M. Wahi[2]; L. Nixon[3]; M. Galloway[3]; S.B. Goldin[3]. [1]University of Central Florida, Orlando, FL; [2]United States Army Research Institute of Environmental Medicine, Boston, MA; [3]University of South Florida, Tampa, FL. *(Tracking ID # 206016)*

BACKGROUND: The American Association of Medical Colleges (AAMC) mandates the teaching of eight domains of professionalism as part of the third and fourth-year medical school clerkships. The third-year Integrated Inpatient Internal Medicine/Pediatrics Junior Clerkship (IMP) at our institution is 12 weeks in duration. During this clerkship, a novel professionalism curriculum was implemented. This curriculum included discussion of AAMC domains of professionalism, formal discussion of clinical scenarios to enhance awareness and understanding of professional behavior, and a reflective writing assignment intended to increase the awareness of professionalism, specifically in the inpatient setting . We hypothesized that, given exposure to this specialized curriculum during the clerkship, measures of student professionalism would significantly increase over the course of the clerkship
METHODS: At week 1, student professionalism was measured in consenting IMP students using three validated instruments: The Jefferson Scale of Physician Empathy (JSPE), the ABIM Scale to Measure Professional Attitudes and Behaviors (ABIM), and the Barry Challenges to Professionalism Questionnaire (BCPQ), all of which measure different domains of professionalism. After completing these three instruments, students were exposed to a didactic presentation of AAMC domains of professionalism . During weeks 2 and 3, clinical cases highlighting physician professional behavior (or lack thereof) were presented to and discussed with the students. These case presentations occurred during required didactic sessions. At week 10, a reflective writing assignment was completed in which students were asked to identify and reflect on a situation in which the student observed either an exemplary or extremely poor example of professionalism during the clerkship. At week 11, the three survey instruments were again completed.
RESULTS: Between June 2007 and June 2008, 70 medical students (response rate 57%, 59% women) agreed to participate in the study; 61 provided measurements at both weeks 1 and 11. The highest score possible on the JSPE is 140; students scored an average of 113 (sd 13) week 1, and 111 (sd 113) week 11, for a non-significant mean decrease of 2 (p=0.1367). The highest score possible on the ABIM is 108; students scored an average of 67 (sd 7) week 1, and 66 (sd 9) week 11, for a non-significant decrease of 1 (p=0.4217). The highest score possible on the BCPQ is 12; students scored an average of 8 (sd 2) week 1, and 8 (sd 2) week 11, for a non-significant change of 0 (p=0.7471).
CONCLUSION: Measures of professionalism did not significantly increase during the clerkship, despite the use of validated measurement instruments and the novel curricular intervention. It is possible that our clerkship experience does not increase professionalism in the student. However, it is also possible that professionalism increases modestly during the clerkship, but the measurement instruments used were not precise enough to measure this increase. The important task of modeling and teaching professional behavior to medical students is not easily accomplished nor easily measured. Instruments measuring changes in student professionalism in response to shorter interventions should be developed to provide educators guidance on improving short-term curricula aimed at promoting professionalism.

SUCCESSFUL HABITS FOR WEIGHT LOSS MAINTENANCE USING POSITIVE DEVIANCE:THE SUCCESSFUL WEIGHT LOSS HABITS QUESTIONNAIRE. J. Boan[1]; H.L. Stuckey[1]; J. Esposito[1]; E. Lehman[1]; C.N. Sciamanna[1]. [1]Pennsylvania State University, Hershey, PA. *(Tracking ID # 205136)*

BACKGROUND: Over the last 20 years, the percentage of overweight and obese Americans has grown tremendously, and effectiveness of obesity treatments is notoriously poor. Examining the habits of successful individuals can provide insight into specific behaviors that produce positive long-term results. Thus, we sought to apply positive deviance methodology to the study of weight maintenance habits in a group of successful weight losers. The hypothesis was that adoption of specific strategies is associated with long term weight loss, and that these strategies could then be quantified and replicated.
METHODS: Using in-depth interviews of 61 people who successfully lost 30 lbs weight and kept it off for at least 1 year, we documented habitual actions and thought processes that assisted weight loss or weight maintenance. Interviews were audio-taped and saved on a digital file in a de-identified format. Data were not forced into preconceived

themes, but instead an open-coding approach was employed, so that interview data guided the creation of the categories. We performed a Varimax rotation of the principal components, to determine how the factors clustered into themes. Habits used by at least 10% of individuals were included in the final list of 36 habits. The final list of the 36 habits was placed into web format to test in a reproducibility sample to ensure the questionnaire captured the variety of behaviors associated with weight loss maintenance.

RESULTS: The population (n=61) was 72% female with maximum mean BMI of 35.6 kg/m2 and a final mean BMI of 25.6 kg/m2 at the time of the interview. We reviewed approximately 110 hours of audiotaped responses with over 95 different habits that were used by this population to maintain a weight loss. After Varimax rotation, 5 themes were identified: (1) behaviors relating to food choices behaviors and restraint, (2) behaviors associated with cognition, self-monitoring and accountability, (3) behaviors relating to exercise, (4) behaviors associated with tracking consumption and exercise, and (5) behaviors associated with planning. The web format results ranked habits by how often each habit was used in the past 7 days and how helpful the habit was to weight loss. The habits rated highest in the reproducibility study were similar to the highest rated Varimax coefficient in the thematic analysis. This suggests that there is high fidelity of the habits among weight maintainers, and this questionnaire is capturing the variety of behaviors associated with weight loss maintenance.

CONCLUSION: Some strategies worked for some (participating in a commercial weight loss program) but not for all the respondents, suggesting that weight loss maintenance is achieved through an individualized, multi-dimensional combination of strategies. Overall, we suggest that weight loss success can be conceptualized as multidimensional use of habits and that our data supports the use of this instrument with clinical and non-clinical populations. This information will be applied to a larger behavioral intervention (http://achievetogether.ist.psu.edu/testing/) that is being designed to assist people in adopting these habits.

SUPPORT NEEDS OF INFORMAL HOSPICE CAREGIVERS: A QUALITATIVE STUDY J.S. Kutner[1]; K. Kilbourn[2]; A. Costenaro[2]; C. Lee[1]; C. Nowels[1]; J. Vancura[1]; D. Anderson[2]; T. Ellis[2]. [1]University of Colorado Denver School of Medicine, Aurora, CO; [2]University of Colorado Denver, Denver, CO. *(Tracking ID # 204270)*

BACKGROUND: Informal caregivers of hospice patients experience multiple stressors that can negatively impact their physical, psychological, and emotional health. The goal of this qualitative study was to understand the challenges and needs of informal hospice caregivers to inform the feasibility, structure and content of a telephone-based counseling intervention to improve psychosocial functioning and quality of life.

METHODS: Focus groups and interviews with 36 informal hospice caregivers and 11 hospice staff were conducted. Informal caregivers were recruited via letters sent from the 6 participating hospices (Colorado, Washington, DC and Michigan) to informal caregivers of patients who had died under hospice care at least 3 months prior. Hospice staff members were recruited via 'word of mouth' and fliers/brochures distributed at each participating hospice. Consent was completed via telephone review of mailed consent forms by interview participants and in-person by focus group participants. The interview and focus group guides, which were identical, were developed based on review of the literature and expert review. Focus groups and telephone interviews were conducted by trained research staff. Interviews and focus groups were audio-recorded, transcribed, and analyzed for content using Atlas.ti qualitative analysis software. A constant comparative approach was used to code data for themes and findings were reviewed by the research team.

RESULTS: Respondents identified unique caregiving need content areas, described desired structural components and endorsed the feasibility of the proposed telephone-based counseling program. Key content areas identified included coping, emotional support, self-care, logistical issues and bereavement. From a structural perspective, respondents supported the use of the telephone for counseling, appreciating its relative anonymity and convenience. It was recommended that the calls be initiated by the counselor, on approximately a weekly basis, and that one counselor be assigned to each caregiver. An a priori concern was that the telephone-based counseling complement, rather than duplicate, existing hospice services. Hospice staff especially emphasized the need to coordinate the telephone counseling with the hospice care being provided, including scheduling around hospice staff visits and communicating important issues to hospice staff. Most caregiver respondents indicated that they would participate in telephone-based counseling were it available, and hospice staff thought that approximately half of informal caregivers would participate. Hospice staff unequivocally supported the telephone-based counseling program. A pervasive theme that emerged from was that "there can never be enough support for a caregiver."

CONCLUSION: Informal caregivers of hospice patients have support needs that are amenable to a telephone-based counseling program designed to be complementary to existing hospice services. Based on these qualitative findings, we are pilot-testing a telephone-based counseling program for informal caregivers of hospice patients that addresses: Stress Management, Communication, Managing Physical Symptoms, Coping Strategies and Managing Emotions, Utilization of Social Support, Managing Practical Issues, Grief and Bereavement, Finding Meaning in Your Experience and Wellness for Life in a series of weekly telephone calls made by a licensed counselor.

SYSTEMATIC REVIEW OF RISK PREDICTION MODELS FOR OSTEOPOROSIS E.M. Haney[1]; R. Chou[1]; C. Bougatsos[1]; T. Dana[1]; H.D. Nelson[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 205491)*

BACKGROUND: Several models have been developed for use in predicting risk of low bone density (BMD) and/or fracture. These range from simple (2 items) to complex (over 10 items), and there is no consensus about which is best. We conducted a systematic review to compare clinical performance measures of these models to determine which is most useful for selecting patients for bone densitometry screening.

METHODS: We searched Ovid MEDLINE, the Cochrane Central Register of Controlled Trials, and the Cochrane Database of Systematic Reviews with the terms "osteoporosis," "bone density," " risk," "sensitivity and specificity," and "evidence-based medicine" for articles published between 2001 and Jan 2009. We assessed quality of the studies with predefined criteria and assessed whether they tested models that had been validated in separate populations. We grouped studies by whether the models were tested for prediction of BMD or for fracture. We separated those that used prior fracture in the model, in order to focus on a population that would be more representative of a screening population (ie a population that has not already had a diagnosis of osteoporosis on the basis of a prior fracture). The area under the curve (AUC) for the receiver operating characteristic (ROC) curve was the most commonly reported outcome, and we reported results based on comparisons of this measure. Results are limited to those studies that we considered at least fair in quality, testeded a validated model, and reported an AUC for the model.

RESULTS: We identified 46 studies designed to test risk prediction models for either BMD or fracture or both. Of these, 22 studies were excluded on the basis of poor quality or having used models that were not previously validated. Among the 24 included studies, 10 evaluated models for fracture prediction (8 reported AUCs) and 15 evaluated models for fracture prediction (11 reported AUCs). 7 studies of 9 models included men. Validated models included: FRAX, OST, ORACLE, ORAI, OSIRIS, MORES, NORA, SCORE, SOF, and SOFSURF, among others. Studies tested 13 models for prediction of low BMD and reported AUCs ranging from 0.59 to 0.87. Studies tested 10 models for prediction of fracture and reported AUCs ranging from 0.48 to 0.85. Studies of models that did not include prior fracture in the model had AUCs ranging from 0.59 to 0.85 for BMD, and 0.63 to 0.79 for fracture.

CONCLUSION: Many risk prediction models have been developed. None have been tested prospectively to determine clinical outcomes. Among those that have been validated, most models were similar in their ability to predict either BMD or fractures. The WHO FRAX model was recently endorsed by the National Osteoporosis Foundation. It allows a clinician or patient to enter patient risk factors into an on-line calculator to get individualized 10-year absolute fracture risks. However, models with more risk factors, including FRAX, do not perform better than those with fewer risk factors on the basis of the ROC. Prospective studies of screening for osteoporosis using these risk prediction models with measured clinical outcomes are needed.

SYSTEMATIC REVIEW OF THE VALIDITY OF ADMINISTRATIVE CLAIMS IN MEDICAL RESEARCH L. Tamariz[1]; N. Stevens[1]; S. Shafazand[1]; H. Florez[1]; H. Li[2]; Q. Ma[2]; V. Nair[2]; A.M. Palacio[3]. [1]University of Miami, Miami, FL; [2]University of Miami-Humana Health Services Research Center, Miami, FL; [3]University of Miami, Coral Gables, FL. *(Tracking ID # 205536)*

BACKGROUND: Administrative claims are extensively used in medical research. The validity of claims is frequently questioned. A lack of validity of medical claims results in misclassification bias leading to incorrect results. The aim of this study is to review the available evidence regarding the accuracy of international classification of diseases (ICD) codes when compared to medical records.
METHODS: We searched MEDLINE® using ICD and medical records as medical subject headings. Articles were retrieved if they were reported in English, reported original data, and compared administrative claims with medical records. We evaluated the quality of the selected articles using a validated tool and calculated sensitivity, specificity, positive and negative predictive value.
RESULTS: The literature search yielded 150 articles that were potentially relevant, we excluded 84 articles and were left with 65 articles for final review. We identified articles in cardiology (18), neurology (19), gastroenterology (10), pulmonary (6), oncology (6), endocrinology (3), nephrology (4), rheumatology (1) and in hematology (1) with a median quality that ranged from 50 to 69%. There was wide variance in the sensitivity and specificity of ICD-9 codes across the different specialties. ICD-9 codes capturing cardiovascular and neurology outcomes were studied more frequently and showed the highest sensitivities. Five studies evaluated the sensitivity of the 410.x code alone and the median sensitivity was 85% (67–94%), specificity ranged from 93–100% and a PPV of 90% (84–100%). The ICD-9 code for diabetes 250.xx performed similarly. The ICD -9 codes for stroke 430.x -438.x had a sensitivity that ranged from 79–86 and specificity that ranged from 92–95%. The ICD-9 codes with the lowest sensitivities were the ICD-9 codes for acute renal failure (584.5–584.9) and chronic renal failure (582–587) with sensitivities of 28 and 12% respectively. The specificity remained high for the majority of the codes.
CONCLUSION: We a found a limited number of studies exploring the validity of ICD-9 against medical records. The majority of validity studies found were on cardiovascular and neurological ICD codes. Within each organ system there were clusters of ICD codes tested repeatedly. We found that the performance of the ICD code -9 codes vary significantly and seemed to be related to the nature of the outcome. Acute cardiovascular and neurological events were captured by claims data with the best accuracy.

SYSTEMATIC REVIEW: PREVALENCE AND EFFECTIVENESS OF IMPLEMENTING OPIOID TREATMENT AGREEMENTS FOR PRIMARY CARE PATIENTS WITH CHRONIC PAIN J.L. Starrels[1]; W.C. Becker[2]; D.P. Alford[3]; A.R. Williams[4]; B.J. Turner[4]. [1]Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY; [2]Philadelphia VA Medical Center, Philadelphia, PA; [3]Boston University School of Medicine, Boston, MA; [4]University of Pennsylvania School of Medicine, Philadelphia, PA. *(Tracking ID # 206063)*

BACKGROUND: Medical societies and regulatory agencies recommend that primary care physicians use opioid treatment agreements (OTAs) to reduce opioid misuse in patients prescribed long-term opioid analgesics, but the prevalence and effectiveness of OTA use is not known. The objective of this study was to conduct a systematic review of studies examining the prevalence of use and effectiveness of OTAs for reducing opioid misuse in primary care patients on long-term opioid analgesics for chronic pain.
METHODS: We conducted an electronic search of MEDLINE, PsycINFO, EMBASE, and Cochrane databases for studies published between 1/1/1966 and 3/15/2008 that addressed the domains of chronic pain, opioid medications, opioid treatment agreements, and substance abuse. Eligible studies had to be original research that addressed the prevalence of OTA use in primary care practices or evaluated the association of OTA use with subsequent opioid misuse in any setting. Two investigators independently screened studies, extracted data, and determined study quality using a standardized form. Opioid misuse was defined broadly and included behaviors characterized as abuse, misuse, aberrant drug-related behavior, or addiction. Study quality was assessed in three domains: sample, design, and a global assessment.
RESULTS: Of 642 studies identified by the search, 7 met eligibility criteria. Of these, 3 studies evaluated the prevalence of OTA use in primary care settings and 4 evaluated the effectiveness of OTAs for reducing opioid misuse. In 2 studies of the prevalence of OTA use, medical charts of 522 patients on long-term opioid analgesics in university-based family medicine practices were reviewed and 34% had OTAs. In the third, a telephone survey of Canadian primary care physicians found that 23% reported using OTAs. No studies evaluated the association of OTA alone with lower opioid misuse. Of the 4 studies assessing the effectiveness of OTA use, 2 studied OTA use in conjunction with multi-component interventions in VA primary care clinics and found 21% (N=91) and 45% (N=335) reductions in opioid misuse. One study of 500 patients in a pain specialty setting reported a 49% reduction in opioid misuse following implementation of OTA use in conjunction with enhanced monitoring, as compared to historical controls. A case series of 20 patients in a pain specialty setting found no association of rates of opioid abuse with presence of an OTA. The overall study quality was poor. Both interventions and outcome measures were too heterogeneous to conduct a meta-analysis.
CONCLUSION: Limited evidence suggests that OTAs can reduce opioid misuse in primary care patients with chronic pain, but any conclusions are limited by poor study quality. Though recommended by experts, OTAs are used infrequently by primary care physicians. Additional research is necessary to assess the value of OTAs in primary care settings.

SYSTEMIC BARRIERS TO DIABETES MANAGEMENT IN PRIMARY CARE: A QUALITATIVE ANALYSIS OF DELAWARE PHYSICIANS D.J. Elliott[1]; J. Herrman[2]; M. Sanford[1]; L. Riesenberg[1]; E. Robinson[1]. [1]Christiana Care Health System, Newark, DE; [2]University of Delaware, Newark, DE. *(Tracking ID # 205063)*

BACKGROUND: Chronic diseases have emerged as the dominant cause of adverse health outcomes and health care costs in the United States. Recognizing that primary care is not traditionally structured to manage chronic diseases, primary care reform increasingly centers on improving systems both internal and external to primary care practices that facilitate population-based chronic disease management. It is vital that these reforms consider the needs of physicians in small office practices, which not only provide the majority of patient care, but also are least able to invest in infrastructure necessary for disease management. The purpose of this study was to identify the systemic barriers to primary care diabetes management in the small office setting in Delaware.
METHODS: We conducted a qualitative analysis of three focus group discussions with a purposive sample of 24 physicians, 19 of which practiced primary care in an office with <5 physicians. Participants were drawn from all three counties in Delaware. A trained moderator used an interview guide with open-ended questions designed to explore key systemic and infrastructure issues related to office structure, interaction with other health care providers or delivery systems, and supportive services. Audiotapes were transcribed and compared with written observational notes. We used grounded theory and conversation analysis to identify dominant themes that were categorized to enable transcript coding.
RESULTS: Physicians readily identified that diabetes should be largely managed in the primary care setting but that the current structure of the health care system does not adequately support the management of chronic disease. The most commonly identified barriers to chronic diabetes management included: 1) a persistent orientation of both reimbursement structure and patient attention to acute care needs; 2) inability to provide adequate self-management education within the office setting or through reliable access to necessary team members including certified diabetic educators, dietitians, or social workers; 3) inability to financially support office-based disease management activities necessary for pro-active population-based patient management; 4) poor integration of payer-driven disease management activities with the primary care practice; 5) lack of supportive public health initiatives to emphasize the importance of obesity and pre-diabetes to patients; and 6) lack of universal availability of lab data.
CONCLUSION: Our results suggest that significant systemic barriers remain that limit the ability of primary care providers to effectively

manage diabetes in current practice. There was particular frustration about the inability to sustain disease management activities within the practice such as registries, multi-disciplinary self-management education and case management that are recognized as means to improve the quality of care. Providers largely felt that payer-driven disease management initiatives not integrated with the primary care office were ineffective and often counter-productive. These findings support the need for continued health care reform to enhance the ability of physicians, particularly those in small office practices, to incorporate disease management activities. Specifically, coordination of current payer-driven programs with the primary care practice may be beneficial.

TARGETED COMMUNICATION AND PROFESSIONALISM GME CURRICULA LEAD TO PRACTICE IMPROVEMENT: THE SPICE (SURGICAL PROFESSIONALISM AND INTERPERSONAL COMMUNICATION EDUCATION) AND EMPACT (EMERGENCY MEDICINE PROFESSIONALISM AND COMMUNICATION TRAINING) EXPERIENCE S. Zabar[1]; L.A. Regan[1]; M. Hochberg[1]; C. Gillespie[1]; J.A. Manko[1]; T.K. Ark[1]; E.K. Kachur[1]; R.S. Berman[1]; A.L. Kalet[1]. [1]New York University, New York, NY. *(Tracking ID # 204789)*

BACKGROUND: Teaching and assessing communication and professionalism skills effectively is a challenge for all residency training programs. Our aim was to create a model curriculum that would be adaptable to a broad range of GME programs. The goal of this study is to establish baseline knowledge, present a targeted curriculum and assess the effectiveness of the learning experience.
METHODS: The evidence-based curriculum consisted of five/six one-hour interactive sessions that used different teaching modalities to address core elements of patient care including: effective communication, ethical choices, interacting with culturally diverse populations, interdisciplinary respect (i.e. working with professionals around you), delivering bad news and the stress of practice. We defined knowledge, skills and attitudes for each session, worked with program directors to create case-congruent content and trained faculty to deliver curriculum to their residents. Unique features of the curriculum included video vignettes from popular TV medical programs, role-play, faculty role-modeling and individual OSCE report cards comparing each resident to the entire cohort. We also created pocket cards with take-home points and a bibliography of relevant literature for each session. Skills were assessed via a pre- and post-curricular Objective Structured Clinical Exam (OSCE). Six OSCE cases were developed to assess learners' communication (relationship development, information gathering, patient education and counseling) and professionalism (admitting mistakes, delivering bad news, interdisciplinary respect, responding to emotions, cultural diversity, the stress of practice) skills. Standardized Patients (SPs) evaluated performance as well done, partially done or minimally done using a behaviorally specific OSCE checklist of 20–30 items. Scores were derived based on % of items done well and meet minimum standards for reliability (alphas range from .60 to .90). SPs also rated residents on their medical expertise and whether they would recommend them to friends/family. All learners took part in comparable pre- and post-curriculum OSCEs.
RESULTS: Fifteen surgical residents (7 PGY2, 4 PGY3, 4 PGY4) and 15 EM PGY2s attended the seminars and completed the five/six-station pre- and post-curriculum OSCEs (9–11 months apart). Comparing pre- to post- OSCE scores, residents who participated in the SPICE curriculum improved significantly ($p<0.05$) in overall communication (44%, SD=15% vs. 55%, SD=18%) and professionalism (36%, SD=9% vs. 46%, SD=14%), and in recommendation ratings (2.64, SD=.36 vs. 3.19, SD=.38). Likewise, residents who participated in the EMPACT curriculum improved significantly ($p<0.05$) in their overall (53%, SD=15%, vs. 66%, SD=12%) and specific communication skills (relationship development, 49%, SD=22% vs. 60%, SD=18%; patient education, 32%, SD=15% vs. 57%, SD=15%). Finally, SPs rated residents as having greater medical expertise (3.19, SD=.29 vs. 2.90, SD=0.48, $p=0.01$).
CONCLUSION: A tailored curriculum teaching specific communication and professionalism skills can result in improved practices in both surgical and EM residents. Next steps include examining which teaching modalities lead to the greatest improvement in skills, expanding the curriculum to additional GME programs, and exploring how these skills translate to patient care.

TEACHING EVIDENCE BASED MEDICINE: EFFECTIVENESS OF A CURRICULUM TO TEACH LITERATURE SEARCHING SKILLS TO THIRD YEAR MEDICINE CLERKS E.A. Sastre[1]; J.C. Denny[2]; J. Mccoy[3]; A. Mccoy[3]; W. Spickard[3]. [1]Society of General Internal Medicine, Nashville, TN; [2]Vanderbilt University, Nashville, TN; [3]Vanderbilt University Medical Center, Nashville, TN. *(Tracking ID # 206017)*

BACKGROUND: Evidence based medicine is a core competency of undergraduate medical training. We developed a curriculum to teach literature searching skills to third year medical students and studied the impact of the intervention on students' attitudes, knowledge and behaviors.
METHODS: We developed a physician-led curriculum to teach literature searching techniques to all medical students rotating through an Internal Medicine clerkship from July 2007 through June 2008. The three-hour hands-on workshop provided an introduction to evidence based medicine and introduced a search strategy to maximize literature searching efficiency and effectiveness by utilizing pre-appraised resources such as clinical guidelines and systematic reviews. We designed a questionnaire to collect data regarding attitudes toward literature searches and patterns of resource utilization. Questionnaire responses were collected before and immediately following the workshop as well as at the end of the clerkship (between 2 and 8 weeks following the intervention). We developed an evaluation tool to assess utilization of evidence based resources cited in students' clinical history and physical examination notes before and after the workshops using blinded physician review. We evaluated changes in students' attitudes, knowledge and behaviors.
RESULTS: Ninety-eight students (85% of eligible third-year students) participated in the workshop and completed all three questionnaires. Forty-two percent of the students were female, the average age was 25.6 years, and all all students reported prior research experience. Regarding attitudes measured following the curriculum, students demonstrated a significant increase in their comfort level with literature searches ($p<0.001$) as well as an improvement in the belief that evidence based medicine helps clinical decision-making ($p=0.010$). Students also noted a significant decrease in the perceived time required to perform a literature search ($p<0.001$) and fewer students felt it was quicker to answer their clinical questions using textbooks or asking a resident as compared to performing a literature search ($p=0.002$). These differences persisted from immediate post-test to the end of the clerkship. When students were asked how they answered clinical questions during the week before the workshop compared to the final week of the clerkship, there was a significant increase in the reported use of both clinical guidelines ($p<0.001$) and systematic reviews ($p<0.001$). Furthermore, the use of Google and UpToDate significantly decreased ($p<0.001$ and $p=0.001$ respectively). Regarding changes in behaviors, we noted a nonsignificant increase in the number of times students cited clinical guidelines and systematic reviews in their inpatient history and physical notes following the workshop. In addition, there was a trend towards improved quality of the evidence based discussion within the students' assessments and plans. Over 95% of the participants reported that the workshop was useful and they would recommend it to fellow students.
CONCLUSION: We have demonstrated persistent marked improvement in students' attitudes toward literature searches and confidence in their ability to perform a literature search. Students also demonstrated a trend towards increased utilization of evidence based resources in their inpatient history and physical notes. Broader inclusion of curricula teaching literature searching skills may lead to increased implementation of evidence based medicine in clinical care.

TEACHING MOTIVATIONAL INTERVIEWING TO MEDICAL STUDENTS TO IMPROVE BEHAVIOR CHANGE COUNSELING SKILLS - RESULTS OF A PILOT TEST J. Daeppen[1]; C. Fortini[1]; J. Gaume[1]; M. Faouzi[1]; R. Bonvin[2]; C. Layat[2]; A. Berney[3]; N. Bertholet[1]. [1]Alcohol Treatment Centre, Department of Community Medicine and Public Health, University of Lausanne, Lausanne, ; [2]Lausanne University Faculty of Medecine, Pedagogy Unit, Lausanne, ; [3]Lausanne University Hospital, Department of Psychiatry, Lausanne, . *(Tracking ID # 205421)*

BACKGROUND: Patient behavior accounts for half or more of the variance in health, disease, mortality and treatment outcome and costs. Counseling using motivational interviewing (MI) effectively improves the

substance use and medical compliance behavior of patients. Medical training should include substantial focus on this key issue of health promotion. The objective of the study is to test the efficacy of teaching MI to medical students.

METHODS: Thirteen fourth-year medical students volunteered to participate. Seven days before and after an 8-hour interactive MI training workshop, each student performed a video-recorded interview with two standardized patients: a 60 year-old alcohol dependent female consulting a primary care physician for the first time about fatigue and depression symptoms; and a 50 year-old male cigarette smoker hospitalized for myocardial infarction. All 52 videos (13 students×2 interviews before and after training) were independently coded by two blinded clinicians using the Motivational Interviewing Training Integrity (MITI, 3.0). MITI scores consist of global spirit (Evocation, Collaboration, Autonomy/Support), global Empathy and Direction, and behavior count summary scores (% Open questions, Reflection to question ratio, % Complex reflections, % MI-adherent behaviors). A "beginning proficiency" threshold (BPT) is defined for each of these 9 scores. The proportion of students reaching BPT before and after training was compared using McNemar exact tests. Inter-rater reliability was evaluated by comparing double coding, and test-retest analyses were conducted on a sub-sample of 10 consecutive interviews by each coder. Weighted Kappas were used for global rating scales and intra-class correlations (ICC) were computed for behavior count summary scores.

RESULTS: The percent of counselors reaching BPT before and after MI training increased significantly for Evocation (15% to 65%, p<.001), Collaboration (27% to 77%, p=.001), Autonomy/Support (15% to 54%, p=.006), and % Open questions (4% to 38%, p=.004). Proportions increased, but were not statistically significant for Empathy (38% to 58%, p=.18), Reflection to question ratio (0% to 15%, p=.12), % Complex reflection (35% to 54%, p=.23), and % MI-adherent behaviors (8% to 15%, p=.69). There was virtually no change for the Direction scale (92% to 88%, p=1.00). The reliability analyses produced mixed results. Weighted kappas for inter-rater reliability ranged from .14 for Direction to .51 for Collaboration, and from .27 for Direction to .80 for Empathy for test-retest. ICCs ranged from .20 for Complex reflections to .89 for Open questions (inter-rater), and from .67 for Complex reflections to .99 for Reflection to question ratio (test-retest).

CONCLUSION: This pilot study indicates that a single 8-hour training in motivational interviewing for voluntary fourth-year medical students results in significant improvement of some MI skills. A larger sample of randomly selected medical students observed over longer periods should be studied to test if MI training generalizes to medical students. Inter-rater reliability and test-retest findings indicate a need for caution when interpreting the present results, as well as for more intensive training to help appropriately capture more dimensions of the process in future studies.

TEACH-TO-GOAL INTERVENTION TO TEACH RESPIRATORY INHALER TECHNIQUE IN PATIENTS HOSPITALIZED FOR ASTHMA OR COPD

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BACKGROUND: Medications delivered through respiratory inhalers are the mainstay of treatment for patients with obstructive lung disorders (OLD), such as asthma or chronic obstructive pulmonary disease (COPD). Unfortunately, respiratory inhalers are often used incorrectly, reducing their effectiveness in patients with OLD. Guidelines for OLD therefore recommend evaluating and teaching appropriate use of respiratory inhalers at all points of care. However, it remains unclear what is the most effective strategy to instruct patients about respiratory inhaler technique. Teach-to-goal (TTG) employs initial assessment, instruction, and re-assessment with repeated rounds of instruction until mastery is confirmed. Our objective was to evaluate a TTG intervention to teach respiratory inhaler technique in hospitalized patients with OLD exacerbations, a group at high risk for morbidity and mortality.

METHODS: Patients were eligible to enroll if they were age 18 years or older, hospitalized with a physician diagnosis of asthma or COPD exacerbation at one of two urban academic medical centers, and reported using a metered dose inhaler (MDI) prior to hospitalization. Respiratory inhaler technique was graded using a 12 step checklist with scores ranging from 0–12 (higher scores indicating better technique). Sign rank tests were performed using Stata 10.

RESULTS: Of the 30 patients enrolled, 23 (77%) were female, 16 (51%) had asthma, 19 (63%) were <65 years, 26 (87%) were African-American and 25 (83%) had another hospitalization for OLD in the last 12 months. The median (range) score for respiratory inhaler technique prior to teaching was 7 (2 to 12). Only 1 patient (3%) had perfect inhaler technique (12 of 12 steps correct) prior to teaching and 6 patients (20%) had fewer than 6 steps correct. Of the 29 participants who needed at least one round of instruction (score<12), 28 agreed to receive the TTG intervention; 23/28 (82%) had perfect inhaler technique after one round of teaching. There was significant improvement of inhaler technique after one round of TTG instruction (median change in score was 4.5, range 0–10, p<0.0001). Of the five (18%) participants who needed a second round of instruction, there was significant improvement with instruction (median change in score was 2, range 2–6, p=0.04). After two rounds of instruction, 28 of 28 participants (100%) demonstrated perfect inhaler technique.

CONCLUSION: In this high-risk population of hospitalized patients with OLD exacerbations, nearly all patients needed teaching about appropriate respiratory inhaler technique. TTG was effective in teaching respiratory inhaler technique in this population. Approximately 20% needed more than one round of teaching, emphasizing the importance of assessing comprehension regarding appropriate respiratory inhaler technique. Further studies are needed to compare TTG to alternate strategies for educating patients about respiratory inhaler technique.

TELEPHONE SUPPORT FOR PATIENTS DECIDING ON PSA TESTING

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BACKGROUND: Primary care providers are encouraged to offer education on and counseling about benefits and risks to men considering prostate specific antigen (PSA) screening for prostate cancer (PrCA). Decision aids have been shown to effectively prepare patients to discuss screening and treatment decisions. Time constraints, limited counseling skills, and other barriers make implementing an informed decision making process difficult in many practices. Telephone counseling may be a feasible alternative to office-based programs.

METHODS: We developed an educational booklet, a values clarification tool, and a computer-assisted telephone counseling script and protocol to support informed decision making on PSA screening. The booklet focused on the natural history of PrCA, the risks of getting and dying from PrCA, PSA testing, and PrCA treatment (i.e. limited evidence of effectiveness, morbidities, and likelihood of benefiting from treatment). The counseling call began with a tailored review of the booklet. A values clarification exercise required men to rate the importance of 10 core "pros" and "cons" of PSA testing and other "pros" and "cons" contributed by patients. If the pro/con difference (total pro score – total con score) was inconsistent with a patient's PSA decision, the patient was counseled about the inconsistency. We pilot tested the booklet and counseling program in a sample of men age 50–69 (45–69 for African Americans) from 3 primary care practices. Subjects completed a baseline phone interview before receiving the booklet, then received telephone counseling, and participated in a final interview 1 month later. The interviews covered relevant knowledge, decisional conflict, and decision satisfaction. We used Weinstein's Precaution Adoption Process Model to classify subjects' stage of adoption of PSA..

RESULTS: Of 286 potentially eligible subjects, 115 participated in all or part of the study, 51 refused, and 136 did not respond. 101 completed counseling, and 92 completed the final interview. 86.1% were age 50–64, 11.9% African American, and 53.5% college graduates. 94% reported reading all/most of the booklet before counseling. At baseline 22% were unaware of PSA testing, 28% unengaged (not thinking about testing), 15% undecided, 4% decided no, and 32% decided yes. 60% changed stage after reading the booklet, mostly because unaware and unengaged men moved to other stages. 21% of men changed stage over the course of counseling primarily because unengaged and undecided men made a decision. By 1 month post- intervention 86% had made a decision compared to 36% before the intervention. For almost all men deciding yes, the pro score was greater than the cons, and for those

deciding no, cons were greater than pros. Changes from pre to post test in knowledge (6.97 to 9.01 on 10 point scale), decisional conflict (18.92 to 11.36 on a scale with 10 representing no conflict), and satisfaction scores (15.56 to 17.66 on a scale from 6–18) were all statistically significant ($p<.001$). 85% reported that both the booklet and counseling improved understanding of PSA testing,

CONCLUSION: The intervention was well received by the 35% of patients who participated, and it produced substantial, sustained gains in knowledge, reductions in decisional conflict, and improvements in decision satisfaction while facilitating a decision by 80% who had not made a decision at baseline. Future research should compare intervention cost and effectiveness to comparable office-based programs.

TELEPHONE-DELIVERED COLLABORATIVE CARE FOR TREATING POST-CABG DEPRESSION: 8-MONTH OUTCOMES FROM THE BYPASSING THE BLUES TRIAL B.L. Rollman[1]; B. Herbeck Belnap[1]; S. Mazumdar[1]; P. Houck[1]; W.N. Kapoor[1]; H.C. Schulberg[2]; C.F. Reynolds[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Cornell University, White Plains, NY. *(Tracking ID # 205338)*

BACKGROUND: Depressive symptoms commonly follow coronary artery bypass graft (CABG) surgery and are associated with worse clinical outcomes. Several trials of traditional treatments have been conducted to resolve depression in cardiac populations, but they reported less than anticipated impact. Conversely, numerous trials have proven the effectiveness of depression-specific collaborative care strategies in primary care settings (37 trials pooled effect size (ES): 0.25 (95% CI: 0.18–0.32). Arch Intern Med 2006;166:2314). They involved active follow-up by a nurse or other non-physician who adhered to an evidence-based treatment protocol and worked under the supervision of a primary care physician (PCP) with specialty back-up when necessary. The NHLBI-funded Bypassing the Blues trial is the first study designed to: (1) apply collaborative care for treatment of depression specifically to patients with cardiac disease; and (2) examine the impact of treating post-CABG depression.

METHODS: We used the two-item Patient Health Questionnaire (PHQ-2) to screen post-CABG patients for depression prior to discharge from 7 Pittsburgh-area hospitals. Patients endorsing either or both PHQ-2 items were administered the Patient Health Questionnaire (PHQ-9) via telephone 2-weeks after discharge. We randomized those who scored >9 on the PHQ-9 to either their physician's "usual care" (UC) or to 8-months of telephone-delivered collaborative care for depression provided by study nurses. The nurses met weekly with the investigators to discuss patients' progress and for treatment recommendations to communicate back to subjects and their PCPs. To facilitate comparisons, we also randomly selected a cohort of non-depressed post-CABG subjects (PHQ-2 screen-negative/PHQ-9<5). We collected sociodemographic and clinical data at baseline, and monitored outcomes through periodic blinded telephone assessments.

RESULTS: From 3/04–9/07, hospital staff collected HIPAA consents from 3,790 post-CABG patients and our study nurses were able to approach 3,057 (81%) prior to discharge. Of these, 2,486 (81%) completed the PHQ-2; 1,387 (56%) screened positive; 1,100 (79%) were protocol-eligible and completed the PHQ-9; 337 (31%) scored >9; and 302 (90%) agreed to randomization (intervention=150; UC=152). Their mean age was 64 (range: 35–87), 41% were female, 10% non-White, and their mean Hamilton Rating Scale for Depression (HRS-D) score was 16. Compared to non-depressed controls (N=151), depressed subjects were younger (64 vs. 66 years), and reported lower mental (SF-36 MCS: 43.1 vs. 61.6), physical health-related quality-of-life (HRQoL) (SF-36 PCS: 30.3 vs. 37.2), and cardiac functioning (Duke Activity Status Index (DASI): 7.4 vs. 13.2) (all $p<0.04$), but were similar on most other sociodemographic and clinical measures. At 8-months follow-up, intervention subjects reported a 0.39 ES improvement on the SF-36 MCS, our primary hypothesis measure (95% CI: 0.21–0.78), and significant improvements in physical HRQoL (SF-36 PCS: 0.30; 0.09–0.59), cardiac functioning (DASI: 0.31; 0.12–0.78), and mood (HRS-D: ES 0.36; 0.10–0.46) vs. subjects randomized to UC (all $p<0.01$). Of the 150 intervention patients, 82% had 3+ contacts by 3-month follow-up, and by the 8-month conclusion of our intervention, the median number of care manager contacts per patient was 10 (range: 1–28).

CONCLUSION: Telephone-delivered collaborative care for post-CABG depression improves HRQoL, cardiac function, and reduces mood symptoms at 8-month follow-up.

THE "SAFE TRANSITIONS FOR EVERY PATIENT" (STEP) COLLABORATIVE: DEVELOPMENT OF OBJECTIVES FOR A PRIMARY CARE CURRICULUM. A. Segon[1]; G.C. Lamb[1]; M. Radzienda[1]; H. Toth[2]; A. Zikos[2]. [1]Society of General Internal Medicine, Milwaukee, WI; [2]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 206100)*

BACKGROUND: Primary care physicians must be skilled in "care transitions" as their patients move to, from and within their medical home to ensure quality and continuity of care. However, primary care educators have had minimal systematic preparation for designing, delivering, or evaluating educational programs on successful care transitions. To fill this gap, we have designed and are implementing a model, multi-specialty faculty development (FD) program in which 14 fellows from general internal medicine, family practice and pediatrics are learning the essential elements of curriculum development and teaching by collaborating to create a teaching program focused on care transitions. As the first step of this project, objectives were developed as part of a general needs assessment to guide subsequent curriculum development.

METHODS: Using grounded theory and applying a curriculum development model informed by Kern, participants were tasked with defining the problems and performing a general needs assessment. Relevant stakeholders including hospitalists, administrators, patients, learners and community providers were identified. Literature review, expert opinion, structured interviews, and surveys were identified as methods to determine stakeholder goals. Participants divided into small groups collated and ranked proposed goals. Utilizing these lists, fellows working with a partner generated 2–3 objectives. The list of objectives developed was shared among all participants. Qualitative analysis was then performed to identify common themes and create a master list of domains and related objectives.

RESULTS: Strong consensus emerged across specialties and stakeholders resulting in development of 4 major domains, each with a limited subset of related objectives. Objectives developed included: 1. Describe the importance of an effective patient handoff for patient safety and quality of care. a.Identify potential medical errors resulting from poor handoff communication b.List added benefits of a successful hand off 2.Develop an consistent process for successful hand offs, including a.Creating a comprehensive plan prior to hand off b.Identifying who will be responsible for communication with the accepting physician. c. Determining responsibility for specific tasks following the hand off. d. Two way communication with the follow up physician. e.Documentation of the plan and content of the hand off communication f.Incorporating the patient in the hand off process 3.Identify the essential content of the hand off communication: a.Diagnoses b.Medications initiated, maintained, modified, and discontinued c.Test results d.Follow up appointments e.Issues to be addressed after hand off f.Conditional instructions 4.Determine the optimal method of performing the hand-off communication. a.Describe the strengths and weaknesses of different communication modes, such as electronic, verbal or written. b.Describe the strengths and weakness of current frameworks for handoff communication, eg SBAR, 5Ps (Patient, Plan, Purpose, Problems, Precautions) c.Identify in which settings each would be most effectively used.

CONCLUSION: Using the perspective of relevant stakeholders as defined by literature review, expert opinion, and survey, general objectives for a curriculum on hand offs were defined. Needs assessment of targeted learners will be necessary for development of the specific objectives for the educational intervention.

THE "AH-HA" MOMENT: DOES SELF-ASSESSMENT AND IMPLEMENTATION OF QUALITY IMPROVEMENT BY PHYSICIANS IMPROVE THE CARE OF PATIENTS WITH HYPERTENSION? B.J. Hess[1]; L.A. Lynn[1]; R.S. Lipner[1]; E.S. Holmboe[1]. [1]American Board of Internal Medicine, Philadelphia, PA. *(Tracking ID # 205506)*

BACKGROUND: The American Board of Internal Medicine (ABIM) introduced Practice Improvement Modules (PIMs[SM]) for use in its Maintenance of Certification program to allow physicians to measure their performance and implement a quality improvement (QI) plan. We examined results from the Hypertension PIM[SM] to evaluate 1) hypertension care performance; 2) process and outcome measures physicians most frequently targeted for improvement; and 3) physician experience applying QI methods.

METHODS: Data were from 115 general internists and 53 subspecialists (mostly nephrologists and cardiologists) who completed the Hypertension PIM[SM] in 2008. The PIM[SM] is a web-based tool that enables physicians to implement quality measurement in their practices using chart review, patient surveys, and a practice system assessment. Summary data from .≥25 medical records and patient surveys were reported to the physician, highlighting areas for improvement. The PIM[SM] calculated rates for 10 outcome and 21 process measures. Physicians were asked to target one outcome or process of care in a QI plan. After the QI plan was implemented and its effect measured, physicians reported the results to ABIM. Quantitative analyses were used to summarize performance rates and QI experiences

RESULTS: Notable performance results, reported as the mean % of patients at goal and aggregated at the physician level, include these outcomes measures: systolic blood pressure at goal 59%, diastolic blood pressure at goal 76%, and LDL cholesterol at goal 60%. Key process measure results include serum creatinine testing within 12 months 90%, diabetes screening testing 93%, and recommending dietary approaches to stop hypertension (DASH diet) 28%. Patient survey results include following recommended eating plan 63%, rating hypertension care "excellent" 55%, and recommending practice to others 94%.The most common targets for improvement were systolic blood pressure control (20%) and recommending the DASH diet (15%). QI teams formed by physicians usually consisted of three members (physician, nurse, and patient care assistant). Using a 9-point scale, physicians rated their QI teamwork experience high (mean=7.71, SD= 1.32). QI tools used most frequently were checklists (44%), surveys (36%), and flow sheets (23%). Based on an average follow-up sample of 31, most physicians (97%) reported improvement in their targeted measure; improvement in performance rates ranged from 2% to 100% (mean change=39%, SD=27%). Average changes (deltas) for four improvement goal categories were: use of non-pharmacological treatment or self-care support +50% (69 physicians), blood pressure or lipid control +28% (52 physicians), use of recommended testing +37% (35 physicians), and medication selection/adherence +33% (12 physicians). More than 70% of physicians said the PIM[SM] was a valuable learning experience, helped identify areas of strengths and weaknesses in hypertension care, and that their QI efforts had a positive impact on other aspects of their practice.

CONCLUSION: When provided with a tool that enables implementation of quality measurement in their practices, physicians can identify areas to improve their current performance. With guidance in developing a QI plan, most physicians form teams and use evidence-based tools that lead to better performance. Greater improvements are made in process measures than outcome measures. No audit was performed and results may be inflated. Whether a single QI exercise leads to sustained effects is not known.

THE ART OF MENTORSHIP: A QUALITATIVE ANALYSIS OF THE CHARACTERISTICS OF OUTSTANDING MENTORS

C.S. Cho[1]; R.A. Ramanan[1]; P.A. Arean[1]; M.D. Feldman[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204681)*

BACKGROUND: Mentorship is considered a crucial component of academic success, yet few studies have examined the key characteristics of successful mentors in the health sciences. Our aim was to identify the important qualities of outstanding mentors as described by their mentees' letters of nomination for a prestigious award.

METHODS: The UCSF Lifetime Achievement Award in Mentorship recognizes a senior faculty member who has shown mentoring excellence in the academic health sciences. In the nomination letters, mentees are asked to describe why the nominee merits recognition, the mentor's qualities, and the contributions the mentor has made to the mentee's career. Recommendation letters in support of the top 10 nominees (4–6 letters per nominee; n=53 letters) were analyzed using grounded theory and constant comparative technique until content saturation was achieved. Bias was minimized by blinded independent data analysis by two investigators and validation by tertiary external review with a group of experts.

RESULTS: In 2008, 29 faculty members (out of more than 1000 eligible faculty) were nominated. Nominees were 53–78 years old, 30% women, and represented 4 schools (Medicine, Nursing, Pharmacy and Dentistry) and 22 departments/divisions. Letters were written by 53 mentees whose demographics are summarized in Table 1. Five themes emerged from the analysis. 1) Admirable personal qualities: Mentors exhibit enthusiasm, ethical and fair conduct, altruism, and excellence in clinical duties. 2) Mentor as a career "shepherd": Mentors offer a vision, but purposefully individualize and tailor support to each mentee. Special attention is given to providing advancement opportunities. 3) Longitudinal relationships: Commitment to mentorship can span decades, and often go beyond the boundaries of project, discipline, or institution. 4) Integration of personal and professional life: Mentors acknowledge and support attention to personal life and family. 5) Legacy of mentoring: Mentors leave a legacy of 'how to be a good mentor' through role modeling, direct teaching, and creating departmental policies that set global expectations and standards for mentorship.

CONCLUSION: This is the first study to examine the qualities of outstanding mentors by analyzing nomination letters for a prestigious mentoring award. Our results give unique insight into how outstanding mentors foster the careers of junior faculty in academic medicine and other health sciences. In addition to personal qualities such as enthusiasm and altruism, the "shepherd"-like guidance the mentor provides were two of five themes identified. Previously unreported is the finding that the success of a mentor is in part a function of creating a legacy of mentoring. Two future applications of this study include 1) creating an evidence-base for the evaluation of mentorship during faculty promotions, and 2) the development of a mentor checklist and guide to enhance mentor training at UCSF and other academic institutions.

Demographic Characteristics of Mentees (n=53)

Gender	33 Women
	20 Men
Academic rank	21 Professor
	8 Associate professor
	16 Assistant professor
	8 Other
Affiliated university	41 University of California, San Francisco
	12 Other

THE ASSOCIATION OF PSYCHIATRIC ILLNESS AND ALL-CAUSE MORTALITY IN THE DEPARTMENT OF VETERANS AFFAIRS HEALTH CARE SYSTEM

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BACKGROUND: Persons with serious mental illness have a markedly decreased life expectancy when compared to the general population. A 2006 study by the National Association of State Mental Health Program Directors reported that persons with mental illness are now dying 25 years earlier than the general population. This increased risk of mortality has been reported across psychiatric disorders, but previous studies have not controlled for potential confounding effects of medical co-morbidity or health behaviors.

METHODS: Analyses were conducted using data from the 1999 Large Health Survey of Veteran Enrollees (n=559,985). Cox proportional hazards models were used to examine the relationship of six psychiatric diagnoses with mortality, after adjustment for sociodemographic characteristics, medical co-morbidity, obesity, tobacco use, exercise frequency, and VA site characteristics. Veterans with the following psychiatric illnesses were identified from VA administrative records: schizophrenia or schizoaffective disorder, bipolar disorder, major depressive disorder, posttraumatic stress disorder, alcohol use disorder, and drug use disorder. Date of all-cause mortality was determined from the Department of Veterans Affairs' Beneficiary Identification and Records Locator System.

RESULTS: Five of the six psychiatric diagnoses were associated with significantly increased risk of death over the 9-year follow-up period. Hazard ratios (95% CI) ranged from 1.09 (1.04, 1.14) for bipolar disorder to 1.72 (1.66, 1.76) for alcohol use disorders. Only PTSD was associated with a significantly decreased risk of mortality in the follow-up period [hazard ratio (95% CI)=0.81 (0.79, 0.83)]. After adjustment for medical co-morbidity, the increased risk of mortality persisted among veterans with schizophrenia [1.14 (1.10, 1.18)], drug use disorders [1.08 (1.03, 1.14)], or alcohol use disorders [1.34 (1.30, 1.39)].

CONCLUSION: This study of a large representative national sample of veterans demonstrated an increased risk of mortality over a 9-year period among patients with schizophrenia and alcohol and drug use disorders, even after adjustment for medical co-morbidity, obesity, tobacco use and exercise frequency. Adjustment for medical co-morbidity and health behaviors resulted in hazard ratios that were substantially smaller in magnitude than reported in previous studies.

THE COST-EFFECTIVENESS OF GENOTYPE-GUIDED WARFARIN DOSING FOR PATIENTS WITH ATRIAL FIBRILLATION A. Patrick[1]; J. Avorn[1]; N.K. Choudhry[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard Medical School/Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205126)*

BACKGROUND: Warfarin substantially reduces the risk of ischemic stroke in patients with atrial fibrillation (AF) but its narrow therapeutic index and marked inter-patient variability in metabolism can cause highly variable dosing requirements and lead to over- and under-anticoagulation. CYP2C9 and VKORC1 genotyping has been advocated as a means of improving the accuracy of warfarin dosing. Although, the clinical effectiveness of genotyping to increase anticoagulation control has not yet been compellingly demonstrated, the U.S. Food and Drug Administration has updated the warfarin label to include its potential value for patients taking this drug. Because genotyping currently costs $400 to $550, we sought to establish if and under what circumstances genetically-guided warfarin dosing could be cost-effective.
METHODS: We constructed a state transition Markov model that simulated the progression of a hypothetical cohort of 70-year-old patients with newly-diagnosed AF. Because of the conflicting data on the effectiveness of genotyping, our primary analysis was a threshold analysis to assess the test characteristics for which genetically-guided dosing would be cost-effective. Estimates of bleeding, ischemic stroke, and mortality rates were derived from the published literature as were estimates of treatment and adverse event costs and utilities for different health states. We varied these inputs extensively in sensitivity analyses.
RESULTS: The cost-effectiveness of genetically-guided dosing was highly dependent on assumptions about the effectiveness of genotyping in increasing the amount of time patients spend appropriately anticoagulated. If genotyping increases the time spent in the target INR range by <5 percentage points, its incremental cost-effectiveness ratio would be greater than $100,000 per quality-adjusted life years (QALY). The ICER falls below $50,000 per QALY if genotyping increases the time spent in range by 9 percentage points. With "favorable" assumptions (lower test costs, higher bleeding rate), genotyping was cost-effective if it increased time in range by as little as 2%. Using "unfavorable" assumptions, genotyping was not cost-effective at a willingness to pay of $50,000 per QALY unless it increased time in range by more than 22%. In probabilistic sensitivity analysis, 42% of simulations found that genotyping to be cost-effective at a threshold of $50,000/QALY.
CONCLUSION: Our results suggest that genotyping prior to warfarin initiation will be cost-effective for patients with AF only if it substantially reduces out-of-range INR values compared to usual care. Given the current uncertainty surrounding genotyping efficacy, caution should be taken in advocating the widespread adoption of this strategy. Additional clinical trials are needed to test the effectiveness of genetic testing on the intermediate end-point of anticoagulation control, and ideally on hemorrhagic and thrombotic event rates.

THE CULTURE OF FAITH AND HOPE: SUBJECTS' JUSTIFICATIONS FOR THEIR HIGH ESTIMATIONS OF EXPECTED BENEFIT IN EARLY PHASE ONCOLOGY TRIALS. D.P. Sulmasy[1]; A.B. Astrow[2]; M.K. He[1]; D.M. Seils[3]; N.J. Meropol[4]; K.P. Weinfurt[3]. [1]St. Vincent Hospital, New York, NY; [2]Maimonides Medical Center, New York, NY; [3]Duke University, Durham, NC; [4]Fox Chase Cancer Center, Philadelphia, PA. *(Tracking ID # 204851)*

BACKGROUND: Patients are known to give estimates of their chances of individual benefit from participation in early phase clinical trials that greatly exceed historical data. Ethicists have worried that this "therapeutic mis-estimation" represents a failure of disclosure and/or understanding, thereby undermining the validity of the informed consent process.
METHODS: We interviewed 45 subjects who had consented to participate in Phase I-II oncology trials about their expectations of benefit and their reasons for those expectations. We employed a phenomenological, qualitative approach, with one primary coder to identify emergent themes within 1,040 pages of interview transcript. Coding and theme development were facilitated by the primary coder using the ATLAS-Ti software and verified by two independent coders. While saturation was reached at 20 subjects, we included all 45 subjects to facilitate semi-quantitative analyses.
RESULTS: The average subject age was 51 years, 51% were women, and 80% were white. The median expectation of benefit varied from 50–80%, depending on which of three ways the question was asked. Justifications for these estimates universally invoked hope and optimism, at least indirectly, and 27/45 explicitly used one of these words. Three major justifactory themes emerged: (1) Expressions of optimism as Performative—i.e.—the notion that positive thoughts and expressions would improve the chances of benefit. Subjects sometimes rationalized this idea by folk psychology and sometimes by the belief that this had been scientifically proven. (2) Fighting cancer as a battle in which expressions of surrender are unacceptable. Sometimes this battle was only personal, but often part of a larger altruistic movement ("the war on cancer"). (3) Faith—subjects sometimes based their optimism on an explicit faith in God, but more often on faith in medicine or science or their own physicians. They often expressed a mixture of these "faiths." Subjects described a culture in which physicians, nurses, families, and faith communities encouraged and expected optimism, such that enrolling in the trial and expressing optimism and faith became a way of reflecting this expectation. Despite high expectations of benefit, 26/45 subjects mentioned altruistic benefit for others as at least a secondary motive. Many stated that they had been told that very few subjects would actually benefit and appeared to understand the uncertainties involved in a clinical trial. Highly distressed subjects, as measured by a single item on a 1 to 10 scale, were less likely to invoke a "performative" justification for their estimates of benefit (50% vs. 84%, P=.04).
CONCLUSION: For the subjects we studied, the so-called therapeutic mis-estimation had little to do with reporting knowledge and more to do with expressing optimism. These results have implications for understanding how best to protect the vulnerable and obtain valid informed consent from subjects enrolling in early phase clinical trials.

THE DAY-TO-DAY IMPACT OF UROGENITAL AGING IN WOMEN A.J. Huang[1]; J. Luft[1]; A. Stewart[1]; M. Kuppermann[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204959)*

BACKGROUND: Over a third of women suffer from symptoms of urogenital atrophy after menopause, including soreness, dryness, itching, burning, and pain and discomfort during sexual intercourse. Unlike other symptoms associated with menopause, urogenital atrophy symptoms may persist for decades after women cease to menstruate, causing ongoing discomfort and distress to women in older age. Despite their potential to affect quality of life, there has been almost no research on the impact of urogenital atrophy symptoms on the day-to-day lives of older women.
METHODS: We recruited postmenopausal women from three racial/ethnic groups (white, black, and Latina) with moderate-to-severe symptoms of urogenital atrophy to participate in focus groups to discuss the impact of their symptoms on their everyday functioning and wellbeing. Focus groups were homogenous with respect to race/ethnicity and stratified by either age (<60 versus 60 years old for white or black women) or language (English- versus Spanish-speaking for Latina women). Each focus group was led by a trained female moderator who was matched with respect to race/ethnicity, language, and age with participants. Focus group sessions were audiotaped and transcribed and, if necessary, translated into English, after which transcripts were analyzed according to grounded theory. Each transcript was independently read and coded by three members of the research team, who then met to discuss any differences in coding. Using the constant comparative method, codes identified in the first transcript were applied to subsequent transcripts, and additional codes were added as themes emerged from the data.
RESULTS: Six focus groups were conducted, involving a total of 44 participants (16 white, 14 black, and 14 Latina women). The mean (SD) age of participants was 59 (8) years, with a range of 48 to 75 years. Five

major domains of functioning and wellbeing affected by women's urogenital atrophy symptoms were identified, including sexual functioning, everyday activities, emotional well-being, self-concept/body image, and interpersonal relations. For some participants, urogenital symptoms primarily affected their ability to have and enjoy sex, as well as their perceived ability to be sexually responsive to their partners. For other women, particularly older postmenopausal women, symptoms also interfered with activities such as walking/exercising, using the toilet, sleeping, or work or recreational activities. Participants from all racial/ethnic groups reported feelings of depression, frustration, and anxiety related to their symptoms. Many women regarded their symptoms as a palpable sign that they were getting old or that their body was deteriorating; women also associated their symptoms with a loss of womanhood or sexuality. Additionally, participants also described feelings of isolation or embarrassment due to a belief that they alone were suffering from this problem and expressed reluctance to discuss their symptoms with friends, family, or health care providers.
CONCLUSION: Urogenital atrophy symptoms can have a profound impact on sexual functioning, everyday activities, emotional well-being, body image, and interpersonal relations in older women. Clinicians may need to actively engage women in discussion about these symptoms, as many women are reluctant to seek help for this problem even when it significantly detracts from their quality of life.

THE DESALINIZATION OF THE AMERICAN DIET: THE COST-EFFECTIVENESS OF STRATEGIES TO REDUCE THE BURDEN OF CARDIOVASCULAR DISEASE C.M. Smith-Spangler[1]; J.L. Juusola[2]; E.A. Enns[2]; K.M. Steele[2]; I. Jaatma[2]; S. Adler[2]; A.M. Garber[2]. [1]VA Palo Alto Health Care System, Stanford, CA; [2]Stanford University, Stanford, CA. *(Tracking ID # 204797)*

BACKGROUND: Myocardial infarction (MI) and stroke are leading causes of death in the United States. High blood pressure is a major risk factor for both conditions. Decreasing dietary sodium intake has been shown to reduce blood pressure. Recognizing that even small decreases in blood pressure could significantly reduce MI and stroke risk in large populations, several countries, including the US, are considering strategies to decrease population sodium intake. We sought to evaluate the cost-effectiveness of three nationwide strategies to reduce dietary sodium and blood pressure in the US population by comparing costs, quality-adjusted life-years (QALY), and MIs and strokes averted.
METHODS: The strategies evaluated include 1) mass media community health education about risk factors for cardiovascular disease; 2) a United Kingdom (UK)-style program of mass media education about salt and industry collaboration to decrease salt content in processed food; and 3) taxation of salt used for food production. We developed a simulation model to compare the costs and benefits of the three strategies to reduce sodium intake and blood pressure among a hypothetical population of US adults age 40 years without a history of MI and stroke. We modeled acute MI, acute stroke, death, and the post-MI and post-stroke states using published data from the Framingham Heart Study. For simplicity, we excluded other aspects of cardiovascular disease such as angina, transient ischemic attack or hypertensive kidney disease. The effect of each strategy was estimated using published sodium-blood pressure dose-response curves and published data on the relationship between blood pressure and risk of MI and stroke. Costs, utilities, and benefits were discounted at 3% and assessed from the US societal perspective. We performed a one-way sensitivity analysis of all parameters.
RESULTS: All three strategies were cost saving with the UK strategy providing the largest savings in cost and greatest increase in QALYs. For a cohort of 10,000 40-year-olds, the program produced a gain of 955 QALYs with a savings of $12.9 million US 2008 dollars. A UK-style program in the US would avert approximately 46,000 MIs and 132,000 strokes over 45 years among the four million 40-year-olds alive in 2008. The choice of optimal strategy is only sensitive to the decrease in blood pressure achieved by each strategy. Based on currently available data, the UK strategy seems most effective. These strategies may have additive effects when combined. Benefits of the strategies may have been underestimated because our analysis excludes some aspects of cardiovascular disease.
CONCLUSION: Strategies to reduce sodium consumption on a population level are likely to be cost saving. A UK-style program appears to be most effective based on current knowledge. A combination of strategies could provide the greatest benefit.

THE DISCHARGE PROCESS: UNDERSTANDING THE WHO, WHAT, WHEN AND HOW S. Ramsaroop[1]; M. Reid[1]; E. Siegler[1]. [1]Weill Cornell Medical College, New York, NY. *(Tracking ID # 205655)*

BACKGROUND: Hospital discharge is often a poorly understood, chaotic, and undervalued process that is vulnerable to miscommunication and errors and that often leads to adverse events. We created a multidisciplinary, Transitional Care Task Force within our institution to address the problem. This study sought to identify and describe all the participants, elements and workflow of the discharge process at our institution.
METHODS: This is a continuous quality improvement study of the geriatrics unit of a tertiary care hospital from July 2008 to present. This study consists of three components: 1) Focused interviews with key members (e.g. nurses, physicians, social workers) of the inpatient geriatrics unit to determine procedures and roles in the discharge process; 2) Creation of a general discharge process map, identifying all components and people involved in the discharge process; and 3) Shadowing of unit personnel to describe workflow and quantify tasks performed by each discipline in the discharge process. Independent observers used process mapping and time-motion study techniques.
RESULTS: Thus far, interviews (N=10) with physicians, physician assistants (PA), nursing and social work have led to creation of multiple discharge process maps. There is substantial variation between order of steps and delegation of responsibilities (e.g., medication reconciliation, informing patient and family of discharge plan), so that one process map cannot adequately capture the discharge process. On average 7 people are involved in the discharge process (range 4 to 11). During interdisciplinary, discharge rounds, the average time of discussion per patient is 1.09 minutes (0.22 to 1.77 minutes). Time- motion analysis reveals significant variation in the time required to complete tasks depending on the complexity of the patient. For example, medication review with patients ranges from 10 minutes to 45 minutes, and completion of a Patient Review Instrument for nursing home placement requires between 15 and 60 minutes.
CONCLUSION: Our current discharge process is complex and time-consuming, leading to marked inconsistency and variability in its execution. Analysis of our current processes will allow us to create interventions that can streamline the discharge process, minimize error, and ultimately improve patient-level outcomes.

THE EFFECT OF GENERIC SUBSTITUTION LAWS ON GENERIC DRUG USE: A CASE-STUDY OF THE PATENT EXPIRATION OF ZOCOR W. Shrank[1]; N.K. Choudhry[2]; J. Agnew-Blais[3]; A. Federman[4]; J.N. Liberman[5]; A. Kesselheim[2]; M.A. Brookhart[2]; M. Fischer[2]. [1]Brigham and Women's Hospital/Harvard Medical School, Boston, MA; [2]Brigham and Women's Hospital, Boston, MA; [3]Harvard Medical School, Boston, MA; [4]Mt. Sinai Hospital, New York, NY; [5]CVS Caremark, Hunt Valley, MD. *(Tracking ID # 205811)*

BACKGROUND: In times of contracting budgets, states seek policy options to reduce unnecessary health care costs. All states have adopted generic substitution laws, yet they differ in several important characteristics. Some states have mandatory generic substitution, requiring pharmacists to dispense generics if the physician does not request otherwise. Other states have permissive substitution laws that let the pharmacist determine whether to substitute. Additionally, some states require that patients provide consent before generic substitution, while other states require no such consent. Little is known about how these laws affect actual medication use.
METHODS: We used data for all filled prescriptions in 48 state Medicaid programs and Washington D.C. from 2006, when the patent for Zocor (simvastatin) expired (6/23/06), through the third quarter of 2007. Data were aggregated by calendar quarter within each state. We used data published by the National Association of Boards of Pharmacy to assess variations in state generic substitution laws and contacted state Medicaid agencies directly if there were questions and to determine whether prior authorization was required for branded Zocor after patent expiration. Bivariate patterns of generic simvastatin and Zocor use were evaluated after patent expiration in states with and without mandatory generic substitution laws and in states with and without laws requiring patient consent. The outcome was the generic drug use ratio (generic simvastatin prescriptions divided by total prescriptions of simvastatin and Zocor). We performed time-trend analyses using multivariate linear

regression, controlling for within-state clustering with generalized estimating equations, to assess the comparative effect of different laws on generic drug use.
RESULTS: In 2006, 1,620,797 prescriptions were filled for either generic simvastatin or Zocor. In the 6 months following patent expiration, the 10 states with laws requiring mandatory generic substitution at the pharmacy had substituted 48.7% of branded Zocor with generic simvastatin while states with permissive substitution laws had substituted 30.0%. In the 8 states that did not require patient consent for generic substitution, 98.1% of simvastatin users were using the generic version 6 months after patent expiration while only 30.0% were using the generic in states that did require patient consent. We developed a multi-variable model controlling for both generic substitution policies, prior authorization policies for branded Zocor, and within-state clustering. Mandatory generic substitution laws had no statistically significant effect on generic use in our adjusted model. (95% C.I (-) 0.12 – 0.35, p=0.33) Laws requiring patients to provide consent prior to generic substitution led to a 24.8% average reduction in generic use per calendar quarter in the 5 calendar quarters subsequent to patent expiration (95% C.I. (-) 0.43 – (-) 0.05, p=0.01).
CONCLUSION: Requiring patients to provide consent prior to generic substitution substantially reduced the rate of generic substitution of branded Zocor. As patent expiration nears for a number of blockbuster medications, states should reconsider their generic substitution regulations to reduce unnecessary spending on branded cardiovascular medications.

THE EFFECT OF PERFORMANCE-BASED FINANCIAL INCENTIVES ON IMPROVING PATIENT CARE EXPERIENCES: A STATEWIDE EVALUATION H.P. Rodriguez[1]; T. Von Glahn[2]; S. Devlin[1]; W. Rogers[3]; D.G. Safran[4]. [1]University of Washington, Seattle, WA; [2]Pacific Business Group on Health, San Francisco, CA; [3]Tufts-New England Medical Center, Boston, MA; [4]Tufts University, Boston, MA. *(Tracking ID # 204651)*

BACKGROUND: In the U.S., California has the largest and most long-standing experience with pay-for-performance. Through the combined effort of six insurers, the Integrated Health Association's (IHA) initiative offers significant financial incentives to participating California medical groups for performance on multple quality domains- including patient care experiences. In addition, many medical groups have performance-based financial incentive arrangements with their individual physicians. Although over 150 million dollars in performance-based financial incentives have been disseminated to medical groups since the program's inception in 2004, improvement on patient experience measures over time has not been assessed and the role of financial incentives in performance changes has not been evaluated. This study aims to assess the level of performance change on patient experience measures and examine the association between performance improvement and the nature and magnitude of medical groups' financial incentives for individual physicians.
METHODS: The study uses Clinician & Group CAHPS survey data from commercially-insured adult patients (n=124,021) who had visits with 1,444 primary care physicians from 27 California medical groups between 2003 and 2006. Physicians involved in at least 2 of the 4 measurement years were included in the study sample. Annual surveys of patients in participating physician practices assessed physician-patient communication, access to care, care coordination, and office staff interactions. Medical group directors were interviewed to assess the magnitude and nature of financial incentives directed at individual physicians and the patient experience performance improvement activities adopted by groups. Multilevel regression models with physician and medical group random effects were specified to assess the relationship between performance change on patient care experience measures and physician case-mix, medical group characteristics, financial incentives, and performance improvement activities.
RESULTS: Over the course of the study period, participating practices improved baseline performance on the physician-patient communication (0.9 point annual increase, p<0.001), access to care (0.7 point annual increase, p=0.008), and office staff interactions (0.3 point annual increase, p=0.03) measures. Physicians with lower baseline performance on patient experience measures experienced larger improvements (p<0.001). The racial and ethnic minority patient concentration of physician practices was unrelated to performance change. However, greater concentrations of Asian patients in physician panels were associated with performance stagnation (p<0.001). Medical group characteristics and the magnitude and nature of financial incentives directed at individual physicians were unrelated to performance improvement.
CONCLUSION: Patient care experiences improved over the course of the initiative, but the nature and magnitude of financial incentives directed at individual physicians were unrelated to the improvements. The performance of physicians with high concentrations of racial and ethnic minority groups did not deteriorate over time, suggesting that the use of financial incentives for quality do not adversely affect minority patients' experiences in the short run.

THE EFFECTIVENESS OF A LITERACY-SENSITIVE WEB-BASED COLORECTAL CANCER SCREENING PATIENT DECISION AID D.P. Miller[1]; J.G. Spangler[1]; L.D. Case[1]; S. Singh[1]; M.P. Pignone[2]. [1]Wake Forest University, Winston-Salem, NC; [2]University of North Carolina at Chapel Hill, Chapel Hill, NC. *(Tracking ID # 205328)*

BACKGROUND: Despite its proven effectiveness, colorectal cancer (CRC) screening remains underutilized in the United States. Patient-specific barriers to CRC screening include lack of knowledge of the benefits of screening and screening options, inadequate health literacy, and lack of self-efficacy. We tested the ability of a web-based CRC screening patient decision aid to overcome these barriers.
METHODS: We conducted a randomized-controlled trial of the effectiveness of the decision aid in a large community-based academic Internal Medicine practice serving low-income adults. We included patients aged 50–74 at average risk for CRC who were overdue for CRC screening according to national guidelines. Patients were randomized, stratified by literacy level, to view either the CRC decision aid or a control program about prescription drug safety. Both programs were developed for low literacy audiences and incorporated interactivity, audio, graphics, animations and/or video. Each patient interacted with the relevant program immediately prior to a scheduled routine primary care visit. We measured patients' preferences for CRC screening and their intent to receive screening (using a Likert scale) before and after interaction with the computer programs. Research staff subsequently performed chart reviews to determine the rates of CRC screening test ordering and completion. Medical providers and research staff were blinded to the intervention assignments. All analyses were based on intention-to-treat.
RESULTS: A majority of the 248 enrolled patients were female (69%), black (73%), and had annual household incomes of <$20,000 (76%). Approximately half had Medicaid and/or Medicare coverage (51%) and had low or marginal health literacy skills (54%). The average age was 57.5 years. Half of the patients (n=124) were randomized to the CRC decision aid and half (n=124) to the control program. Patients were more likely to report a preference for a specific CRC screening option after interacting with the decision aid compared to the control program (84% vs. 53%, p<0.0001). After interacting with the programs, decision aid patients also were more likely to report an increase in readiness to receive CRC screening (27% vs. 10%, p<0.001). Similar results were found when stratifying by literacy level. More decision aid patients had CRC screening tests ordered immediately after they viewed the program, but the difference did not reach statistical significance (31% vs. 23%, p=0.12). There was a trend toward higher test completion rates within 12 weeks of viewing the decision aid compared to the control program (15% vs. 9%, p=0.12).
CONCLUSION: A web-based multimedia CRC screening patient decision aid resulted in a greater ability to form CRC screening preferences and an increased intent to receive screening among patients regardless of literacy level. Future studies are needed to determine how to incorporate web-based decision aids into medical practice to improve health outcomes.

THE EFFECTS OF POST-9/11 ABUSE AND DISCRIMINATION UPON PSYCHOLOGICAL DISTRESS AND REPORTED STATE OF HEALTH AND LEVEL OF HAPPINESS IN DETROIT-AREA ARAB AMERICANS A.I. Padela[1]; M. Heisler[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 204601)*

BACKGROUND: The September 11, 2001 terrorist attacks led to widespread adverse mental health effects in US populations both close

to and distant from the epicenters of destruction. After 9/11 there was a significant increase in reported discrimination and abuse against Muslims and Arabs, yet the health impacts of this environment upon this population have not been systematically evaluated. We assessed the prevalence and effect of post-9/11 abuse and discrimination upon psychological distress, self-reported health status, and level of happiness amongst the Greater Detroit Arab population, the largest community of Arab origin outside of the Middle East.

METHODS: A face-to-face survey was administered to a representative population-based sample of all Arab adults residing in the Greater Detroit region between May and December 2003. A total of 1389 eligible households were identified from which 1016 adults completed the study interview (73% participation rate). The Kessler Psychological Distress Scale (K10) was used to measure psychological distress and self-reported health status and happiness were assessed via Likert-scale response categories. Descriptive statistics were used for means and proportions, while multivariate linear regression and multivariate ordered logistic regression techniques used for continuous and ordered categorical variables of interest respectively.

RESULTS: 25% of respondents reported experiencing personal or familial abuse due to race, ethnicity or religion since 9/11, and 15% noted personal bad experiences due to Arab or Chaldean ethnicity. There were no significant differences in these rates between Muslim and Christian Arab Americans. Post-9/11 personal or familial abuse was associated with higher psychological distress (p=.003), worse health status (odds ratio [OR], 0.70; 95% confidence interval [CI], 0.50–0.98) and level of happiness (OR 0.50, CI 0.35–0.72). Similarly, personal bad experiences due to ethnicity were associated with higher psychological distress (p<.001) and worse level of happiness (OR 0.55, CI 0.40–0.74). The perception that Arab Americans are not respected within US society was associated with higher psychological distress (p=.002) and negatively associated with levels of happiness (OR 0.76, CI 0.61–0.96). Feeling a loss of personal security and safety due to 9/11 also was associated with higher psychological distress (p=.001) and lower health status (OR 0.81, CI 0.67–0.97).

CONCLUSION: Post-9/11 abuse, discrimination, and negative attitudes were associated with higher psychological distress, worse reported health status and lower levels of happiness within the Greater Detroit Arab community. Healthcare providers and institutions need to undertake focused outreach and tailored intervention efforts within this population to meet their healthcare needs and ameliorate the negative health impacts of societal discrimination and abuse.

THE EPIDEMIOLOGY OF PAIN IN THE LAST 2 YEARS OF LIFE A.K. Smith[1]; I. Stijacic Cenzer[1]; S. Knight[1]; K. Puntillo[1]; E. Widera[1]; K.E. Covinsky[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205729)*

BACKGROUND: Pain exerts a profoundly negative effect on quality of life at the end of life, yet the epidemiology of pain at the end of life has not been described. We describe the prevalence of pain in the last two years of life among older decedents.

METHODS: We analyzed data from subjects who died while enrolled in the Health and Retirement Study, a nationally representative survey of older adults interviewed every 2 years (1992–2006). For each subject we used the interview closest to death, and classified subjects into one of 25 groups by months between the interview date and death (range 0–24). Our primary outcome, significant pain, was defined by a report that the subject was "often troubled" by pain of at least moderate severity; this level of pain should trigger a clinical response according to established guidelines. We describe the prevalence of significant pain over the last 24 months of life, including patterns by terminal diagnosis (e.g. frailty, heart failure, cancer).

RESULTS: The study sample included survey responses from 5,490 decedents (mean age [SD] 78 [11], 77% white, 16% black, 6% Hispanic, 52% women). The prevalence of significant pain increased from 24% at 24 months prior to death to 49% in the last month of life (figure). In the last month of life, 50% of subjects with frailty, 52% with heart failure, and 52% with cancer experienced significant pain.

CONCLUSION: The experience of moderate or severe pain at the end of life is common, increasing in prevalence from one quarter of elders 2 years prior to death to one half of elders in the last month of life. Pain among patients without cancer is common, underscoring the need for clinicians to be vigilant in the assessment and treatment of pain among all older adults.

THE FREE MARKET PLACE OF US GUIDELINES S. Keyhani[1]; A. Kim[1]; D.R. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205704)*

BACKGROUND: Physicians in the US have access to a range of clinical guidelines for each condition. We examined the quality and content of current guidelines for cancer and cardiovascular risk factor screening issued by US organizations.

METHODS: We focused on screening guidelines for cancer (breast, cervical, colorectal, prostate and ovarian) and cardiovascular risk factors (diabetes mellitus, hypertension and lipid disorders). We systematically collected guidelines using the national guideline clearing house, organization websites and medline. We coded guideline sources as 1) government 2) medical society 3) disease organization or 4) other, and used a published guideline evaluation tool to rate the quality of each guideline. We grouped the tool's 32 items into 4 domains: 1-general criteria (e.g panel member expertise, 8 items), 2- evidence gathering and synthesis methods (e.g. conduct of a systematic review, 11 items), 3-specificity/content (e.g. screening start and stop dates with detail on high risk populations, 11 items) and 4) impacts on costs (2 items). Two investigators assessed each guideline; disagreements were discussed until consensus was reached. We rated both the quality and the impact of each guideline. For each guideline, we calculated the percent of items met in each domain and compared an overall score for each guideline across issuing entities using chi square statistics. We then calculated the number of life time screens recommended for a healthy low risk population and compared average associated lifetime screens for each condition by issuing entity.

RESULTS: We identified 47 unique guidelines for 8 conditions. Overall guideline quality varied across issuing entity and conditions (p<0.05). Government guidelines met general criteria 100% of the time, medical societies 72.8%, disease organizations 93.7% and other entities 90.6% of the time. Government guidelines (72.7%) met the evidence criteria more often than medical societies (33.2%), disease organizations (43.1%) or the other entities (68.1%). Less than 60% of all guidelines employed a systematic review in the evidence extraction process. Similarly, government guidelines (81%) met the specificity and content criteria more often than medical societies (59.7%), disease organizations (74.7%) or the other entities (57.1%) examined. Less than 10% of guidelines met cost criteria. Life time screens varied across issuing entity. For example, breast cancer recommendations ranged from 13 (Institute for Clinical Systems Improvement) to 36 (American Cancer Society) life time screens for a healthy low risk woman. Screening for diabetes mellitus with fasting blood glucose ranged from uncertain evidence to 10 life time screens. Screening recommendations issued by non government entities on average exceeded government entities for breast cancer (25 v 29), cervical cancer (15 vs. 24) and prostate cancer (uncertain evidence vs. 15).

CONCLUSION: The quality of guidelines and screening recommendations varies across issuing entities. Many policymakers have called for evidence based practice to decrease unnecessary care. It is doubtful that such a plethora of guidance with varying quality and inconsistent

recommendations is serving the best interests of patients, physicians or the tax paying public. National standards set by one organization may improve the quality and content of recommendations issued.

THE GEOGRAPHIC DISTRIBUTION OF RETAIL CLINICS AND THE SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE COMMUNITIES THEY SERVE A. Mehrotra[1]; R. Rudavsky[2]; K. Armstrong[3]; C. Pollack[3]. [1]University of Pittsburgh, Pittsburgh, PA; [2]RAND Corporation, Pittsburgh, PA; [3]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 205986)*

BACKGROUND: As a rapidly growing new model of care in the United States, retail clinics have been the subject of much controversy. Located physically within a retail store, retail clinics provide simple acute and preventive care services for a fixed price and without an appointment. It is hoped that retail clinics can improve access to care for patients in general, and the underserved in particular. To better understand their potential to improve access, we describe (1) where retail clinics have opened in the US, (2) examine variation in clinic ownership, (3) identify what fraction of the population live within a short driving distance of a clinic, and (4) the determine socio-demographic characteristics of the communities in which they operate.
METHODS: We created an inventory of all retail clinics in the US and using geospatial imaging software determined the proportion that are in medically underserved areas and urban areas. We defined a catchment area around each clinic by mapping "service areas" of five and ten-minute driving distances to the clinics. Using US Census data, we compared the socio-demographic characteristics of the population within and outside of these retail clinic catchment areas.
RESULTS: As of August 2008, 41 different organizations operated 982 retail clinics in 32 states of which the vast majority (88%) were located in an urban area. Over half of the retail clinic operators (24) are existing physician and hospital systems (e.g. Mayo Clinic, Geisinger) though they currently operate relatively few clinics (109, 11%). Two operators, CVS and Walgreens, operate 690 (70%) clinics. We estimate that 13% and 36% of the US urban population lives within a 5-minute and 10-minute driving distance from a retail clinic. The fraction of the population within a short drive of a retail clinic is much higher in some urban areas such as Nashville (57% 5-minute, 94% 10-minute) and Minneapolis-St. Paul (51%, 96%). The urban population living within 5-minute driving distance from a retail clinic has a higher median household income ($52,849 vs. $46,080) and is better educated (33% vs. 25% with a college degree). In a sub-analysis of chain drugstores (i.e. CVS, Walgreens) in six counties, stores with a retail clinic were less likely to be located in a medically underserved area compared to stores without retail clinics.
CONCLUSION: As of August 2008 13% of the US urban population lives within a 5 minute drive of one of the almost 1000 retail clinics in the US and this fraction is much higher in some cities. We find that relative to the overall urban population, the population that can easily access a retail clinic is less likely to be poor and medically underserved. This will limit the ability of retail clinics to improve access for those most in need.

THE IMPACT OF HEALTH PLAN PHYSICIAN-TIERING ON ACCESS TO CARE: DO PATIENTS HAVE REASONABLE ACCESS TO "HIGH-VALUE" PHYSICIANS? S.A. Tackett[1]; E.A. Mcglynn[2]; J. Adams[2]; A. Mehrotra[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]RAND Corporation, Santa Monica, CA. *(Tracking ID # 205862)*

BACKGROUND: In an attempt to improve quality and control costs, health plans have created tiered physician networks. In such a network, enrollees have a financial incentive via lower co-payments (e.g. $10 vs. $30) to seek care from "high-value" physicians. A high-value physician is one, based on health plan metrics, who is both high quality and low cost. One concern with physician tiering that has yet to be addressed empirically is whether enrollees have reasonable access to the limited pool of high-value physicians. The concern is that tiered networks financially penalize enrollees without providing a real opportunity to switch physicians. In this research we compared access to care, as measured by travel time, to primary care physicians (PCP) and orthopedic surgeons in one state under two scenarios: (1) enrollees can see all physicians or (2) enrollees can only see high-value physicians.
METHODS: Using techniques similar to those used by health plans, we created cost and quality scores for Massachusetts practicing physicians using an aggregated commercial claims data set from four health plans for 2004–2005. We studied physicians with self-identified specialties of family practice (FP), general internal medicine (IM), or orthopedic surgery who submitted at least one claim in the two years. A physician cost score was determined by identifying healthcare episodes, assigning each episode to the physician who had the highest proportion of professional costs, and then creating a ratio of actual to expected costs for all episodes assigned to that physician. A physician quality score was determined using 131 clinical process indicators for common chronic and acute medical conditions. A physician was labeled high-value if he or she was statistically different than the mean physician on both cost and quality metrics. Using ArcGIS we determined the travel time from each of more than eighty-thousand Massachusetts census blocks to the closest physician and then calculated the population-weighted average across all census-blocks. Sensitivity analyses included using less stringent definitions of high-value and measuring reasonable access using travel time cut-offs.
RESULTS: The analysis focused on 3,677 PCPs (2708 IM, 969 FP) and 529 orthopedic surgeons of whom only 98 (2.7%) and 6 (1.3%) were identified as high-value respectively. The average travel time to the nearest PCP was 2 min 50 sec and to the nearest high-value PCP was 11 min 9 sec. The average travel time to the nearest orthopedic surgeon was 4 min 3 sec and the nearest high-value orthopedic surgeon was 37 min 31 sec.
CONCLUSION: Under a physician-tiering network, enrollees would have much greater travel times to see the closest high-value PCP or specialist, which may adversely impact access to care. On the other hand, even with a small number of high-value physicians, the travel times to see a high-value physician may not be prohibitive (<15 minutes for PCP and <40 minutes for specialist). Future work will have to investigate the impact of physician-tiering on access to care in states with a smaller number of physicians per capita, what fraction of patients actually switch care to high value physicians, and whether high-value physicians are actually accepting new patients.

THE IMPACT OF LANGUAGE BARRIERS ON POOR GLYCEMIC CONTROL AMONG INSURED LATINOS WITH DIABETES A. Fernandez[1]; D. Schillinger[1]; E.M. Warton[2]; M. Parker[2]; H.H. Moffet[2]; N.E. Adler[1]; Y. Schenker[1]; M.V. Salgado[1]; A.T. Ahmed[2]; A.J. Karter[2]. [1]University of California, San Francisco, San Francisco, CA; [2]Kaiser Permanente Division of Research, Oakland, CA. *(Tracking ID # 204341)*

BACKGROUND: Prior studies have had difficulty isolating the impact of limited English proficiency (LEP) from other barriers to glycemic control common among Latinos. We used data from a study of insured patients with diabetes to determine if LEP is associated with chronic poor glycemic control among Latinos and to explore the impact of patient-physician language concordance on the glycemic control of Latinos with LEP.
METHODS: We used data from the Diabetes Study of Northern California (DISTANCE), a longitudinal study of diabetes patients continuously enrolled at Kaiser Permanente Northern California, from 2003–2007. Kaiser offers interpreter services for patients with LEP. Patients were surveyed in 2005–6 in five languages, including English and Spanish. Patient demographic data, English language ability and physician-patient language concordance were self-reported. Electronic datasets provided clinical data from usual care. We estimated the duration of time when hemoglobin A1C (HA1C) fell below 9% by using linear interpolation between actual measures of HA1c. We defined chronic poor glycemic control as HA1C>9% for over 50% of observation time.Step-wise, nested generalized estimating equations were specified to isolate the impact of LEP on chronic poor control, controlling for observation time, demographic (age, sex, income, education, marital status), clinical (diabetes duration, depression diagnosis and hypoglycemic medication use at cohort entry), and access factors (continuous pharmacy benefits). Models accounted for clustering by individual physician and by site of care.
RESULTS: 2451 English-speaking Latinos and 448 LEP Latinos from 48 KPNC facilities were included. Observation time was similar between groups. Latinos with LEP were more likely to have

chronically poor glycemic control (21.7% vs. 16.3%, OR 1.43; CI 1.08, 1.90). This association was not confounded by demographic, clinical and access factors (OR 1.45; CI 1.11, 1.90). In fully adjusted models, LEP patients with language concordant physicians (N=119) and those missing MD language data (N=232) were not significantly more likely to have chronic poor glycemic control than English speakers (OR 1.22; CI 0.89, 1.67 and OR 1.32; CI 0.93,1.88). In contrast, patients with LEP and language discordant physicians (N=97) were more likely than English speakers to have chronic poor glycemic control (OR 2.14; CI 1.24, 3.71).
CONCLUSION: Limited English proficiency is associated with poor glycemic control for Latinos with diabetes, despite uniform access to health care at sites with language services. This disparity is largely attributable to physician-patient language discordance. Health care provider communication barriers may be an important contributor to poor glycemic control observed among LEP Latinos with diabetes.

THE IMPACT OF MASS INCARCERATION ON OUTPATIENTS IN THE BRONX: A CARD STUDY M.P. Shah[1]; S. Edmonds-Myles[1]; M. Shapiro[1]; C. Chu[1]; M. Anderson[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 203755)*

BACKGROUND: The term "mass incarceration" has been used to describe extremely high incarceration rates seen in working class communities of color. Negative health outcomes of incarcerated individuals have been documented, but less is known about the impact of incarceration and reentry on families and communities. We undertook an anonymous card study to assess the impact of arrest and incarceration on patients attending primary care clinics in Bronx, New York.
METHODS: Internal medicine, pediatrics, and family medicine residents and attending physicians working at three primary care health centers in the Bronx participated in the card study. Each clinician asked two patients per clinic session 7–8 questions concerning past or present history of criminal proceedings, arrest and/or incarceration. Questions were asked about the patient and family members. Results were written on a card that did not have any identifying information other than age and gender.
RESULTS: 118 cards were completed during a 3 week period. Eleven patients (9%) were currently involved in criminal proceedings, and 21 (18%) currently had a family member in jail. Twenty-nine patients (25%) reported having ever been arrested, while 65 (55%) reported that they or a family member had been arrested. Twenty-one patients (18%) had personally spent time in jail, and 60 (51%) reported that they or a family member had spent time in jail. Of respondents who had a history of criminal justice involvement, 18 (22%) felt that this involvement had affected their health. Twenty-seven cards had comments; most commonly, patients discussed either who had been arrested or the reason for the arrest. During post-study evaluation, clinicians generally felt positive about participating in the card study and about discussing incarceration with their patients.
CONCLUSION: Consistent with the existing literature on mass incarceration, we found that involvement with the criminal justice system was common among patients we care for in the Bronx. Over half of respondents had a personal or family history of both arrest and incarceration. In some cases, respondents felt that criminal justice involvement affected their health, mostly negatively. Asking questions about incarceration did not appear to have a negative impact on the clinical relationship; on the contrary, such questions may open doors for clinicians to assist their patients. Further research is needed into the full health effects of this highly prevalent problem, and how physicians can best respond to support their patients.

THE IMPACT OF MEDICARE PART D ON MEDICARE-MEDICAID DUAL-ELIGIBLE BENEFICIARIES' PRESCRIPTION UTILIZATION AND EXPENDITURES A. Basu[1]; W. Yin[1]; G.C. Alexander[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 205244)*

BACKGROUND: The Medicare Modernization Act Part D Prescription Drug Benefit, implemented on January 1, 2006, reflected a change in prescription drug coverage for over six million beneficiaries dually eligible for Medicare and Medicaid. There was particular concern, both during and following the transition to Part D, of the impact that this change would have on dual eligibles, since they faced different coverage schemes under Part D than they previously faced under Medicaid. We examine the effect of Part D on dual eligibles' prescription drug usage, out-of-pocket costs, and total drug expenditures.
METHODS: We selected a 5% random sample of unique pharmacy customers who filled at least one prescription both in the 2005 and the 2006 calendar years at any retail or mail order member of a national pharmacy chain. For these customers, we obtained claims data for every prescription filled between January 1, 2005 and April 31, 2007. We divided the 28 months of data into 3 periods: pre-Part D, transition post-Part D, and stable post-Part D. To identify Medicaid subjects, we looked for at least one prescription that was reimbursed by Medicaid during the entire pre-Part D period of January 1, 2005 to December 31, 2005. Our "treatment" group consisted of dual-eligibles between 65–78 years on January 1, 2005 and our "control" group consisted of near-elderly patients with Medicaid coverage between 60–63 years on January 1, 2005. We used generalized estimating equations (GEE) to examine the experience of the treatment group with that of the control group during the first 18 months after Part D implementation. We focused on four pharmaceutical outcomes: (1) total number of prescriptions per month, (2) pill-day – a prescription utilization measure similar to medication possession ratio that counts the number of days with a pill summed across all prescriptions, (3) monthly out-of-pocket costs, and (4) total prescription expenditures.
RESULTS: There were no significant changes in trends in the dual-eligibles' out-of-pocket expenditures, total monthly expenditures, pill-days, or total number of prescriptions due to Part-D. Expenditures for the treatment and control groups tracked each other closely in the pre-Part D period, suggesting that the near-elderly sufficed as a comparison group. Immediately following the implementation of Part D, expenditures for both groups decreased and then leveled off. The proportions of medications initiated, continued, or discontinued among the treatment and control groups pre- and post-Part D were almost identical, suggesting that Part D did not meaningfully impact patterns of prescription usage. Findings were similar for the other outcomes examined.
CONCLUSION: Part D represents a policy change of enormous proportions. Particularly during the transition period in the first few months of the benefit, there was considerable concern about the impact of the transition on dual eligibles. Many of these challenges were anticipated, and efforts by numerous stakeholders were made to address those that weren't anticipated. We find no evidence that Part D adversely affected pharmaceutical utilization or out-of-pocket expenditures during the transition period, nor during the 18 months subsequent to Part D implementation.

THE IMPACT OF NEIGHBORHOOD ENVIRONMENT ON VETERAN HEALTH STATUS K. Nelson[1]; N. Lurie[2]; J. Escarce[3]; L. Taylor[4]; M. Lynne[4]; S.D. Fihn[1]. [1]University of Washington, Seattle, WA; [2]The RAND Corporation, Arlington, VA; [3]University of California, Los Angeles; The RAND Corporation, Los Angeles, CA; [4]VA Puget Sound, Seattle, WA. *(Tracking ID # 205219)*

BACKGROUND: Recent advances in social epidemiology have produced a body of literature that suggests, independent of individual socio-demographic factors, neighborhood characteristics influence a broad range of health outcomes. However, there is limited evidence about the association of neighborhood environment with veteran health status. The primary aim of this study is to determine the relative contributions of neighborhood socioeconomic status, health system factors, and individual characteristics to veteran health status.
METHODS: We used data from the Ambulatory Care Quality Improvement Project (ACQUIP), a multi-site, randomized trial of VA primary care patients. Information on personal socioeconcomic indicators, co-morbid disease and Medical Outcomes Study 36-item short form (SF-36), were obtained from baseline enrollment

data (n=12,294). We used the physical component scale (PCS) and mental component scale (MCS) scores to summarize overall physical and mental function. Census tracts were used as proxies for neighborhoods. A summary score was used to characterize the neighborhood socioeconomic (SES) environment. Data were analyzed with multilevel hierarchical models.
RESULTS: Neighborhood SES was independently associated with both MCS and PCS scores ($p<0.05$ for both), controlling for individual socioeconomic status (age, gender, race, education, employment status, income and service connected status), self-reported co-morbid disease, depression, smoking status, and health care access (numer of outpatient clinic visits, number of inpatient hospitalizations, distance to VA care and use of non-VA care). In the lowest versus highest quartiles of neighborhood SES, adjusted mean PCS scores were 34.4 and 36.5 ($p<0.001$) and adjusted mean MCS scores were 45.5 and 47.9 ($p<0.001$). PCS score was also significantly associated with street connectivity, a measure of "walkability" of a neighborhood ($p<0.05$).
CONCLUSION: To our knowledge, this project provides the first information about the contributions of neighborhood environment with veteran health status, controlling for health system factors such as access and distance to care, and personal health risks. Veterans living in lower SES neighborhoods have poorer health status, independent of individual characteristics and health care access. Our findings suggest that a health policy perspective that moves beyond individual and health system characteristics may be useful in identifying factors that will improve veteran health status.

THE IMPACT OF NONFINANCIAL BARRIERS ON ACCESS FOR UNINSURED NONELDERLY ADULTS J.T. Kullgren[1]; C.G. Mclaughlin[2]. [1]Brigham and Women's Hospital, Boston, MA; [2]University of Michigan, Ann Arbor, MI. *(Tracking ID # 206103)*

BACKGROUND: Current proposals to improve access to care for uninsured adults primarily address financial barriers, though access consists of both financial and nonfinancial dimensions. Despite recognition of the importance of nonfinancial dimensions of access among health services researchers, there exists little evidence on the extent to which uninsured adults face nonfinancial barriers to health care in addition to their known financial challenges, or how nonfinancial barriers interact with financial problems in this population. This study seeks to: (1) describe the types of nonfinancial access barriers experienced by uninsured adults; (2) quantify the degree to which nonfinancial barriers overlap with financial barriers in this population; and (3) identify demographic characteristics associated with experiencing nonfinancial barriers to health care.
METHODS: Data come from Round Four of the Community Tracking Study (CTS) Household Survey (2003–2004), a cross-sectional national survey of 46,587 adults that provides nationally-representative estimates for the U.S. civilian non-institutionalized population. Data were analyzed using SUDAAN. We identified both insured and uninsured nonelderly adults from the CTS who had experienced unmet need or delayed care in the previous 12 months. Each reason given for unmet need or delayed care was assigned to one of five dimensions (affordability, acceptability, accessibility, accommodation, or availability) in the Penchansky and Thomas model of access to care. The prevalence of barriers in each dimension among insured and uninsured adults was compared using chi-square tests. Multiple logistic regression analysis was used to identify demographic characteristics of uninsured adults associated with having a barrier in each of the five access dimensions.
RESULTS: Fourteen percent of nonelderly uninsured adults reported any nonfinancial barrier leading to unmet need or delayed care. The uninsured were significantly more likely than the insured to experience an accessibility (3.1% for uninsured vs. 2.0% for insured, $p<0.001$) barrier, but were no more likely to experience an acceptability (2.0%), accommodation (10.8%), or availability (4.8%) barrier. Substantial overlap existed between financial and nonfinancial barriers, with 39% of uninsured adults who identified a financial barrier leading to unmet need or delayed care also citing a contributing nonfinancial barrier. Controlling for other variables, Hispanics had higher odds of experiencing an accessibility or availability barrier. Employed persons had higher odds of an accommodation barrier. Individuals in fair or poor health had higher odds of accessibility, accommodation, and availability barriers. Overall, uninsured Hispanics, full-time workers, parents, adults living in smaller metropolitan statistical areas, and adults in fair or poor health had higher odds of experiencing any nonfinancial barrier.
CONCLUSION: Our results show that barriers limiting access for uninsured adults are multifaceted, and suggest that simply making medical care more affordable through expanding insurance coverage or providing subsidized care is unlikely to fully eliminate disparities in access on the basis of insurance status. Health reform efforts should address relevant nonfinancial barriers in addition to financial challenges in order to move the focus of such initiatives beyond a goal of universal coverage to a goal of universal access.

THE INFLUENCE OF 24-HOUR AMBULATORY BLOOD PRESSURE MONITORING ON BLOOD PRESSURE MANAGEMENT IN HYPERTENSIVE PATIENTS. L.A. Byars[1]; G. Denton[2]; W.T. Shimeall[3]. [1]United States Government, Silver Spring, MD; [2]Uniformed Services University of the Health Sciences, Washington, DC; [3]United States Government, Bethesda, MD. *(Tracking ID # 205968)*

BACKGROUND: Background: Hypertension is the most common diagnosis in the United States, with 35 million office visits primarily coded for hypertension in 2000. According to the 2000 National Health and Nutrition Examination Survey (NHANES), only 34% of hypertensive patients had controlled blood pressure. This control is well below the Healthy People 2010 goal of 50%, and many authors have implicated clinical inertia as a contributing factor. Clinical inertia is defined as recognition by a clinician of an under treated medical condition but failure to take appropriate corrective measures. This inaction is particularly problematic in management of chronic asymptomatic disease, where the physician must respond to an abnormal value rather than alleviating a symptom. One of several hypothesized contributing factors for clinical inertia in hypertension is that clinicians overestimate the control already achieved by current management, and therefore discredit the single office blood pressure reading. Ambulatory blood pressure monitoring (ABPM) is an automated method for determining the average blood pressure of a patient over a 24-hour period while they participate in usual activities. We examine whether ABPM results can aid in overcoming clinical inertia.
METHODS: Methods: We conducted a retrospective case-control study including all patients with uncontrolled ambulatory blood pressure monitor tests conducted at a tertiary medical center from September 2006 through January 2008. We abstracted information about providers' clinical responses to these results. For each abnormal ambulatory monitor test, two controls were selected from patients seen in general internal medicine during the same week of ambulatory monitor follow up counseling. Control patients were matched for gender, age within 5 years and office blood pressure range. Abstracted information included providers' response to elevated office blood pressures and the appropriateness of this response based on Joint National Committee (JNC7) guidelines.
RESULTS: Results: Clinic providers were more likely to respond to abnormal ambulatory monitor results (81.5%) than to abnormal office blood pressure readings (57.7%) with a clinical intervention ($p=0.0027$). Additionally, abnormal ABPM results were associated with increased clinically appropriate antihypertensive therapy modification (68.5%) while fewer encounters with uncontrolled office blood pressure readings (19.2%) received similar treatment intensification ($p< 0.0001$).
CONCLUSION: Conclusions: This retrospective study suggests a possible association between abnormal ABPM results and improved management of uncontrolled hypertension when compared to clinical decision-making based on elevated office blood pressure readings. Wider utilization of ABPM may be a useful tool in overcoming clinical inertia in hypertensive patients.

THE INFLUENCE OF CELEBRITY ENDORSEMENT ON ASTHMA EDUCATION: DOES MICHELLE OBAMA FACILITATE LEARNING FROM A MULTIMEDIA EDUCATIONAL TOOL? M.S. Goel[1]; R. Sobel[1]; E. Ross[1]; K.A. Cameron[1]; S. Bailey[1]; M.S. Wolf[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205958)*

BACKGROUND: Education is a critical component of disease management, particularly for chronic diseases that require self management, such as asthma. To date, the content of optimal asthma self-care information has been well-described; however, the optimal method of presenting information is unclear. Specifically, it is unclear whether viewing a celebrity endorsement before receiving asthma education would improve acquisition of asthma-related knowledge compared with receiving asthma education alone.
METHODS: Two versions of a multimedia educational video targeting African-American adults were developed: one describing asthma severity and actionable steps for asthma self care, the other with identical educational messages plus a brief introduction by Michelle Obama endorsing the primary messages in the video. African American adults (n=130) recruited from three study sites in the Chicago area between August 2007 and January 2008 were administered a demographic questionnaire, the Rapid Estimate of Adult Literacy in Medicine to measure health literacy, and an asthma questionnaire. The asthma questionnaire assessed their knowledge of: asthma as a disease, body parts affected, asthma symptoms, the link between symptoms and disease control, and the pathophysiology of asthma. Identical questionnaires were administered before and after viewing the video for use in pretest/posttest comparisons. To examine differences in mean knowledge between the two groups, we conducted bivariate analyses using a t-test. We also examined whether differences persisted after adjusting for demographic characteristics, recruitment site, asthma diagnosis, family member with asthma, health literacy and baseline knowledge score using multivariate linear regression. Lastly, to examine whether the effect of celebrity endorsement differed by health literacy, we tested for an interaction between viewing endorsement and health literacy. All statistical analyses were performed using STATA, version 9.0.
RESULTS: The mean age was 50 years; 76% were women, 23% had less than a high school education, 22% had a diagnosis of asthma, 64% had a family member with asthma, and 26% had low health literacy. There were no significant differences in patient characteristics between the two study groups. Mean knowledge was not significantly different between the non-endorsement and endorsement groups (6.7 vs. 7.0, p =0.40). After adjustment, the non-endorsement group had significantly higher knowledge gain, 1.7 (95% CI, 0.3–3.2) compared with the non-endorsement group. We also found a significant interaction between viewing endorsement and literacy level. Subjects with adequate literacy skills received a knowledge benefit (=0.8, 95% CI 0.2 – 1.4) compared to those with marginal or inadequate literacy.
CONCLUSION: Viewing a celebrity endorsement had no effect on asthma learning overall; however, effects varied by health literacy. Celebrity endorsement may improve learning in those with adequate health literacy via priming or it may detract from learning among those with marginal or inadequate health literacy by distracting them from important educational messages. Further research needs to examine the optimal use of celebrity endorsement in educational programming for individuals with varying health literacy.

THE MANAGEMENT OF LEFT VENTRICULAR SYSTOLIC DYSFUNCTION IN PATIENTS WITH ADVANCED CHRONIC KIDNEY DISEASE V. Dounaevskaia[1]; A. Yan[2]; D. Charytan[3]; L. Dimeglio[4]; H. Leong-Poi[4]; A. Al-Hesayen[4]; M. Goldstein[2]; R. Wald[2]. [1]University of Toronto, Toronto, Ontario; [2]St. Michael's Hospital, University of Toronto, Toronto, Ontario; [3]Brigham and Women's Hospital, Boston, MA; [4]St. Michael's Hospital, University of Toronto, Toronto, Ontario. *(Tracking ID # 204043)*

BACKGROUND: Left ventricular systolic dysfunction (LVSD) is frequently observed in patients with advanced chronic kidney disease (CKD) and its presence is associated with a poor prognosis. In the general population, renin-angiotensin system inhibition and beta-adrenergic blockade are the cornerstones of medical management in LVSD. Although the trials that contributed to this evidence base generally excluded patients with significant CKD, current guidelines advocate that CKD patients with advanced LVSD should also receive these therapies. The extent to which these recommendations are followed is unclear.
METHODS: This is a cross-sectional study encompassing all long-term dialysis patients (n=299) and patients with advanced CKD who were not on dialysis and followed in a multidisciplinary clinic (n=176, mean eGFR 23±14 mL/min/1.73 m2) at a tertiary care academic centre in Toronto, Canada. Echocardiographic and pharmacotherapy data were sought for each patient and the association between left ventricular function and use of various medications was assessed. We evaluated the extent to which optimal pharmacotherapy, defined as the receipt of a beta-adrenergic receptor blocker and a renin-angiotensin system inhibitor (an angiotensin converting enzyme inhibitor or an angiotensin II receptor blocker), for moderate-severe LVSD (ejection fraction <40%) was applied in our patient population. We then sought to identify factors to explain the usage pattern of these therapies.
RESULTS: Of the 475 patients evaluated, 387 (81%) patients had echocardiographic data available for analysis, 34 (8.8%) had moderate-severe LVSD, of whom 23 (67.7%) were receiving optimal therapy. Non-receipt of optimal therapy could not be explained by hypotension, hyperkalemia, known drug sensitivities, or pill burden.
CONCLUSION: Approximately one-third of patients with advanced CKD and significant LVSD were not receiving optimal evidence-based pharmacotherapy, in the absence of known contraindication or intolerance. Identifying and overcoming the barriers to care will be crucial in order to optimize the management of this high-risk population.

THE MEANING OF NUMBERS IN HEALTH: EXPLORING HEALTH NUMERACY IN A HISPANIC POPULATION M. Schapira[1]; K.E. Fletcher[2]; P.S. Ganschow[3]; E. Jacobs[3]; M. Gilligan[2]; C. Schauer[2]; S. Del Pozo[3]. [1]Society of General Internal Medicine, Milwaukee, WI; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Rush University Medical Center, Chicago, IL. *(Tracking ID # 204279)*

BACKGROUND: Health numeracy can be defined as the ability to use and interpret numeric information in the context of health care. Perceptions of the importance of numbers in health may differ by ethnicity and culture. In order to further define the construct of health numeracy from the perspective of persons of Hispanic ethnicity we conducted a series of focus groups to explore the meaning of numbers in health care.
METHODS: Six focus groups were conducted. Inclusion criteria included self-identified Hispanic ethnicity of Mexican or South American heritage and age 21 years or older. Participants were recruited from clinical and community sites in two midwest urban centers. Focus groups were stratified by preferred language (English or Spanish) and level of education (grade school, high school, or college). A blingual moderator conducted 3 focus groups in English and 3 in Spanish and used a focus group guide that was written in English and translated to Spanish. Audiorecordings were transcribed verbatim and the Spanish groups were translated to English for analysis. A coding scheme was developed by the investigative team after initial review of the transcripts using an iterative process of discussion among the analysis team. Each transcript was then coded by two analysts independently and inter-rater reliability between coders established.
RESULTS: The focus group analysis analysis identified the following ways in which participants viewed numbers to be important to health: 1) setting goals and understanding norms, 2) understanding disease risk, 3) communicating symptoms, 4) making medical decisions, 5) managing disease, 6) understanding disease severity and prognosis, 7) assessing the credibility of information, and 8) deciding how much to invest in health. The analysis identified the following modifying factors that could influence the use of numbers across these domains; age, education, ethnicity and culture, religiosity, and emotion. A common theme to emerge was that general numeric information may not be applicable to individuals as illustrated by the following quote; "Maybe on the news when they talk about tests getting done or they talk about percentages, too, new medicines that are coming out. Then they say, "Well, this certain percentage can get this or that", and it's all very general. It's not very specific to, oh, if you're Hispanic, you have more chances if you take this medication that you'll get this. They don't break it down by Hispanics, age, children, women, men." A second theme to emerge was a desire for better explanations of the meaning behind numbers as illustrated in the following quote; "I got to say, I haven't been to the doctor in a long time. Uh, I had a cholesterol screen, my first

ever, and the doctor sent my results back via number and um, one of my numbers was high and he said it was the good cholesterol and not to worry about it. I did'nt know what the cholesterol was and is there any, you know, it was really high you know, it was above average high, is that good? I thought, you know, I mean, I don't, I just want it explained."
CONCLUSION: The perceived domains in which numeric information was important in the context of health care among a sample of Hispanic adults were similar in scope to those identified from studies in more general populations. However, new themes emerged that could reflect language, culture, and life experiences of this population. Cross-cultural studies can bring new insights to the evolving construct of health numeracy.

THE PATIENT EXPERIENCE UNDERGOING PHYSICAL EXAMINATION TEACHING: A QUALITATIVE STUDY K.C. Chretien[1]; K. Craven[2]; E. Goldman[2]. [1]Washington DC VA Medical Center, Washington, DC; [2]George Washington University, Washington, DC. *(Tracking ID # 205178)*

BACKGROUND: Clinician-educators and students have lamented the decreasing incidence of beside teaching. One potential barrier is patient discomfort. While the majority of patients report little anxiety or discomfort with bedside teaching in general, the fact that some do is concerning. Physical examination teaching, in particular, involves invasion of personal space, concern for potential embarrassment, and the greatest risk of objectification. However, little is known about how patients experience this critical training component.
METHODS: A qualitative study using phenomenological methods was undertaken to answer the central research question: What is the patient experience undergoing physical examination teaching? Twelve semi-structured interviews (ranging from 25 - 50 minutes) were conducted with inpatients of the general medical ward at the Washington DC VA Medical Center from October 2006 – December 2008. All patients had participated in a physical-examination based teaching session for third-year medical students within two weeks of interview. The participants were selected using a mixed purposeful-convenience sampling strategy. The interview guide included open-ended questions that were piloted with 2 participants. To enhance trustworthiness, three separate interviewers, including clinicians and non-clinicians, conducted the interviews with periodic peer-review and feedback. Interviews continued until the interviewers independently reached saturation. Interviews were recorded, transcribed and analyzed independently by two researchers (KCC, EFG). Short, significant statements were identified, then formulated into meanings and clustered into main themes. Participants signed written informed consent. This study was IRB-approved.
RESULTS: Participants were veterans, mostly male, with an average age of 60. We found four distinct meanings to bedside teaching emerge for the patients: Being a teaching object, having respect for training, being grateful for social interaction, and the patient as a learner. Some patients experienced only one of these meanings; others experienced several. Patients also suggested ways to improve physical examination teaching.
CONCLUSION: Patients interpret physical examination teaching in several distinct ways. While veterans are a unique population, there are likely universal meanings that exist for the general patient population. Understanding this is critical for informing medical educators and learners as to how we can best serve patients while satisfying a critical training need.

THE PHYSICIAN PIPELINE: WORKFORCE PATTERNS OF PRACTICING PHYSICIAN GRADUATES OF UNIVERSITY OF CALIFORNIA PREMEDICAL POST-BACCALAUREATE PROGRAMS K. Lupton[1]; J. Rosenbaum[1]; J. Forkin[2]; E. Wilson[1]; H. Doyle[3]; J.P. Joad[2]; S. Kirk[4]; A. M. Martinez[1]; J. Morfin[2]; E. Munoz-Perez[5]; N.H. Parker[3]; N.L. Schiller[6]; K. Grumbach[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of California, Davis, Sacramento, CA; [3]University of California, Los Angeles, Los Angeles, CA; [4]University of California, San Diego, La Jolla, CA; [5]University of California, Irvine, Irvine, CA; [6]University of California, Riverside, Riverside, CA. *(Tracking ID # 204930)*

BACKGROUND: The United States has a long history of health and healthcare disparities between ethnic and socioeconomic groups. It has been well documented that racial/ethnic minority physicians who are underrepresented in medicine (UIM) play a key role in providing care to minority and underserved populations. Programs that serve as a pipeline for UIM students into medical school have been established to increase the number of qualified UIM applicants to medical schools with the goal of diversifying the physician workforce. Five medical schools in the University of California (UC) system sponsor seven premedical post-baccalaureate programs for college graduates from diverse backgrounds. Most of the post-baccalaureate students come from underrepresented minority and disadvantaged backgrounds, and over two-thirds of the graduates of these programs go on to medical school. This study investigated practicing physician graduates of UC-affiliated post-baccalaureate programs to determine if they are more likely than a group of control physicians to attend residency in California, practice in California after completing training, choose primary care specialties, and practice in federally-designated medically underserved areas.
METHODS: The American Medical Association Physician Masterfile was used to identify UC post-baccalaureate (UCPB) alumni who have graduated from medical school, completed residency training and are currently in practice in the US. Two controls were identified for each of the UCPB alumni; the controls graduated from the same medical schools in the same years as the UCPB alumni. Information was abstracted from the AMA Masterfile on the states where these physicians completed residency, their practice specialties and practice addresses. Office address was used to determine which physicians practice in federally-designated medically underserved areas. Medicare claims data were used to identify physicians working at federally-qualified community health centers. Data from the California Medical Board Physician Survey were used to confirm practice location and specialty for physicians currently practicing in California.
RESULTS: Preliminary analysis of the data shows that UCPB alumni are significantly more likely than control physicians to complete residency programs in California (54% of UCPB alumni versus 41% of controls, $p<0.01$), and to be in practice currently in California (52% of UCPB alumni versus 38% of controls, $p<0.001$). Pending analyses will demonstrate whether UCPB alumni are also more likely than controls to choose primary care specialties and practice in federally-designated medically underserved areas.
CONCLUSION: University of California sponsored premedical post-baccalaureate programs are successful in producing graduates who are more likely to practice medicine in California than controls matched by medical school and graduation year, and are a valuable contributor to the development of a diverse California physician workforce. Pending analyses will provide more complete information about whether the UCPB alumni also make a unique contribution to meeting pressing health workforce needs in California in primary care and underserved communities.

THE PREVALENCE OF BLACK MARKET PRESCRIPTION DRUG USE AMONG AN URBAN PATIENT POPULATION L. Ward[1]; N. Patel[1]; S.T. Eldakar[2]. [1]Temple University, Philadelphia, PA; [2]Temple University Hospital, Philadelphia, PA. *(Tracking ID # 204057)*

BACKGROUND: Obtaining a prescription medication on the black market, without the involvement of a healthcare provider, presents potential consequences including adverse reactions, complications of incorrect use, drug–drug interactions, antibiotic resistance, delay in seeking medical care, and addiction or misuse. We studied the patterns of obtaining prescription medications without direct healthcare provider involvement among an urban population.
METHODS: Face-to-face interviews were conducted in a variety of care settings at an urban academic medical center, including a faculty ambulatory practice, a resident ambulatory clinic, an emergency department walk-in clinic, and the medical/surgical hospital wards. Survey questions included whether the participant had a primary care doctor, medical insurance, a prior history of substance abuse, psychiatric disorders or chronic pain. Participants indicated whether they had taken a prescription medication that had not been specifically prescribed for them by a healthcare provider. If so, the medication obtained, source of the medication, frequency of use and reasons why the participant had not obtained their own legal prescription were elicited. Lastly, participants were asked to recall whether their healthcare provider routinely asked about medication use and if they had informed their provider about the medications they had obtained.

RESULTS: 641 surveys were completed with an 80% response rate. The participants were primarily female (59%), African American (75%), resided in the city (75%), ended their education at high school (71%), and were not employed full time (69%). Most had health insurance (89%), usually a Medicaid plan (43%), and had seen their primary care provider within the last 6 months (79%). Overall, 18.1% of participants reported ever taking a prescription medication that was not prescribed for them. The most commonly obtained medications were pain medications (66%), usually narcotics, and were often obtained from family members (49%) or a friend (38%). Thirty five percent took the medication more frequently than once a year, with lack of convenient access to medical care the most frequently cited reason for use (51%). Younger age (mean 45 years vs 49 years, $p<.05$), and those with a prior history of illicit drug abuse (29% vs 16%, $p<.01$) were more likely to have taken a medication. Participants whose healthcare providers did not routinely ask about current medication usage were also more likely (28% vs 16%, $p<.01$). Medicare beneficiaries were less likely to report medication use (8% vs 21%, $p<.01$), though there were no differences between the uninsured, Medicaid and privately insured participants nor were differences noted based upon site of interview, gender, ethnicity, education level, or income.
CONCLUSION: Obtaining prescription medications outside of the medical establishment is a common behavior among adults in the urban setting studied. There are many potential adverse consequences linked to this behavior, and further research into methods to reduce the frequency of use is warranted.

THE PRIMARY CARE PROVIDER'S (PCP) ROLE IN THE CARE OF PROSTATE CANCER SURVIVORS C.F. Snyder[1]; K.D. Frick[1]; R.J. Herbert[1]; A.L. Blackford[1]; B.A. Neville[2]; M.A. Carducci[1]; C.C. Earle[3]. [1]Johns Hopkins University, Baltimore, MD; [2]Dana-Farber Cancer Institute, Boston, MA; [3]Institute for Clinical Evaluative Sciences, Toronto, Ontario. *(Tracking ID # 203893)*

BACKGROUND: Prostate cancer is the #1 diagnosed and #2 cause of cancer death in US men. Prostate cancer treatments include radiation, hormonal therapy, surgery, or combinations thereof. For some men, "active surveillance" is an option. The PCP's role in caring for men being treated for prostate cancer and for long-term survivors is not clearly defined, and may vary depending on the treatment approach.
METHODS: Using the SEER-Medicare database, we examined the patterns of physician visits for men with localized prostate cancer, who were age 66+ at diagnosis, survived at least 9 months, and were enrolled in fee-for-service Medicare. Based on the treatments received in the first 9 months, subjects were assigned to these groups: radiation, hormonal, hormonal+radiation, surgery (might also include radiation and hormonal therapy), or active surveillance (for men who received no treatment). We calculated the mean number of visits to PCPs, Oncology Specialists, Urologists, and Other Physicians. We examined the proportion of visits in Years 1 and 5 to evaluate each physician specialty's role during initial treatment and for long-term survivors.
RESULTS: 13,769 men with prostate cancer were allocated to these treatment groups: active surveillance (n=2805), radiation (n=2582), hormonal (n=2190), hormonal+radiation (n=3992), and surgery (2200). In Year 1, Urologists play an active role in treating men with prostate cancer, ranging from 26% of visits for the active surveillance group to 42% of visits for the surgery group. During treatment, PCPs play the most active role in active surveillance (36%) and the least active role in hormonal+radiation therapy (25%). For long-term survivors (Year 5), care has shifted away from urologists (down to 12–17%) and towards PCPs, ranging from 41% of visits for the hormonal therapy group to 34% for the hormonal+radiation group. In Year 1, 26–33% of visits are to Other Physicians, increasing to 35–43% in Year 5. Cardiologists, emergency medicine physicians, dermatologists, and ophthalmologists are the Other Physicians most commonly visited.
CONCLUSION: Urologists play an active role during prostate cancer treatment; care shifts to PCPs over time. Coordination-of-care among PCPs, Urologists, and the Other Physicians involved in prostate cancer survivors' care is critical.

Mean Number of Physician Visits (% of Total Visits) by Treatment Group

	TOTAL VISITS	PCPs	Oncology Specialists	Urologists	Other Physicians
YEAR 1					
Active Surveillance	10 (100.0)	3.6 (36.0)	0.5 (5.0)	2.6 (26.0)	3.3 (33.0)
Radiation	12.5 (100.0)	3.6 (28.8)	1.9 (15.2)	3.7 (29.6)	3.3 (26.4)
Hormonal	15.1 (100.0)	4.5 (29.8)	0.8 (5.3)	5.6 (37.1)	4.2 (27.8)
Hormonal +Radiation	15.9 (100.0)	3.9 (24.5)	2.0 (12.6)	6.0 (37.7)	4.0 (25.2)
Surgery	11.7 (100.0)	3.3 (28.2)	0.5 (4.3)	4.9 (41.9)	3.0 (25.6)
YEAR 5					
Active Surveillance	8.2 (100.0)	3.3 (40.2)	0.5 (6.1)	1.1 (13.4)	3.3 (40.2)
Radiation	9.5 (100.0)	3.7 (38.9)	0.8 (8.4)	1.1 (11.6)	3.9 (41.1)
Hormonal	10.1 (100.0)	4.1 (40.6)	0.8 (7.9)	1.7 (16.8)	3.5 (34.7)
Hormonal +Radiation	9.9 (100.0)	3.4 (34.3)	0.8 (8.1)	1.4 (14.1)	4.3 (43.4)
Surgery	8.0 (100.0)	2.9 (36.3)	0.5 (6.3)	1.2 (15.0)	3.4 (42.5)

THE PROSPECTIVE ASSOCIATION OF CARE COORDINATION AND CLINICAL CHARACTERISTICS WITH HOSPITAL AND EMERGENCY DEPARTMENT UTILIZATION AMONG ADULTS WITH DIABETES D.M. Mosen[1]; C. Remmers[2]; E. Dirks[3]; R. Mularski[4]; J. Bellows[2]. [1]Kaiser Permanente Center for Health Research, Portland, OR; [2]Kaiser Permanente Care Management Institute, Oakland, CA; [3]Kaiser Permanente Care Management Institute, Portland, OR; [4]Kaiser Permanante Center for Health Research, Portland, OR. *(Tracking ID # 205008)*

BACKGROUND: The prevention of diabetes-specific hospital admissions and emergency department (ED) utilization is a critical aspect of disease management programs. However, few studies have examined the impact of care coordination and clinical characteristics with hospital admissions and ED utilization for this population. The primary objective of this study was to examine the relationship of care coordination and clinical characteristics with prospective diabetes-specific hospital admissions and ED utilization, adjusting for demographic characteristics and geographical location.
METHODS: We examined survey and administrative data for 1,264 adults with diabetes enrolled in a large group model HMO. Persons with diabetes were identified during calendar year 2005 using HEDIS inclusion criteria. In late 2006/early 2007, the same patients were asked (via mail/telephone survey) four care coordination questions adapted from the 2005 Commonwealth Fund Survey of Sicker Adults: if they 1) ever were given conflicting advice from different providers other than their regular doctor; 2) had an appointment at which tests results were not available; 3) had an appointment at which tests were ordered that should have already been done; and 4) had an appointment at which their provider asked questions that should have already been known. Each yes/no response (0=yes, 1=no) was summarized into a composite (0=lowest care coordination, 4=highest care coordination) measure. This measure was further dichotomized into high care coordination (3–4) vs. low care coordination (<3). Clinical characteristics included two dichotomous measures: self-reported health status (high [excellent, very good, good] vs. low [fair/poor]) and co-morbidities (>=1 vs. none). Comorbidities (i.e., asthma, heart failure, coronary artery disease) were identified via electronic medical record. The two outcome measures, diabetes-specific hospital admissions and ED utilization, were measured via electronic medical records between 7/1/2007 and 6/30/2008. Multiple logistic regression was used to evaluate the independent effect of care coordination and clinical characteristics with diabetes-specific hospital admissions (>= 1 vs. none) and ED utilization (>= 1 vs. none), adjusting for age, gender, race/ethnicity, educational attainment, and geographic location.
RESULTS: After adjusting for other factors, higher self-reported care coordination (vs. low care coordination) was marginally associated (OR= 0.64, 95% CI=0.42 – 1.00; p=0.05) with reduced diabetes-specific

hospital admissions, while high (vs. low) self-reported health status was strongly associated (OR=0.63, 95% CI=0.44 – 0.89; p=0.009) with reduced diabetes-specific ED utilization. Adults with one or more co-morbidities were significantly (p<.0001) more likely to have diabetes-specific hospital admissions (OR=5.68, 95% CI=3.91–8.24) and ED utilization (OR=2.67, 95% CI=1.90 – 3.74), compared to those with no co-morbidities.
CONCLUSION: Our results suggest that while patient-reported care coordination scores have marginal predictive association with future diabetes-specific hospital admissions, the presence of co-morbidities remains the strongest predictor of both hospital admissions and ED utilization. Self-reported health status is also a strong predictor of ED utilization. Our results highlight the need to better understand and improve care coordination for persons with diabetes.

THE QUALITY OF PREVENTIVE CARE DELIVERED TO ADULTS IN EUROPEAN UNIVERSITY PRIMARY CARE SETTINGS S. Salamin[1]; T. Collet[1]; C. Willi-Clair[1]; L. Zimmerli[2]; E. Vittinghoff[3]; E.A. Kerr[4]; E. Battegay[2]; J. Cornuz[1]; N. Rodondi[1]. [1]Department of Ambulatory Care and Community Medicine, Lausanne, VD; [2]University outpatient clinic, University Hospital of Zurich, Zurich, ZU; [3]University of California, San Francisco, CA; [4]University of Michigan, Ann Arbor, MI. *(Tracking ID # 203866)*

BACKGROUND: Standard indicators of the quality of preventive and chronic disease care have been developed and evaluated in the United States (US). However, we have very little information about care quality in Continental Europe, in particular using standardized tools developed in the US.
METHODS: In a retrospective cohort study from 2005–2006, we abstracted 500 medical charts from a random sample of patients aged 50 to 80 years followed by primary care physicians in two Swiss University primary care settings excluding patients with less than one-year follow-up. Using indicators of quality derived from the RAND's Quality Assessment Tools, we assessed the performance of 14 indicators for preventive care and 19 for chronic care of three cardiovascular risk factors (hypertension, dyslipidemia and diabetes). To construct aggregate scores, we divided all episodes in which recommended care was delivered by the number of times patients were eligible for indicators. We used generalized estimating equation (GEE) binomial models to estimate the effects of individual characteristics on receipt of recommended care and for pairwise comparisons of the performance on indicators.
RESULTS: The mean age of our sample was 64.6 years (SD 8.3) with 38% of women. During the two-year review period, the mean number of outpatient visits was 12.5 (range 3 to 63, SD 6.85). Patients received 63.2% (95% CI 61.6–64.7) of recommended preventive care. The quality of care differed according to particular medical function. For example, recommended blood pressure (97.0%) and weight measurements (94.2%) were far more common than smoking cessation counseling (67.6%, p<0.05), breast cancer screening (43.1%, p<0.001) and colon cancer screening (39.2%, p<0.001). Recommended chronic care for cardiovascular risk factors was provided 79.4% (95% CI 77.9–80.8) of the time. Aggregate performance results were similar for hypertension, hyperlipidemia and diabetes mellitus, but lower for some specific indicators. For example, among diabetic adults glycosylated hemoglobin was measured at least twice a year in 66.9%, while performance rates on recommended foot and eye exams were lower (28.8% and 55.6%, respectively, both p<0.04). For uncontrolled hypertension persisting more than 6 months, a change in therapy or repeated education on lifestyle modifications were performed 72.2% of the time. In a multivariate analysis using GEE binomial models, men had a higher aggregate preventive care score than women (64.2% vs. 56.6%, p<0.001), and patients less than 65 years had a higher score than those 65 years or older (64.9% vs. 57.7%, p<0.001). Chronic care for cardiovascular risk factors did not differ according to age and gender.
CONCLUSION: To our knowledge, this is the first study to systematically document the quality of preventive and chronic care delivery in Continental Europe. Overall, adults in Swiss University primary care settings received about 60% of the recommended preventive care and 80% of chronic care for cardiovascular risk factors. We used a subset of indicators from the RAND QA Tools and our findings suggest that, like in the US, there is substantial room for improvement in quality of care delivered to Swiss adults, particularly in preventive care. Women and older persons had lower receipt of recommended preventive care services. Our study helps pave the way for targeted quality improvement initiatives and broader quality assessment of health care in Continental Europe.

THE RACIAL VACCINATION GAP: REASONS FOR REFUSAL OF INFLUENZA AND PNEUMOCOCCAL VACCINES. L.N. Mathieu[1]; E. Warm[2]. [1]University of Cincinnati, West Chester, OH; [2]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 203702)*

BACKGROUND: Despite the availability of vaccinations to prevent influenza and pneumonia, vaccination rates among minority populations remains low. Previous studies have identified several barriers contributing to the vaccination gap, but only a small number of studies have evaluated the specific reasons why minorities refuse the influenza and pneumococcal vaccines. Our study attempts to add to this body of knowledge by identifying the attitudes behind refusal of the influenza and pneumococcal vaccinations for minority patients in an urban safety-net academic primary care practice.
METHODS: A retrospective cohort study using a chronic disease computer registry, Patient Electronic Care System (PECSY), was utilized to identify patients older than fifty years old who refused the influenza vaccine and those over the age sixty-five who refused the pneumococcal vaccine in 2007–08. One hundred Black patients from this vaccine-refusal list were consented to participate in standardized open-ended interview with the goal to identify themes behind vaccine refusal. The 100 Black patients composed of seventy who refused the influenza vaccine and thirty who refused the pneumococcal vaccine.
RESULTS: Eighty percent of the 1633 patients offered the influenza vaccine accepted the vaccine. Approximately thirteen percent of the 486 White patients and twenty two percent of the 1147 Blacks patients refused the influenza vaccine. Ninety percent of the 638 patients offered the pneumococcal vaccine accepted the vaccine. Only three percent of the 162 White patients refused the pneumococcal vaccine versus the thirteen percent of the 476 Black patient's refusal. White patients were significantly more likely to accept the influenza vaccination (OR 1.59, 95% C.I. 1.16–2.10; p=0.004). White patients were also more likely to accept the pneumococcal vaccination (OR 3.72, 95% C.I. 1.12–12.37; p=0.032). Four major reasons were identified for Black patients refusing the influenza vaccine: history of adverse reaction to the vaccine (50%), fear of obtaining the flu from the vaccine (23%), mistrust of the vaccine effectiveness in preventing the flu (17%), and fear of the flu side effect (10%). Three major reasons for Black patients refusing the pneumococcal vaccine were identified; personally experiencing an adverse reaction to any vaccine (40%), mistrust of vaccine effectiveness (40%), and fear of the vaccine side effects (20%).
CONCLUSION: Black patients in our practice and nationwide accept fewer vaccinations than their counterparts. This study identifies attitudes and barriers to acceptance of influenza and pneumococcal vaccinations after controlling for access to healthcare, socioeconomic status, and discriminatory behaviors by providers. The reasons for influenza and pneumococcal vaccination refusal in the Black population can be divided between personal experiences versus general beliefs. Further research should focus on developing ways to overcome these barriers and develop practical and effective interventions to bridge vaccination disparities.

THE RATES OF IN-HOSPITAL FALLS FROM 1998–2008 V. Sundararajan[1]; C. Brand[2]. [1]Monash University, Melbourne, Victoria; [2]Centre for Research Excellence in Patient Safety, Monash University, Melbourne, Victoria. *(Tracking ID # 206044)*

BACKGROUND: Studies suggest that between 3.2%-10.6% patients admitted to hospital are at risk of experiencing an adverse event, of which 50% may be preventable. Incident and near miss surveillance provide opportunities to drive more detailed investigation and quality improvement but do not offer definitive information about the incidence and prevalence of specific adverse events which may be useful for observing trends over time and for benchmarking performance. At present there is no well defined method for quantitatively monitoring in-hospital falls and fall related injuries. Routinely collected system data do offer this potential. The aim of this study were to describe the rate for

in-hospital falls amongst people admitted to public hospitals in Victoria, Australia between July 1st 1998 and June 30th 2008.
METHODS: High quality, comprehensive hospital data with in-hospital diagnoses flagged by specific variables have been collected in Victoria for more than 10 years. Routine, independent audit of records indicates that diagnoses and procedures are reliably coded in the data. A flag of 'C' indicates that the diagnosis arose after admission. Data were extracted using a predefined coding algorithm that identified in-hospital falls ('Wxxxx' ICD-10-AM diagnosis code with a flag of 'C' in any of up to 40 codes)).
RESULTS: There were 11,970,846 discharges, of which 21,992 (0.18%) were coded with an in-hospital fall. The mean LOS was longer for separations associated with an in-hospital fall (28.7 days v 3.5 days). The crude rate of in-hospital falls in 1998–1999 was 0.32 per 1000 beddays and in 2007–2008, 0.64/1000 beddays. An adjusted Poisson regression model including demographic factors, hospital and admission characteristics and comorbidities confirmed that the in-hospital fall rates had increased over time. The rates were also higher with increasing age; other notable covariates independently associated with increased in hospital fall rates were male gender (RR 1.16, 95% CI 1.12, 1.20), English speaking country of birth (RR 1.12, 95% CI 1.06, 1.19), low index of education-occupation by geographic area (RR 1.16, 95% CI 1.12, 1.20), teaching hospital status (RR 1.09, 95% CI 1.04, 1.13), emergency admission (RR 1.27, 95% CI 1.21, 1.32), multiday stay status (RR 13.08, 95% CI 11.07, 15.45) , medical DRG (RR 1.35, 95% CI 1.29, 1.41), and specific patient condition characteristics such as cerebrovascular disease (RR 1.21, 95% CI 1.14, 1.28), dementia (RR 1.69, 95% CI 1.62, 1.76), delirium (RR 2.03, 95% CI 1.93, 2.14). Rurality was associated with lower rates of in-hospital falls (RR 0.90, 95% CI 0.86, 0.94).
CONCLUSION: This study provides the first detailed analysis of administrative data for rates of in-hospital falls over a period of 10 years within a public hospital system. The rising fall rates, after adjustment for important covariates, may reflect changes in fall reporting practices, coding practice, data quality/completeness, increasing severity of illness, functional status or an issue with quality of care. Further work will be undertaken to assess the impact of these factors on in-hospital fall rates and the presence of variations in rates between hospitals in order to assess whether in hospital falls can serve as an indictor of hospital quality.

THE RELATIONSHIP BETWEEN HEALTH LITERACY AND KNOWLEDGE IMPROVEMENT IN A SPANISH-SPEAKING HISPANIC POPULATION AFTER A MULTIMEDIA TYPE 2 DIABETES EDUCATION PROGRAM
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BACKGROUND: Many Hispanics in the United States (U.S.) face the combined obstacles of limited English proficiency, inadequate health literacy, little formal education, and cultural differences. These may make it highly problematic for some Hispanics to learn about their medical conditions and how to care for themselves. If designed well, multimedia diabetes education programs (MDEP) have the potential to overcome these obstacles and improve communication and education. However, few MDEP have targeted low-literate, native Spanish-speaking populations, and these have not been evaluated to determine their efficacy. We evaluated a MDEP targeted to Spanish-speaking patients with low literacy and assessed knowledge gained after viewing the MDEP.
METHODS: 100 patients with and without diabetes were recruited from primary care clinics at two federally qualified health centers in Chicago that serve a Latino, Spanish-speaking population. Patients were interviewed to determine their baseline knowledge about the information in the first two modules of the diabetes MDEP. All questions were open-ended, and patients were allowed to answer in their own words. The interviewer then coded whether the response was correct. Patients then viewed Module 1 of the MDEP, called "Qué es la diabetes? (What is Diabetes?)," followed by repeat administration of the Module 1 questions. The same was done for Module 2, "Los altos y bajos del nivel de azúcar en la sangre (The Ups and Downs of Blood Sugar)." Health literacy was measured using the Spanish version of the Short Test of Functional Health Literacy in Adults (S-TOFHLA), and categorized as "inadequate" (0–16), "marginal" (17–22) and "adequate" (23–36). Differences in knowledge gained were compared by paired t-tests. Multivariate linear regression was used to examine differences by literacy after adjusting for baseline knowledge, age, gender, history of diabetes, and education.
RESULTS: Sixty-one percent of patients were of Mexican origin, and most (69%) were born outside the U.S. or Puerto Rico. Fifty-nine percent had less than a 10th grade education. The mean TOFHLA score was 20.6, with 53% of individuals having adequate literacy, 14% marginal, and 33% inadequate. All individuals had significant increases in mean knowledge scores, regardless of literacy level. Individuals with inadequate health literacy gained 4.4 points, those with marginal literacy gained 4.6 points, and adequate literacy gained 5.5 points (p-value<0.001 for all groups). Although individuals with inadequate and marginal literacy had a smaller increase in post-test scores than those with adequate literacy, this difference was not significant after adjusting for baseline knowledge. When stratified by literacy level, knowledge gains among the Spanish-speaking study participants were comparable to those seen in native English-speaking patients with from previous studies.
CONCLUSION: These findings suggest that, if properly designed, a MDEP can overcome the barriers of limited English proficiency and low health literacy and achieve similar knowledge gains regardless of literacy level or native language.

THE RELATIONSHIP BETWEEN PATIENTS' PERCEPTION OF CARE AND MEASURES OF HOSPITAL QUALITY AND SAFETY
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BACKGROUND: The Hospital Consumer Assessment of Healthcare Providers and Systems® (HCAHPS®) survey measures patients' experiences of care in hospitals and is now being publicly reported. The extent to which patients' perceptions of hospital care are related to technical measures of quality and safety on the medical and surgical services is unknown.
METHODS: We examined hospital performance in HCAHPS domains using service-line specific data from the 2006 National CAHPS Benchmarking Database that included 927 hospitals. The HCAHPS survey assesses nine domains of hospital care post-discharge: overall hospital quality, willingness to recommend the hospital, communication with doctors, communication with nurses, communication about medications, pain management, cleanliness and quietness of the hospital, responsiveness of staff, and quality of discharge information. We examined the relationship between HCAHPS scores and two types of technical measures of quality and safety: Hospital Quality Alliance (HQA) process measures and Patient Safety Indicator (PSI) complication rates. We calculated HQA summary scores in each of three medical conditions (acute myocardial infarction (AMI), congestive heart failure (CHF), pneumonia (PNA)), and in surgical care. We used the 2005 complete MedPar discharge dataset to calculate the following three medical and four surgical PSI rates among Medicare beneficiaries: decubitus ulcer, failure to rescue, selected infections due to medical care; and post-operative hemorrhage/hematoma, respiratory failure, PE/DVT, and sepsis. We used hierarchical models to calculate correlation coefficients (R) between each HCAHPS domain and performance in HQA summary process scores and PSI complication rates.
RESULTS: Of the nine HCAHPS domains, seven were related to better AMI performance (R=0.23–0.63), two were related to better CHF performance (R=0.15–0.21), all were related to better pneumonia performance (R=0.18–0.30), and all were related to better surgical care (R=0.14–0.30; p<0.05 for all). The overall rating of the hospital and willingness to recommend the hospital to others had the strongest relationships with better quality performance in all medical conditions and in surgical care. The relationships between HCAHPS scores and PSI rates in the medical and surgical service were slightly less consistent although generally negative, indicating that better patient perceptions were related to fewer complications. In the medical service, of the nine HCAHPS domains, all were related to fewer decubitus ulcers (R=-0.17 - -0.35), one was related to fewer failure to rescues (R=-0.27), and four were related to fewer selected infections due to medical care (R=-0.16 - -0.37). In the surgical service, of the nine HCAHPS domains, five were related to better post-operative respiratory failure rates (-0.33 - -0.46), five were related to better post-operative PE and DVT rates (-0.15 - -0.21), and two were related to post-operative sepsis rates (R=-0.27 - -0.29).
CONCLUSION: Hospitals with better patient experiences of care generally performed better on technical quality and safety measures. These findings support HCAHPS as an important new measure of hospital quality, although further study is necessary to elucidate the implications of these relationships.

THE RELATIONSHIP BETWEEN PHYSICIAN QUALITY MEASURES AND PATIENT PANEL CHARACTERISTICS IN A LARGE ACADEMIC HEALTH CARE SYSTEM C.S. Hong[1]; S.J. Atlas[2]; Y. Chang[2]; J. Ashburner[2]; M.J. Barry[2]; R.W. Grant[1]. [1]Harvard University, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205602)*

BACKGROUND: Primary care physicians (PCPs) are increasingly rated based on their patient's quality outcome measures. We tested the hypothesis that differences in aggregate quality measures among PCPs practicing within the same academic health care system were associated with significant differences in physicians' patient panel demographic characteristics.
METHODS: We studied 159 PCPs caring for 87,028 patients in 13 primary care clinics within the Massachusetts General Hospital practice-based research network. We characterized these PCPs according to their relative performance on six commonly measured quality criteria: breast, cervical, and colorectal screening rates, hemoglobin A1c and low density lipoprotein (LDL) measurement for diabetic patients, and LDL measurement for patients with coronary artery disease. We then created a single composite quality score by ranking PCPs by quartile for each measure and taking the sum average of the ranks for all six quality measures. Higher composite scores indicated higher measured quality of care. We compared panel characteristics between PCPs in the highest and lowest composite score tertiles using Wilcoxon Rank Sum, student t-tests, and $\chi 2$ tests; we also identified factors independently related to the composite quality score using linear regression models. All PCPs had at least 50 patients and 75 quality measurements.
RESULTS: Among PCPs, 51.6% were women, 30.6% practiced in a community health center setting, and the average work experience was 18.5 years. Physicians' composite quality scores ranged from 1.0 to 3.8 with a mean of 2.5. Compared to PCPs in the lowest tertile (mean score 1.9), PCPs in the top tertile (mean score 3.2) had patient panels that were significantly older (55.7 vs. 53.1 years, $p<0.001$), had less age variation (standard deviation of age 17.0 vs. 17.8, $p<0.001$), and had lower proportions of minority patients (19.3 vs. 26.7%, $p<0.001$), non-English speakers (3.3 vs. 5.3%, $p<0.001$), and self-payers (5.4 vs. 8.3%, $p=0.03$). Top tertile PCPs also had higher proportions of Medicare patients (21.4 vs. 19.3%, $p=0.01$), patients with Charlson score >1 (19.0 vs. 16.3%, $p<0.001$), and patients making >3 visits/year (80.8 vs. 69.74%, $p<0.001$). In a linear model adjusting for PCP and practice characteristics, higher composite quality scores were each independently associated with lower proportion of self-paying patients (-0.07; -0.11, -0.02), lower standard deviation of age (-1.61; -2.91, -0.32), higher proportion of patients with >3 visits/year (0.13; 0.07, 0.20), and female provider (2.95; 1.24, 4.65). The full model accounted for 41.1% of the variability in PCP quality composite measure.
CONCLUSION: For PCPs practicing within this single academic health system, we found significant differences in patient panel demographics between physicians in the top vs. bottom tertile of measured patient-based quality. In a multivariable model, a higher PCP aggregate quality score was independently correlated with a lower proportion of self-paying patients, less variation in panel age, and a higher proportion of patients making >3 annual visits. Given the increasing use of physician performance profiles, greater insight into the factors contributing to quality measurement has significant implications for health policy and for quality improvement interventions.

THE RELATIONSHIP BETWEEN THE USE OF ELECTRONIC HEALTH RECORDS AND QUALITY OF CARE IN U.S. HOSPITALS C.M. Desroches[1]; B. David[2]; E.G. Campbell[1]; C. Vogeli[1]; D. Karen[1]; J. Zheng[3]; A.K. Jha[3]. [1]Massachusetts General Hospital, Boston, MA; [2]MGH/Insitute for Health Policy, Boston, MA; [3]Harvard University Medical School, Boston, MA. *(Tracking ID # 205613)*

BACKGROUND: Our research objective was to determine whether hospitals that have adopted an electronic health record (EHR) provide higher quality care.
METHODS: We collaborated with the American Hospital Association on a national survey of all acute care general hospitals in the US, fielded as a supplement to the AHA's annual survey between March and September 2008. We received responses from 3,049 hospitals (63.1% response rate). Data on hospital EHR adoption was linked with those from the Hospital Quality Alliance and Medicare Provider Analysis and Review (MedPar). With input from a federally-chartered Expert Consensus Panel (ECP), we defined the clinical functionalities necessary for a hospital to be designated as having a basic or comprehensive EHR. The functionalities fell into four categories: clinical documentation, results viewing, computerized provider order entry, and clinical decision support. Hospitals were designated as having a comprehensive system if they had all key functionalities implemented widely, whereas they were listed as having a basic system if they had a sub-group of 12 functionalities implemented in at least one clinical unit. We examined performance on individual and summary process measures and 30-day mortality and readmission rates for acute myocardial infarction (AMI), congestive heart failure (CHF), pneumonia, and surgical infection prevention.
RESULTS: We found, after adjusting for size, region, teaching status, location, and the presence of advanced technologies, EHR availability was associated with small but consistently better quality of care for all conditions examined, although it was statistically significant for only AMI and surgical infection prevention. For example, hospitals with an EHR provided the right care more often for AMI (95.3% versus 94.5%, $p=0.009$). Hospitals with EHR systems had modestly better mortality rates for AMI (14.9% versus 15.8%, $p=0.007$) but the mortality rates for CHF and pneumonia were comparable between adopters and non-adopters. We found modestly better 30-day readmission rates among EHR adopters for all three conditions, although it was statistically significant only for pneumonia (19.0% versus 20.2%, $p=0.046$). When we examined the impact of adoption of individual clinical decision support functionalities on HQA process measures, we found a similar pattern: hospitals with these functionalities had small but consistently better performance on standard metrics compared to hospitals that did not.
CONCLUSION: We assessed the association between EHR adoption and quality of care provided in U.S. hospitals and found consistent, small effects on process measures and patient outcomes. Whether the small effects are due to the fact that these measures may not be sensitive to EHR adoption or because adoption alone may not be adequate to affect quality is unclear. EHR adoption has become a priority of policymakers across the nation, due in part to its potential to improve the quality and outcomes of care. Our findings suggest that, as currently adopted, these systems have a small effect on improving care. Finding ways to ensure effective use of these systems will be critical if we are to realize the potential of EHRs to improve the health and healthcare of all Americans.

THE RELATIONSHIP OF PHYSICIAN PARTNERSHIP STATEMENTS TO PATIENTS' RATINGS OF PROVIDER COMMUNICATION STYLE H. Kinsman[1]; D. Roter[1]; I.B. Wilson[2]; G. Berkenblitt[1]; S. Saha[3]; T. Korthuis[3]; S. Eggly[4]; A.P. Sankar[4]; J. Cohn[4]; V. Sharp[5]; R.D. Moore[1]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]Tufts Medical Center, Boston, MA; [3]Oregon Health Science University, Portland, OR; [4]Wayne State University, Detroit, MI; [5]Saint Lukes Roosevelt, New York, NY. *(Tracking ID # 205734)*

BACKGROUND: Although many advocate that partnership is integral to therapeutic relationships, few studies have examined partnership-fostering communication behaviors in the clinical setting. We conducted this study to better understand how partnership statements might be related to patients' ratings of provider communication style.
METHODS: We enrolled 45 HIV providers and 418 of their patients at four sites (Baltimore, Detroit, New York, and Portland) in the Enhancing Communication and HIV Outcomes (ECHO) Study. We audiotaped patient-provider encounters and coded for partnership statements using the well-validated Roter Interaction Analysis System (RIAS). The RIAS defines three types of partnership statements made by physicians: gives support, indicates availability or uses first-person plural to reference the doctor-patient dyad. Providers completed questionnaires including demographic and attitudinal measures, and patients were interviewed to obtain demographic, clinical and behavioral data, and ratings of provider communication. Using multiple logistic regression, we examined the associations between the occurrence of one or more partnership statements with patient ratings of provider communication and with patient and provider characteristics. We dichotomized patient ratings of provider communication style to compare those who did vs. did not give their provider the highest rating on all measures. To better understand the meaning of utterances classified as partnership statements, we conducted a qualitative analysis.
RESULTS: Participating providers had a mean age of 44.5 years, and were mostly female (58%) and white (69%). Participating patients had a mean age of 45.4 years, 66% were male, 58% were African American, and 34% had known their HIV provider for more than 5 years. After adjustment for potential confounders, provider partnership statements

were associated with lower patient ratings of provider communication style (AOR 0.55, 95% CI 0.32–0.94). When we analyzed the 232 individual partnership statements in the 418 encounters, we found that the majority were classified as such because they used the first-person plural. Further analysis revealed that the majority of first-person plural partnership statements had at least one negative feature such as being overtly persuasive ("That's going to be our goal"), indirect ("What can we do to improve your diet?"), or ambiguous ("Let's see what we can do"); although there were also positive features such as statements that involved patients in the healthcare process, contributed to a mutual understanding, and addressed the patients' goals.
CONCLUSION: To our surprise, physician partnership statements were not associated with better ratings of provider communication style, probably because some of the utterances classified as partnership statements were actually overly persuasive, indirect, or domineering, and had the effect of reducing partnership. Practicing physicians should become aware of benefits and pitfalls in the use of the first-person plural when communicating with patients. Further research is needed to determine the most effective methods through which providers can build true alliances with their patients.

THE ROLE OF FAMILIES IN HIV PREVENTION FOR RURAL AFRICAN AMERICAN YOUTH AND YOUNG ADULTS C. Wiley Cene[1]; A. Akers[2]; G.M. Corbie-Smith[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204256)*

BACKGROUND: African American (AA) youth and young adults are disproportionately affected by HIV. AA represent 15% of persons under age 25 but 61% of new HIV cases in this age group. Disparities in HIV risk are most striking in the rural southeast. Most prevention programs focus on individual behavior, despite mounting evidence of the importance of social-contextual factors. Families are one of the most important social contexts influencing youth sexual behavior. Most studies exploring how families influence HIV risk behavior have focused on families in urban settings. We explored how family contextual factors influence HIV risk in rural AA youth.
METHODS: We conducted 11 focus groups with youth aged 16 to 24 (n=38) and adults over age 25 (n=55) and 38 interviews with adult "key informants" from political, business, and health sectors during the planning phase of an HIV prevention intervention in 2 rural NC counties. After coding, 2 analysts independently reviewed text data identifying themes related to family contextual influences on youth HIV risk behaviors using a grounded theory approach to content analysis.
RESULTS: Participants identified 2 levels of family contextual factors as influential. First, external social and structural forces shaped families' social position and opportunity structure. Many participants felt that problems faced by rural AA families (poverty, limited social activities, lack of transportation, and unemployment) contribute to youth HIV risk by reducing access to positive opportunities; creating incentives for involvement in informal economies (e.g. drug dealing) and, fueling a sense of hopelessness linked to sexual and substance use risk behaviors. Second, inherent family characteristics, such as family structure, parental education, and parenting skills emerged as important contextual factors. FAMILY STRUCTURE: Single parent households or where parent(s) work multiple jobs, with early or late shifts are common, which results in a lack of supervision that allows youth opportunities to participate in risky behaviors. The absence of fathers was equated with a lack of positive adult male role models, which encouraged youth to rely instead on peers, who are often negative influences. PARENTAL EDUCATION and PARENTING SKILLS: High rates of intergenerational teen pregnancy have resulted in inadequate parental skills which are compounded by low rates of school completion and high illiteracy rates. According to participants, "babies having babies" leads to an inability to adequately nurture and provide financially for their children and transmits beliefs that may place youth at greater HIV risk. Respondents noted many parents lack sufficient knowledge about or are uncomfortable discussing HIV with their children. Consequently, youth seek answers from peers who may misinform them due to their own lack of knowledge or encourage them to engage in risky behaviors. These issues were salient for both adults and youth and were consistent across respondent types.
CONCLUSION: Social and structural forces external to and inherent in rural AA families shape youths' opportunities, social norms and motivation to participate in HIV risk behaviors. Our findings have important implications for policymakers and researchers. Interventions should be family-focused and seek to improve parental education and skills. However, HIV risk reduction also requires improvements in broader socio-environmental conditions of rural AA.

THE ROLE OF HEALTH PROVIDERS IN CHANGING PATIENT HEALTH BEHAVIORS B.T. Montague[1]; K. Mattocks[2]; E. Dombrowski[2]; A.C. Justice[3]. [1]Brown University / Miriam Hospital, Barrington, RI; [2]VA Connecticut Healthcare System, West Haven, CT; [3]Yale University, West Haven, CT. *(Tracking ID # 203314)*

BACKGROUND: As patients live longer with HIV, problematic health behaviors such as substance abuse have become increasingly important determinants of morbidity and mortality. Though brief interventions targeting substance abuse have been shown in research settings to have beneficial effects, the benefits of these interventions have been difficult to realize in clinical practice. Barriers to the facilitation of behavior change exist at multiple levels and the optimal role of providers is not well understood.
METHODS: 101 VA HIV and primary care providers participated in focus groups at 8 VA locations. We audiotaped, transcribed, and qualitatively analyzed semi-structured focus group interviews to determine attitudes and beliefs about patient behavior change. Discussions were centered on the question: "What, if any, is your role in helping your patients change behavior?"
RESULTS: Four themes emerged from our interviews: (1) providers play an important role in behavior change, (2) providers must prioritize which behavior should be changed first, (3) teamwork is important in promoting behavior change, and (4) patients' willingness to change their behaviors is essential. Providers felt both time constraints and a lack of adequate training limited their ability to successfully address these complex issues. A patient-centered approach was emphasized, recognizing that each patient may have multiple problematic behaviors and patients and providers must collaborate to develop effective plans for change. Integrating ancillary providers into the care team, allowed both the use of providers with special training in the areas of social work, substance abuse and mental health. Additional providers also served to reinforce for the patient the message of the need for change. In patient encounters, providers felt it important to maintain a non-judgmental attitude, to demonstrate understanding of the high-risk of recidivism, and to help motivate change in patients when the return to care.
CONCLUSION: Providers indicated that changing patients' behaviors is complicated, and involved several important patient and provider-level factors. A team approach was emphasized, with behavior change supported by physicians, nurse practitioners, substance abuse counselors, and other providers. Effective coordination of care and communication between team members is crucial to the facilitation of behavior change.

THE SPIRITUAL NEEDS ASSESSMENT FOR PATIENTS SURVEY (SNAPS): DEVELOPMENT AND INITIAL PSYCHOMETRIC TESTING. D.P. Sulmasy[1]; K. Texeira[2]; I. Hantman[2]; A.B. Astrow[2]. [1]St. Vincent's Hospital–Manhattan, New York, NY; [2]Maimonides Medical Center, New York, NY. *(Tracking ID # 204858)*

BACKGROUND: Research about health care and spirituality has concentrated on the relationship between patients' baseline spiritual and religious attitudes and behaviors and their health outcomes. Little has been done to assess the actual spiritual needs of patients.
METHODS: We have developed a 23-item scale to assess patients' spiritual needs. We began with an instrument developed by Moadel, et al., winnowing out the less specifically spiritual items and altering their response categories, which were unusual and difficult to score. We changed to an ordered categorical response scale of "Very much," "Somewhat," "Not very much," and "Not at all," and added further items derived from a published but unvalidated needs assessment tool developed by chaplains and items based on the clinical experience of the investigators. We next validated this instrument by subjecting it to iterative revision based on successive waves of cognitive pre-testing with 15 subjects before settling on a final version. This instrument was then pilot tested in a convenience sample of 32 patients at an urban cancer center. We assessed test-retest reliability by Spearman correlation in a subset of these subjects re-interviewed within two weeks. Internal

consistency was assessed using Cronbach's α on the total scale and also on the three subscales: Psychospiritual, Spiritual, and Religious needs.
RESULTS: The mean age of subjects was 58.2 years. The sample was racially and religiously diverse: 53% were white, 22% black, 16% Hispanic, and 9% Asian or other; 59% were Catholic, 6% Jewish, 6% Protestant, 3% Buddhist, 3% Muslim, 3% Hindu, and 13% Other religions. Thirty-four percent were college-educated; 16% were on Medicaid or uninsured; 25% had breast cancer and 19% lung cancer. A majority (63%) described themselves as spiritual but not religious; 28% attended religious services at least once per week; and 13% reported that their spiritual needs had not been met. While slightly skewed towards the "Not at all" category, there was a wide distribution of responses on each item, and the lowest proportion of combined "Very much" and "Somewhat" responses was 26% for the need for "religious texts." The overall Cronbach α was 0.96 for all 23 items. The α for the Psycho-spiritual needs subscale (5 items, eg, "relaxation or stress management")=0.82; for the Spiritual subscale (13 items, eg, "Finding meaning in your experience of illness")=0.95; for the Religious subscale (5 items, eg, "Visit from a chaplain")=0.90. Test-retest reliability was good, with a maximum Spearman's ρ of 0.76 and only 4 items with ρ<0.2.
CONCLUSION: We conclude that the Spiritual Needs Assesment for Patients Survey (SNAPS) is a tool with validity, consistency, and reliabilty. While further psychometric testing is warranted, this instrument may prove useful in assessing the actual spiritual needs of patients.

THE STATIN CHOICE DECISION AID IN PRIMARY CARE. A RANDOMIZED TRIAL. D. Mann[1]; V.M. Montori[2]; J. Arciniega[1]; T. Mcginn[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 204483)*

BACKGROUND: Poor adherence reduces the effect of statins on cardiovascular (CV) risk. Poor patient-clinician communication can contribute to poor adherence. A decision aid could improve both communication and adherence. In a prior pilot randomized controlled study, Statin Choice - a paper-based decision aid that uses pictographs to communicate CV risk and risk reduction with statins - demonstrated substantial improvements in patient knowledge about diabetes and statins, reduced decisional conflict regarding use of statins and enhanced risk and benefits perception. It also showed a trend towards improved statin adherence after 3 months. However, the study was conducted in a homogenous Caucasian population drawn from a tertiary endocrine referral clinic, with predominately statin naïve patients and was tested among only 7 providers. The objective of this study was to assess whether Statin Choice can improve patient involvement and medication adherence in a large primary care practice with a low-income minority population.
METHODS: Statin Choice was simplified, translated into Spanish, and set at 6th grade reading level. All providers from a large urban primary care practice were eligible for participation. Training involved a 30 minute group session involving video examples and role-playing. All patients with diabetes were eligible for participation. Patients were randomized to a usual care visit (in which they were given an informational pamphlet about cholesterol and diabetes) or to an encounter with their provider supplemented with the Statin Choice tool. Post-encounter measures included: knowledge about statins and diabetes, decisional conflict, and risk perception. HbA1c levels and CV risk factors were obtained from the medical record. At 3 months, a telephone-based assessment of statin adherence using the Morisky 8-item scale was conducted.
RESULTS: Over 6 months, 150 patients (80 intervention, 70 control) with diabetes were recruited and 125 primary care providers were trained. Participant characteristics were as follows: mean age 58 (SD 12), 58% female, 56% completed high school, mean diabetes duration 8.5 years (SD 6.7), median HbA1c 7% and 30% were statin naïve; there were no significant differences between groups. Post-intervention both groups had high levels of knowledge, but patients in the intervention arm had more accurate perceptions regarding their CV risk without taking the statin RR 2.0 (1.0 to 4.0) and with taking the statin RR 1.4 (0.7 to 2.8). The overall decisional conflict was not different between groups though intervention patients had improvements in Informed (-6.7, p=.02) and Support (-4.4, p=.05) subscales. At 3 months, 30% of the overall sample reported being nonadherent to their statins but there was no difference between groups.
CONCLUSION: In an urban primary care clinic with large number of clinicians and minority low-income patients most of which were already on statins, Statin Choice had modest effects on risk perception and decisional conflict but no impact on short-term adherence. This small effect may relate to poor intervention fidelity when applied to a wide range of providers, limited impact among current statin users, and differential effects of communication techniques among low-income minorities. The results of this trial provide lessons for studies seeking to improve medication adherence through provider-patient communication and highlight the importance of conducting translational research on decision aids.

THE UNMET HEALTH CARE NEEDS OF HOMELESS ADULTS T.P. Baggett[1]; N.A. Rigotti[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205674)*

BACKGROUND: Homeless persons are at risk for poor access to health care, contributing to delayed clinical presentation and increased morbidity and mortality. The objective of this study is to determine the prevalence and predictors of unmet needs for health care and prescription medications in a nationally-representative sample of homeless adults.
METHODS: We analyzed data on 966 adult respondents to the 2003 Health Care for the Homeless User Survey, the first and only nationally-representative study of patients who use clinic sites supported by this large federally-funded program. We assessed the prevalence of respondents' unmet needs in the past year for (1) medical or surgical care, (2) prescription medications, (3) mental health care, (4) vision care, and (5) dental care. Using the Gelberg-Andersen Behavioral Model to select predisposing, enabling, and need factors of importance for health care access and utilization in vulnerable populations, we constructed multivariable logistic regression models to identify the independent predictors of each unmet health need.
RESULTS: Seventy-three percent of respondents reported having any past-year unmet health need and 49% had 2 or more unmet needs; these included the inability to obtain medical or surgical care (32%), prescription medications (36%), mental health care (21%), eyeglasses (41%), or dental care (41%). In multivariable regression analyses adjusted for sociodemographic characteristics, features of homelessness, medical and mental health comorbidities, and other important confounders, lacking health insurance was significantly associated with an inability to obtain needed medical or surgical care (AOR 1.76 [95% CI: 1.14, 2.72]), prescription medications (AOR 1.92 [1.19, 3.12]), mental health care (AOR 1.94 [1.02, 3.68], and vision care (AOR 1.68 [1.07, 2.65]). Inability to obtain medical or surgical care and prescription medications shared several other predictors: food insecurity (AORs 1.96 [1.10, 3.50] and 1.61 [1.05, 2.48], respectively), past-year employment (AORs 1.66 [1.15, 2.39] and 1.67 [1.10, 2.55]), a history of foster care (AORs 2.42 [1.76, 3.32] and 1.82 [1.06, 3.13]), and having multiple medical comorbidities (AORs 2.49 [1.26, 4.92] and 1.75 [1.09, 2.82]). Past-year victimization was associated with increased difficulty in obtaining prescription medications (AOR 2.12 [1.37, 3.28]) and mental health care (AOR 1.77 [1.04, 3.02]). Other predictors of poor access to mental health care included mental illness (AOR 2.45 [1.10, 5.49]) and lacking a usual source of care (AOR 2.90 [1.58, 5.31]).
CONCLUSION: This national sample of homeless adults reported substantial barriers to accessing multiple aspects of health care. Lacking health insurance was a significant predictor for 4 of 5 unmet health needs. Factors related to need for a given service were associated with more difficulty in obtaining that service, suggesting that those who need care the most may have trouble getting it. Competing subsistence needs for food, income, and personal safety collectively represent substantial barriers to care. Our findings suggest that expansion of health insurance coverage could reduce the unmet health care needs of homeless persons, but that addressing competing priorities inherent to homelessness will also be required.

THE USE OF ELECTRONIC HEALTH RECORDS IN U.S. HOSPITALS A.K. Jha[1]; C.M. Desroches[2]; E.G. Campbell[2]; K. Donelan[2]; T.G. Ferris[2]; A. Shields[2]; S. Rosenbaum[3]; D. Blumenthal[2]. [1]Harvard University, Boston, MA; [2]Massachusetts General Hospital, Boston, MA; [3]George Washington University, Washington, DC. *(Tracking ID # 205194)*

BACKGROUND: Despite a consensus that the use of Health Information Technology (HIT) should lead to more efficient, safer, and higher quality care, there are no reliable estimates of the rates of adoption of Electronic Health Records (EHRs) in U.S. hospitals. We sought to create a clear definition of an EHR and to survey U.S. hospitals to estimate their adoption nationwide.
METHODS: In partnership with the American Hospital Association (AHA), we surveyed all 4,840 acute-care general medical/surgical

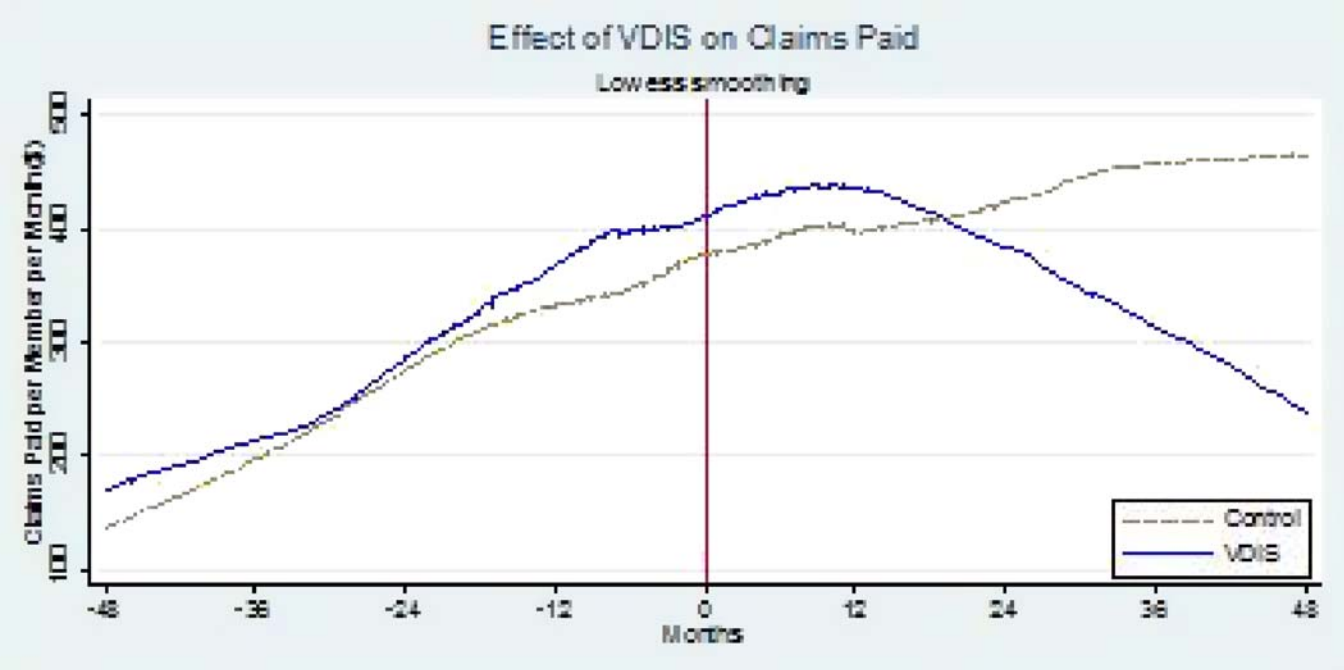
member hospitals between March and September, 2008. We sought to determine the presence of specific clinical functionalities and, using a definition of an EHR based on expert consensus, we determined the proportion of hospitals that had such systems in their clinical areas. We also examined the relationship between adoption and specific hospital characteristics and identified reported barriers to or facilitators of EHR adoption. We weighted all results based on propensity for a hospital to respond to the survey to account for potential non-response bias.
RESULTS: We received responses from 63.1% of hospitals surveyed. Adoption of individual clinical functionalities varied widely from 76% of hospitals having widespread electronic viewing of laboratory test results to just 12% having fully implemented electronic physician notes. Seventeen percent of U.S. hospitals had fully implemented computerized physician order entry for medications and an additional 9 percent had implemented CPOE for medications in at least one clinical unit. Our expert panel identified 24 functionalities that must be present for an EHR to be considered 'comprehensive' and an abbreviated list of 12 functionalities for an EHR to be considered 'basic'. We found that 1.7% of U.S. hospitals have a comprehensive electronic record system across all clinical units, and an additional 8.7% have a basic EHR in at least one clinical unit. Larger hospitals, those located in urban areas, and teaching hospitals were more likely to have EHRs. Financial challenges, such as inadequate capital and high maintenance costs, were cited as the primary barriers to adoption, although hospitals with EHRs already implemented were less likely to express these concerns than non-adopters.
CONCLUSION: In a survey of all acute-care hospitals in the U.S., we found wide variation in the adoption of individual clinical functionalities. Further, we found very low rates of adoption of both comprehensive and basic EHRs in U.S. hospitals. Although rates of adoption of comprehensive systems remain low, many more institutions have individual components of EHRs in place, implying that policy interventions could increase the prevalence of EHRs in U.S. hospitals faster than our low rates might suggest. A combined and targeted policy strategy consisting of aid and incentives may be necessary to encourage greater proliferation of EHR systems in U.S. hospitals.

THE VERMEDX® DIABETES INFORMATION SYSTEM REDUCES HEALTH CARE UTILIZATION B. Littenberg[1]; C.D. Maclean[1]; K. Zygarowski[2]; B. Drapola[2]; J. Duncan[2]; C. Frank[2]. [1]University of Vermont, Burlington, VT; [2]Vermont Managed Care, Inc., Burlington, VT. *(Tracking ID # 203608)*

BACKGROUND: The Vermedx® Diabetes Information System (VDIS) is a laboratory-based decision support system designed for low cost and easy integration into primary care. A recent randomized clinical trial in 7,412 adults with diabetes showed significant improvements in clinical care and health care utilization. Total savings were estimated at $2,426 per patient per year (P=0.03). We sought to confirm these cost savings in independently collected data using claims paid by a managed care insurer for patients with and without VDIS.
METHODS: We analyzed paid claims, with concurrent and historical controls, for the years 2002–2007. We compared the total claims paid per member per month for 153 patients using VDIS to 870 control patients using locally weighted smoothing functions and linear regression before and after starting VDIS.
RESULTS: In VDIS patients, paid claims increased at a rate of +$8.30 per month (95% confidence interval: +1.12, +15.48) before VDIS started compared to -$3.92 (-9.50, +1.67) after VDIS (P=0.008). For control patients, the slope changed from +$6.80 (+3.78, +9.82) to +$3.16 (-1.06, +7.38; P=0.17). After the start of VDIS, the slope of the claims in the VDIS group is significantly lower than that of the control group (-$3.92 vs. +$3.16; P=0.046). Mean estimated savings range from $504 per patient in the first year of operations to $3,563 in year 4. The cumulative net savings reach $8,134 in 4 years.
CONCLUSION: Participation in VDIS is associated with substantial reductions in claims paid, net of the costs of the intervention. The cost savings reported in the randomized clinical trial of the Vermedx Diabetes Information System are reproduced in an independent data set.

THE VERMEDX® DIABETES INFORMATION SYSTEM: A CLUSTER RANDOMIZED TRIAL OF A POPULATION BASED DECISION SUPPORT SYSTEM IN PRIMARY CARE C.D. Maclean[1]; M. Gagnon[1]; P. Callas[1]; B. Littenberg[1]. [1]University of Vermont, Burlington, VT. *(Tracking ID # 203607)*

BACKGROUND: The Vermedx® Diabetes Information System (VDIS) is a Chronic Care Model-based registry and decision support system for primary care providers and their patients. We sought to evaluate the impact of VDIS on processes of care, physiologic control (A1C and LDL-cholesterol), and resource utilization.



Claims paid per member per month estimated by non-parametric locally weighted smoothing. The vertical line represents the start date for VDIS patients and a randomly chosen date for control patients.

METHODS: We executed a randomized trial with clustering at the practice level. We enrolled 64 community primary care practices in the Northeast with 132 providers, and 7,412 adults with diabetes. Providers received flowsheets with trended lab results and guideline-based advice, reminders regarding patients overdue for testing, alerts if patients were out of range, and quarterly population reports with peer comparisons. Patients received overdue reminders and alerts if test results were above predetermined thresholds. Process of care and physiologic outcome were evaluated in all subjects. Resource utilization and functional status were evaluated in a random sample of patients via detailed survey. We used multiple regression to quantify the effect of VDIS adjusting for clustering and potential confounders.
RESULTS: After an average of 32 months, subjects randomized to the intervention group were significantly more likely to receive guideline-appropriate testing for cholesterol (OR=1.39; [95%CI 1.07, 1.80] P=0.012), creatinine (OR=1.40; [1.06, 1.84] P=0.018), and urine protein (OR=1.74; [1.13, 1.69] P=0.012), but not A1C (OR=1.17; [0.80, 1.72] P=0.43). A1C and LDL results were similar in the two groups; resource utilization was lower in the active group by $2,426 ([-$4,647, -$205] P=0.03). There were no differences in blood pressure, body mass index, functional status, or self care behaviors, except for an improvement in exercise habits.
CONCLUSION: This low-cost diabetes decision support system improves the process of laboratory monitoring in primary care, but not physiologic control. Utilization is lower among patients receiving the service with no adverse impact on functional status.

THEMES AND CHARACTERISTICS OF MEDICAL STUDENTS' SELF-IDENTIFIED CLERKSHIP LEARNING GOALS H.M. Torok[1]; D. Torre[2]; M. Elnicki[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 205051)*

BACKGROUND: Medical educators encourage learners to identify their learning goals to foster self-directed learning. Teaching is more effective when it is directed toward educational needs identified by the learners. However, goal setting involves self-assessment of previous performances, and may be viewed as a challenging task for medical students. In this study, we sought to identify the themes of 3 rd year medical students' self-identified learning goals and how prior learning experiences and demographic characteristics influence the selection of learning goals.
METHODS: In academic year 2006–2007, all medical students at 2 medical schools wrote their learning goals for their 8 week long internal medicine clerkships in free text format. At one school, the clerkship studied was inpatient medicine, and at the other, ambulatory. Collected goals were categorized in themes, as well as into either "specific" (focused and explicit) or "general" (broad and lacking detail) goals using qualitative thematic analysis. Associations between gender, school, and period of clerkship and the distributions of goals were analyzed using Chi-square, Fisher's exact testing and ordered logistic regression where appropriate.
RESULTS: A total of 290 students submitted the goals (overall response rate; 82%) and we obtained 879 goals (mean 3 goals/student; range 0–7 goals). Five domains of goals emerged. Clinical skills were most frequently identified, listed by 258 (89%) students, followed by medical knowledge; e.g. improve my pharmacology knowledge (44%), other; e.g. get honors, have time to work out (20%), career choice; e.g. explore internal medicine as a career (17%), and attitudinal goals; e.g. be a team player, seek feedback (15%). No gender differences in distributions of goals were seen (all p>.3). More inpatient clerkship students identified "career choice" goals (22% v. 7%, p<.01) and more ambulatory clerkship students identified "other" goals (14% v. 30%, p<.01). Career choice goals were more frequently identified during the first 6 months of the academic year than the second 6 months (22% v. 12%, p=.01). The clinical skills domain was a composite of 12 different skills. Among clinical skills goals, those related to oral presentation skills and critical thinking ability were identified more frequently during the first half of the academic year (15% v. 7%, p=.05 and 16% v. 8%, p=.04). Goals related to patient management skills were more frequently identified during the second half of the academic year (18% v. 31%, p=.01). Students' goals were more often "general"; e.g. improve my clinical skills, than "specific"; e.g. learn to differentiate systolic murmurs, with half of students (146, 50%) listing only "general" goals. There were no differences in the proportion of "specific" goals between genders, schools, or periods of clerkship (all p>.05).
CONCLUSION: Students' goals were targeted toward the acquisition of clinical skills. Their focus within the clinical skills shifted over time from more basic skills to more mature patient management skills. This maturation process indicates students' awareness of their areas of learning needs based on their clinical experiences and progress. Students' goals were often non-specific. As studies report that specific goals have positive effects on performance, educators may teach how to articulate specific, targeted goals with the hope of having more positive impacts on student's learning outcomes.

THIRD YEAR MEDICAL STUDENTS' SKILLS ACQUIRING AND COMMUNICATING TO PATIENTS INFORMATION FROM AN ELECTRONIC INFORMATION SEARCH E.A. Baker[1]; R. Mcnutt[1]; A. Ekpenyong[1]; R. Odwazny[1]. [1]Rush University Medical Center, Chicago, IL. *(Tracking ID # 205113)*

BACKGROUND: Utilizing electronic resources to find information about the benefits and harms of treatments and communicating this to patients is a crucial skill for physicians. How best to teach and measure this skill remains unanswered.
METHODS: Students completing the core clerkships (124/128) at Rush Medical College underwent a Clinical Skills Assessment in the spring of 2008. That exam included a Standardized Patient (SP) with prostate cancer. Students were given a one page summary that stated the patient had a new diagnosis of prostate cancer, was coming in for a second opinion about having a prostatectomy, and was particularly concerned about erectile dysfunction after surgery. Students were given 15 minutes to search the literature, and asked a series of 4 questions to allow the calculation of the benefit of prostatectomy to marginally reduce the risk of dying from prostate cancer, while marginally increasing the risk of erectile dysfunction. Students then had 10 minutes to help the SP make an informed decision about whether or not to proceed with prostatectomy.
RESULTS: Using a 10 point scale that rated accuracy, students' mean scores for the 4 questions ranged from 4.77 to 8.16. 33% answered all 4 questions correctly. 69% of students recorded enough information so that benefits could be determined, 36% for harms, and 27% for both benefits and harms. 21 information sources were used by students. The most frequently used sources were Uptodate (70%), Google (37.1%), PubMed (24.2%), ACP Journal Club (19.4%) and Google Scholar (7.3%), but sources such as emedicine and Web MD were also used. 75% of students listed at least one specific reference including an author, textbook or journal name. In discussion with the SP, 90% explained the risk of dying from prostate cancer, 100% explained the risk of erectile dysfunction and 86% presented the decision as a balance between benefits and harms. Communication skills were rated highly, with 13 of 15 of items completed by 100% of students.
CONCLUSION: In a clinical skills assessment, just 33% of students were able to utilize electronic resources in a timely fashion to accurately answer 4 clinical questions about prostate cancer. Only 27% recorded enough information to potentially make an accurate numeric determination of risks and benefits of prostatectomy. Despite this, 86% of students discussed the decision with the SP in terms of risks and benefits, and almost all were rated highly on their communication and counseling skills. This raises the possibility that students communicated inaccurate information to SP's, and that this error went unrecognized. A detailed review of videotapes is planned to further investigate this possibility. Students used a wide variety of sources of variable quality when searching for information. Future plans include interdisciplinary training over multiple clinical clerkships to improve student skills. More search time, and an assessment of search strategies during future exams is planned to more accurately record the use of electronic resources. Finally, replacing SP's with trained faculty is being considered to more accurately assess the quality of the information communicated.

TRAINING INTERNAL MEDICINE RESIDENTS IN A HI-FIDELITY ACLS SIMULATOR MAY IMPROVE SURVIVAL IN PATIENTS WITH VFIB/VTACH CARDIAC ARREST. E. Penn[1]; B. Sapp[1]; K.N. Simpson[1]; S. Scarbrough[1]; P.J. Cawley[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 204799)*

BACKGROUND: Resident ACLS training in high-fidelity simulation labs appears to be superior to traditional training when measured by standardized skills assessment, but few studies have examined the impact of these simulators on performance in actual ACLS events, or on outcomes of

these events. In this study we retrospectively compared in-hospital mortality for patients with Vfib/Vtach arrest before and after a high-fidelity simulation lab was integrated into our emergency team training program.
METHODS: The Mayday database at MUSC contains details of every in-hospital ACLS event from January 2005 to October 2008. Data is recorded by an RN observer at the scene of each Mayday event, then entered into the database by trained personnel. Internal medicine residents lead ACLS responses at our institution, with senior residents acting as Mayday team leaders. In March 2007, MUSC incorporated a high-fidelity simulation lab into the existing emergency team training. We compiled a dataset that included all ACLS events requiring unsynchronized defibrillation (Vfib/Vtach arrest). Exclusion criteria were: 1) location in an operating room, and 2) no unsynchronized defibrillation recorded. Patient characteristics and patient survival (until discharge) were examined for the times before and after MET training was offered. The t-test was used for continuous data, chi-square for categorical measures.
RESULTS: 69 events between 01/01/2005 and 03/01/2007 and 56 events between 03/02/2007 and 10/05/2008 met study inclusion criteria in our preliminary data set (table 1).
CONCLUSION: The mortality rate for cardiac arrest was significantly lower (21%) after integration of the high-fidelity ACLS simulator into emergency team training at our institution. There appears to be no significant difference in race, gender, age, or hospital setting (ICU versus ward) between the two patient groups. A logistic regression analysis is underway to confirm that the two groups were sufficiently similar and to assess the effects of simulator training on time to first unsynchronized defibrillation.

Results

	Died	African-American Race	Caucasian Race	Male Gender	ICU Location	Age (SD)
Before (n=69)	71%	57%	41%	61%	41%	45.5 (27)
After (n=56)	50%	43%	55%	55%	34%	40.7 (26)
	p= 0.0163	p= 0.2959	p= 0.5959	p= 0.5341	p= 0.4452	p= 0.3317

TRAINING RESIDENTS IN OUTPATIENT HIV CARE: A SURVEY OF INTERNAL MEDICINE PROGRAM DIRECTORS J.E. Adams[1]; K. Chacko[2]; G. Guiton[3]; E.M. Aagaard[2]. [1]Denver Health and the University of Colorado, Denver, CO; [2]University of Colorado Denver, Aurora, CO; [3]University of Colorado at Denver and Health Sciences Center, Denver, CO. *(Tracking ID # 204989)*

BACKGROUND: There is growing consensus that an HIV provider shortage in upcoming years is very likely. The care of patients with HIV is increasingly focused on outpatient chronic disease management, and primary care providers are uniquely situated to provide this care. With minimal additional training, primary care providers can provide HIV care equal in quality to that provided by Infectious Diseases (ID) specialists. It is not known to what extent Internal Medicine residents in the US are currently being trained in or encouraged to provide primary care for this growing population of patients.
METHODS: We surveyed all Internal Medicine residency program directors in the US first by email in May, 2008. Then non-responding programs were mailed up to two copies of the survey between August and October of 2008. The survey evaluated their attitudes regarding training residents to provide comprehensive primary care to patients with HIV and the presence of HIV outpatient-based curricula in their residency training programs. Attitudes and opinions were assessed using a five point Likert scale (1=strongly disagree, 5=strongly agree).
RESULTS: Of the 372 program directors surveyed, 230 responded (61.8%). Based on chi-square analyses, geographic location was not significantly different for responding and non-responding programs, but proportionately more university-based programs are represented than community based programs. Less than half (42.1%) of program directors agreed or strongly agreed that it is important to train residents to be primary care providers for patients with HIV. Teaching outpatient based HIV curricula was a priority for 45.1%, and exposing residents to outpatient HIV clinical care was a priority for 56.5% . Only 18.8% of program directors believed their graduates had the skills to be primary providers for patients with HIV, and 70.6% reported that residents interested in providing care for patients with HIV pursue ID fellowships. The strongest reasons cited for limited HIV training were beliefs that patients with HIV prefer to be seen in ID subspecialty clinics and that patients receive better care in ID clinics compared to general medicine clinics. Only 46.5% of programs offer a dedicated rotation in outpatient HIV care, and 50.5% of programs have curricula in place to teach about outpatient HIV care.
CONCLUSION: The results of this survey suggest training residents to provide HIV primary care without additional fellowship training is valued by fewer than half of program directors. However, exposing residents to clinical settings where they take care of patients with HIV is a priority for the majority of programs. Very few program directors believe their graduates are adequately trained to be primary care providers for patients with HIV. Only half of programs offer specific rotations or curricula in HIV primary care. Future research should focus on strategies for tackling the predicted HIV workforce shortage including development of training programs to promote HIV clinical skills among primary care providers and developing new models of care.

TRAINING TOMORROW'S PROVIDERS AND EXPANDING ACCESS TO PEGINTERFERON/RIBAVIRIN COMBINATION THERAPY FOR CHRONIC HEPATITIS C IN UNDERINSURED/UNINSURED PATIENTS: FINAL OUTCOMES OF A PILOT, RESIDENT-INITIATED, MULTIDISCIPLINARY, HEPATITIS C CLINIC N.M. Agostino[1]; S.J. Templer[1]; E.R. Norris[1]; C.M. Brooks[1]; E.J. Gertner[1]; J.L. Yozviak[1]. [1]Lehigh Valley Health Network, Allentown, PA. *(Tracking ID # 205388)*

BACKGROUND: Clinical trials have shown that at least 40% of patients with chronic hepatitis C (HCV) achieve sustained virologic response (SVR) with peginterferon-alfa/ribavirin (Peg/RBV) therapy along with adequate medical and psychiatric support. Despite the availability of potentially curative therapy, a lack of insurance or inadequate insurance may prevent access to this treatment for many patients. Another potential barrier is the relatively small pool of physicians capable and willing to provide Peg/RBV therapy. SVR is achieved less often in clinical practice than in research trials, where patients with a history of mental illness or multiple medical comorbidities are commonly excluded. We proposed that an integrated, multidisciplinary approach to Peg/RBV therapy would result in SVR rates similar to those of clinical trials in a medically and psychiatrically complex cohort of patients, while training internal medicine residents to provide this therapy.
METHODS: A pilot HCV clinic was established in 2004, staffed by internal medicine residents, an attending gastroenterologist and psychiatrist, and a registered-nurse coordinator. All patients were underinsured/uninsured and underwent peginterferon alfa-2a/RBV therapy. The length of therapy was 48 weeks for genotypes 1 and 4, and 24 weeks for genotypes 2 and 3. Medical residents participated actively throughout Peg/RBV therapy by performing initial patient assessments and providing follow-up care including the management of medical and psychiatric side effects. The initial cohort completed follow-up in early 2008. Charts were retrospectively abstracted for demographics and baseline characteristics, virologic response, side effects, and reasons for discontinuation or non-initiation of therapy.
RESULTS: Eight medical residents volunteered to participate in monthly HCV clinics over 3 years. Forty-eight patients were evaluated (84% genotype 1, 60% high viral load [>400,000 IU/ml], 79% with pre-existing mental illness, mean weight 191.3 pounds). None were co-infected with human immunodeficiency virus (HIV). Twenty-six (54%) were treated: 5/26 (19%) with nonresponse, 13/26 (50%) with end of treatment response (ETR), and 10/26 (38.5%) with SVR. Three patients (12%) relapsed after ETR. Treatment-associated side effects included: fatigue (38%), myalgia (31%), anemia (31%), arthralgia (19%), insomnia (19%), neutropenia (19%), and hyperuricemia (46%). Side effects were the most common reason (23%) for discontinuation followed by virologic nonresponse (19%), psychiatric (3%), poor adherence (3%), ongoing substance abuse (3%), and incarceration (3%). Twenty-two (46%) were not appropriate candidates for therapy. Personal choice was the reason cited by 46% of those not treated, followed by unstable psychiatric illness (27%), comorbidities (18%), substance abuse (9%), viral clearance (9%), lack of follow-up (4%), and minimal fibrosis (4%).
CONCLUSION: Despite a patient population with mostly genotype 1 HCV and significant medical/psychiatric comorbidities, we were able to achieve ETR/SVR rates comparable to those commonly reported. These data suggest that an integrative medicine practice can safely and effectively manage Peg/RBV therapy and serve as a model to expand access to

antiviral therapy for many individuals with chronic HCV. Additionally, by incorporating a dedicated group of internal medicine residents, the pool of capable and willing providers of Peg/RBV therapy will be expanded.

TRAJECTORIES OF DEPRESSION SYMPTOMS IN OLDER ADULTS AFTER HOSPITALIZATION E. Pierluissi[1]; K. Mehta[1]; J. Boscardin[1]; K. Kirby[1]; C.S. Landefeld[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204859)*

BACKGROUND: Depression symptoms in hospitalized older adults are common and are associated with poor outcomes, but symptom trajectories and the relation of different trajectories to patient characteristics and outcomes has not been defined. The objective of this study is to define depression symptom trajectories in older patients after hospital discharge, and to determine their relation to patient characteristics and outcomes.
METHODS: In 1100 patients age 70 years or older (mean age, 78.1 years; 65% women) admitted to the general medical wards of two teaching hospitals, we assessed depressive symptoms, using the modified CES-D10 (10 item) scale, at discharge and 1, 3, 6, and 12 months after discharge (or until death). Using explicit, a priori, clinically derived criteria, we grouped patients into 6 trajectory groups according to the number of depression symptoms at discharge and the trend of depression symptoms over time. We determined the associations of different trajectories with patient characteristics and with functional outcomes.
RESULTS: Six trajectories were identified. Three depression trajectories started with <3 symptoms at discharge (Figure 1); trajectory A (428 patients, 40%) and trajectory B (214 patients, 20%) remained stable and trajectory C (59 patients, 6%) demonstrated increasing symptoms over time. Three trajectories (Figure 2) started with ≥5 depression symptoms; trajectory D (209 patients, 20%) declined in the number of depression symptoms, trajectory E (65 patients, 6%), declined initially and then increased in symptoms at one year, and, trajectory F (83 patients, 8%) declined only slightly over time. Trajectory C (worseners) were more likely (P<0.01 for all comparisons) to be women (76% vs. 74% and 60% of patients in A and B, respectively) and not married (70% vs. 64% and 51%). Patients with trajectory C were more likely on admission to have ≥4 symptoms of depression (49% vs. 37% and 14%), ≥1 ADL impairment (64% vs. 48% and 34%) and ≥3 IADL impairments (27% vs. 21% and 13%). One year after discharge, trajectory C (worseners) had higher rates (P<0.0001) of ADL impairment (60% vs. 48% and 31% of patients in B and C, respectively). Compared to other trajectories starting with >5 symptoms of depression at hospital discharge, trajectory D (improvers) were less likely (P<0.01 for all comparisons) to be women (58% vs. 77% and 77% of patients in E and F, respectively) and not married (52% vs. 74% and 66%). Patients with trajectory D were less likely on admission to have ≥4 symptoms of depression (48% vs. 66% and 77%) and ≥3 IADL impairments (19% vs. 23% and 36%). One year after discharge, trajectory D (improvers) had lower rates (P<0.001) of ADL impairment (33% vs. 54% and 61% in patients in E and F, respectively)

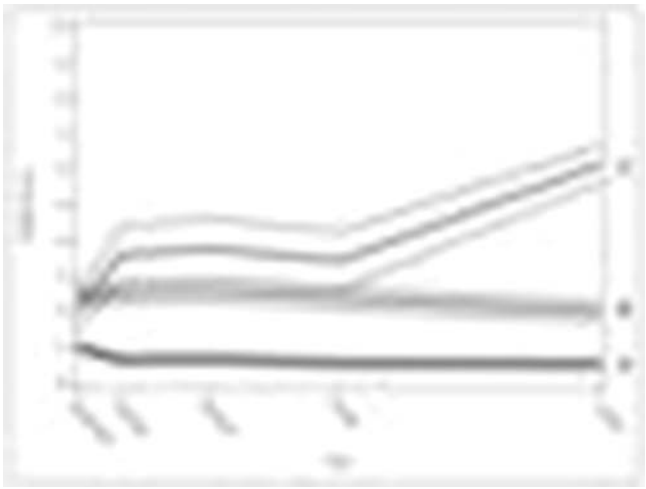


Figure 1. Mean and 95% confidence limits

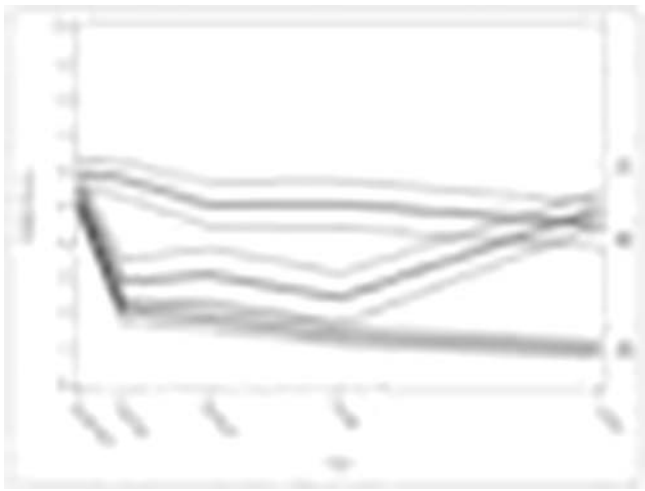
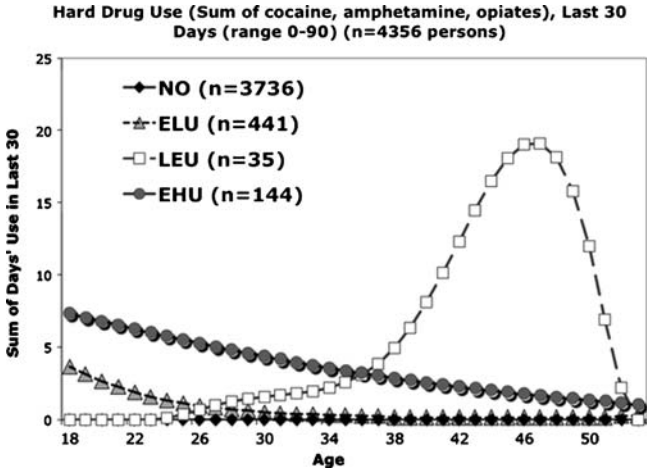


Figure 2. Mean and 95% confidence limits

CONCLUSION: In the year after hospital discharge, older adults report depression symptoms that can be described by 6 discrete trajectories. Risk factors for depression symptom trajectories associated with worse functional outcomes include gender, marital status, and on admission, more symptoms of depression and greater functional impairment. Recognition of depression symptom trajectories may allow for targeted intervention of high-risk groups.

TRAJECTORIES OF ILLICIT DRUG USE AMONG ADULTS IN THE GENERAL POPULATION (THE CARDIA STUDY) S.G. Kertesz[1]; M.J. Pletcher[2]; Y. Khodneva[1]; B. Jones[3]; J.A. Tucker[1]. [1]University of Alabama at Birmingham, Birmingham, AL; [2]University of California, San Francisco, San Francisco, CA; [3]Carnegie-Mellon University, Pittsburgh, PA. *(Tracking ID # 205605)*

BACKGROUND: Research on long-term outcomes of illicit non-marijuana drug use among general population adults (i.e. not treatment samples) often relies on a single drug use measure at baseline, without incorporating changes in drug use over time and with age. We used group-based trajectory modeling to explicate longitudinal patterns of non-marijuana drug use in a cohort of initially young adults assessed over a 20-year follow-up.
METHODS: Repeated self-reports of drug use were collected in the Coronary Artery Risk Development in Young Adults (CARDIA) Study, a cohort of 4356 healthy adults (balanced for race, gender, and education) recruited in 1985–86 at ages 18–30 and followed for 20 years. Recent cocaine, opiate, and amphetamine use (# drug-days used in the past 30 days, range 0–90) was recorded at exam years 2, 5, 7, 10, 15 and 20. Drug-days were subjected to semi-parametric group-based analysis (PROC TRAJ), a method that groups persons probabilistically according to the trajectory of a repeatedly-measured variable. Differences in demographics, concurrent substances, and psychosocial risks were compared for trajectory groups.
RESULTS: Four groups emerged: No Current Use (NO, n=3736), Early Low Use that Declined (ELU, n=441), Early High Use that Declined (EHU, n=144), and Late Emerging Use (LEU, n=35). The EHU and LEU groups were disproportionately Black and male. Baseline economic difficulties were more common in the EHU (49%) and ELU (38%) groups compared to the LEU (37%) group and NO (28%) (p<.001). Over half of participants in all groups smoked cigarettes at baseline except for the NO group (25%) (p<.001), and risky alcohol use in the 20th follow-up year was more common in the EHU (19%) and LEU (15%) groups compared to the ELU (10%) and NO (3%) groups (p<.001). The EHU, LEU and ELU groups had higher baseline anxiety and hostility compared to NO.
CONCLUSION: Non-marijuana drug use often peaks early in life but also may peak in middle age, and both patterns are associated with expected risks including socioeconomic status, other substance use, psychosocial measures and family upbringing. Trajectory methods hold promise for elucidating consequences of these distinct drug use patterns over the life course.



TRANSITION OF CARE TO EXTENDED CARE FACILITIES: IDENTIFICATION OF DEFICIENCIES H. Manyam[1]; J. Reilly[1]; A. Reinherz[1]; A. Kapetanos[1]; A.L. Spencer[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205695)*

BACKGROUND: An inadequate transition process when discharging patients from the hospital to extended-care facilities (ECF) can result in adverse patient outcomes. Our goals were to 1) identify deficiencies in our transition of care (TOC) process for patients being discharged to ECF and 2) perform a needs-assessment for a TOC curriculum for housestaff.
METHODS: First, we held a focus group with representatives (n=6) from the three ECFs to which our patients are most commonly discharged. We asked a series of open-ended questions regarding problems with the TOC process to their facilities from our hospital and about the adequacy and timeliness of information provided to them. We also conducted a formal needs-assessment of housestaff to identify their particular learning needs. We designed a 27-item test to assess knowledge of and comfort with key factors in the TOC process.
RESULTS: Our focus group identified several key problems with the TOC process including inconsistent medication reconciliation and delayed receipt of pertinent patient care information. ECF caregivers felt that a more focused discharge progress note received upon ECF admission would be beneficial. It was also identified that housestaff often complicate the TOC process by creating false expectations for patients and families due to housestaff misunderstanding of the differences between ECF levels of care. Focus group participants created a "top 10" list of TOC facts for residents which will be incorporated into our subsequent curriculum. The needs-assessment also identified areas of deficiency and discomfort with the TOC process among housestaff (Table). Fifty of 53 (94%) residents completed the test. Test scores were quite low: PGY1=46% correct; PGY2=44%; and PGY3=47%.
CONCLUSION: Our study identified content and timeliness of transfer documentation as specific areas needing improvement. In response, we are developing a standardized discharge template to facilitate more timely and accurate communication with accepting facilities. Our results also highlight the need for the development of a TOC curriculum emphasizing the content and process necessary for safe transfer. We hope that these multi-level interventions will impove the safety of our patients during the critical transition period.

Table 2: Resident Comfort with TOC

Resident comfort with:	Average resident comfort (Likert scale 1--5)
Management of discharge (D/C) process	2.9
Provision of patient education regarding discharge medications	3.3
Performance of functional assessment	2.7
Knowledge of physical therapy role in D/C	2.9
Knowledge of medical resident role in D/C	3.3
Understanding Medicare and Medicaid reimbursement	1.8
Knowledge of admission criteria to various ECF"s	2.2
Knowledge of potential barriers to admission to ECF"s	2.2
Comfort in explaining to patient/family about why ECF"s admission is needed	2.7

TRAUMA EXPERIENCES OF LOW-INCOME, PREDOMINANTLY BLACK WOMEN IN A COMMUNITY-BASED PRIMARY CARE SETTING A.A. Alvanzo[1]; D. Svikis[2]. [1]Johns Hopkins University, Baltimore, MD; [2]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 205922)*

BACKGROUND: A history of trauma exposure has been associated with a number of poor health outcomes, including increased substance use and other mental health disorders. However, Black women have been underrepresented in much of the earlier research. The aim of this study was to examine the history of trauma experiences in a sample of predominantly Black women seeking treatment in a community-based federally qualified health center located in a mid-Atlantic city. A secondary aim was to examine the relationship between traumatic events and depression and anxiety symptoms.
METHODS: Women were recruited from the waiting room of the health center as part of a study examining the relationship between trauma experiences and harmful drinking. Data is presented from the first 61 women who completed a battery of questionnaires that included demographic questions, the Patient Health Questionnaire (PHQ), which includes questions about psychiatric symptoms, and the Trauma Questionnaire (TQ), which includes questions about 7 lifetime traumatic experiences, including involvement in a major accident or natural disaster, sexual harassment, childhood and adult sexual trauma, and intimate partner violence (IPV). Analyses were done using chi-square or Fisher's Exact test, where appropriate, for categorical variables.
RESULTS: Women were in their mid forties (mean age 44.2, SD 13.49), predominantly Black (88.5%), had a high school education (mean years of education 12.1, SD 2.54), and the majority were poor with 78.0% reporting an annual household income of ≤$20,000. The mean number of traumas reported was 2.75 (SD 2.32), with a range of 0 to 7. Table 1 shows the prevalence rates for all traumas. Women who were victims of a violent crime were more likely to report having an anxiety attack in the past 4 weeks than women who were not (52.9% vs. 25.0%; p=.041). Women who experienced a major accident or disaster were more likely to report feeling depressed (38.1% vs. 11.8%; p=0.22) and having trouble concentrating (30.0% vs. 5.9%; p=.042) in the past two weeks than women who did not. Psychomotor symptoms in the past two weeks more likely to be reported by women who had experienced rape (27.8% vs. 5.1%; p=.027) and sexual molestation (31.6% vs. 2.6%; p=.004) than by women who denied these forms of sexual trauma. Lastly, women who endorsed a history of sexual molestation were more likely to report "feeling bad about yourself" (42.1% vs. 13.3%; p=.021) than women who did not. No differences were found for women who did or did not report sexual harassment or IPV.
CONCLUSION: Exposure to trauma is common among low-income Black women with most reporting experiencing >1 traumatic event in her lifetime. Different traumas may be associated with different psychiatric symptoms. Primary care physicians should be cognizant of the prevalence of trauma and its impact on the health of their patients.

Table 1

Trauma Experience	Prevalence
Major accident/disaster	36%
Physical assault/violent crime	31%
Threatened IPV	43%
Physical IPV	48%
Sexual harassment	48%
Rape	33%
Sexual molestation	34%

TREATMENT INTENSIFICATION IMPROVES BLOOD PRESSURE CONTROL BOTH IN ADHERENT AND NON-ADHERENT PATIENTS
A.J. Rose[1]; D.R. Berlowitz[1]; M. Manze[2]; M.B. Orner[1]; N.R. Kressin[3]. [1]Bedford VA Medical Center, Bedford, MA; [2]Boston University, Boston, MA; [3]VA Boston Healthcare System, Boston, MA. *(Tracking ID # 203553)*

BACKGROUND: Treatment intensification (TI) can improve blood pressure (BP) control in hypertensive patients. When clinicians suspect nonadherence, they may be reluctant to intensify therapy, but there is no evidence regarding whether patients with less than ideal adherence would benefit from TI. Our objective was to investigate whether the impact of TI upon BP control varies by adherence to therapy.
METHODS: Our prospective cohort study enrolled patients with hypertension, managed in primary care at an academic, inner-city safety net hospital. We used the following formula to characterize TI: (visits with a medication change - visits with elevated BP)/total visits. Adherence to therapy was measured at baseline using electronic caps that record pill bottle openings ("MEMS caps"). Patients were dividied into 4 adherence strata based on MEMS data: "excellent adherence" (over 90% of days adherent), "fair adherence" (60–90%), "poor adherence" (below 60%), and patients who did not return their MEMS. We examined the relationship between TI and the final systolic blood pressure (SBP), controlling for patient-level covariates, using a three-step process. In the first step, we characterized the relationship between TI and BP in the entire sample. In the second step, we characterized the relationship between TI and BP only among patients with excellent adherence. Finally, we used interaction terms to test whether the effect of TI upon BP in the other adherence strata (fair, poor, and missing adherence) differed from the effect size among patients with excellent adherence.
RESULTS: 819 patients were followed for an average of 24 months. Their mean age was 60, 66% were female, and 58% were of Black race. The mean baseline and final BP values were 134/80 mm/Hg and 133/79 mm/Hg. 391 patients had excellent adherence, 201 patients had fair adherence, 77 patients had poor adherence, and 150 patients had missing adherence. Among the sample as a whole, each additional therapy increase per 10 visits predicted a 2.2 mm/Hg decrease in the final SBP ($p<0.001$). Among patients with excellent adherence, each additional therapy increase per 10 visits predicted a 1.9 mm/Hg decrease in the final SBP ($p<0.001$). Among patients with fair adherence, each therapy increase predicted a 2.6 mm/Hg decrease in the final SBP, but this effect size was not significantly different from the excellent adherence group at the 0.05 level ($p=0.056$). The effect sizes in the poor and missing adherence groups were a 2.1 and a 1.7 mm/Hg decrease in the final SBP for each additional therapy increase, but these effect sizes were not significantly different from that of the excellent adherence group ($p=0.60$ and 0.66, respectively). No episodes of hypotension were reported to the data safety monitoring board.
CONCLUSION: Patients with excellent adherence, fair adherence, poor adherence, and even patients who did not return their MEMS caps all benefited from intensification of antihypertensive therapy to a similar extent. Clinicians should not await proof of perfect adherence before intensifying therapy for uncontrolled hypertension.

TRENDS IN HEALTH CARE EXPENDITURES, UTILIZATION AND HEALTH STATUS AMONG U.S. ADULTS WITH SPINE PROBLEMS: 1997–2006
B. Martin[1]; S.K. Mirza[2]; J.A. Turner[1]; M. Lee[1]; B. Comstock[1]; R.A. Deyo[3]. [1]University of Washington, Seattle, WA; [2]Dartmouth Hitchcock Medical Center, Hanover, NH; [3]Oregon Health & Science University, Portland, OR. *(Tracking ID # 205318)*

BACKGROUND: Medical care expenditures for spine-related conditions amounted to $86 billion in 2005, increasing 65% since 1997. It is important to understand changes in the average individual burden of services relative to changes in the health status of individuals with spine problems. We sought to study trends from 1997 to 2006 in per-user expenditures for spine-related inpatient, outpatient, pharmacy, and emergency services; and to compare these trends to changes in health status.
METHODS: We analyzed data from the Medical Expenditure Panel Survey, a multistage sampled survey designed to provide unbiased national estimates of health care utilization and expenditure. Spine-related hospitalizations, outpatient visits, prescription medications and emergency department visits were identified using International Classification of Disease, Version 9, Clinical Modification (ICD-9-CM) diagnosis codes. Regression analysis controlling for age-, sex-, comorbidity-, and time (years) were used to estimate trends in inflation-adjusted expenditures, utilization, and self-reported health status.
RESULTS: An average of 1,774 respondents with spine problems were surveyed per year, reflecting an increase in the number of people with spine problems in the U.S. from 14.8 million in 1997 to 21.9 million in 2006. The average age of people who reported spine problems increased slightly from 1997 to 2006 (47.7 to 50.4 years), as did the proportion who relied only on public health insurance (13.3% to 15.6%). From 1997 to 2006, national expenditures for spine problems increased an average of 7.0% per year, while population measures of mental health, social and physical functioning worsened. The mean adjusted per-user expenditure were the largest component of increasing total costs for inpatient hospitalizations, prescription medications and emergency department visits, increasing 37% (from $13,040 in 1997 to $17,909 in 2006), 139% (from $166 to $397), and 84% (from $81 to $149) respectively. A 49% increase in the number of patients seeking spine-related care (from 12.2 million in 1997 to 18.2 million in 2006) was the largest contributing factor to increased outpatient expenditures.
CONCLUSION: For spine-related inpatient, pharmacy, and emergency care from 1997–2006, the rise in per-user expenditure outpaced the rise in the number of people seeking these services. In contrast, increases in spine-related outpatient expenditures were primarily the result of an increase in the number of people seeking care. The discordance in population-level changes in health status versus spine expenditures raises concerns about value for therapies for spine problems. Increasing per-user costs may indicate greater use of expensive technology and treatments. Within inpatient, pharmacy and emergency visit categories, the rise in per-user costs suggest that a greater level of scrutiny may be needed in evaluating treatments and introducing new spinal technologies. Broader implementation of chronic care models and technology assessments may be an important strategy for slowing expenditure growth in back pain. Rising per-user costs may also affect accessibility of spine care and lead to a widening of health disparities across socioeconomic levels independent of whether population measures of health improve. Efforts to control costs must also assure patient safety and effectiveness.

TRENDS IN INTERNAL MEDICINE RESIDENTS CAREER PATHS BY NEW YORK AOA GRADUATES OVER A 20-YEAR PERIOD (1986–2007)
M.S. Grayson[1]; D.A. Newton[2]; P.A. Patrick[3]. [1]New York Medical College, Valhalla, NY; [2]East Carolina University, Greenville, NC; [3]Winthrop-University Hospital, Mineola, NY. *(Tracking ID # 204315)*

BACKGROUND: Lifestyle friendly factors such as predictable work hours and time to pursue personal and professional interests outside of work have become increasingly important to medical students as they consider their medical specialty. In a prior study by Newton DA, et al., internal medicine (IM) was identified by students as "lifestyle intermediate" based upon such factors. Given the greater flexibility of program choice among medical students graduating with honors from the Alpha Omega Alpha Honor Medical Society (AOA), this study sought to investigate a hypothesized decreasing trend in AOA graduates entering categorical internal medicine residencies over a 20-year period.
METHODS: This IRB-approved cross-sectional study investigated the proportions of medical students graduating from New York medical schools with AOA honors and entering IM residency programs in 1986 through 2007. Data were collected from the Association of American Medical Colleges and twelve participating medical schools through the Associated Medical Schools of New York. To ensure that only categorical residencies (i.e., not preliminary or transitional programs) were captured, investigators used the survey data for the second year of residency in correlation analyses with graduation year. Investigators evaluated subspecialty choices among those completing IM residencies using AAMC survey coding for 1986 to 2001 graduates (the latest year for completion of both residency and fellowship in this cohort).
RESULTS: Names of 5738 AOA graduates were provided by participating schools; 5587 names (97.4%) were matched to residency data

provided by AAMC. Data on second year of residency was available for 91.3% of those matched AOA graduates (n=5100). While the proportion of AOA graduates entering IM residency programs declined from 18.9% in 1987 to 11.7% in 1994, it increased to 27.0% in 1995 and then remained at an average of 23.8% (± 3.5%, r=0.54, p=0.02) between 1996 and 2006. There was, however, more than a 3-fold increase in AOA graduates entering radiology, a "lifestyle friendly" residency program (2.5% in 1987 vs. 8.6% in 2006, r=0.89, p<0.01), and a significant decrease in those entering general surgery, a "lifestyle unfriendly" program (16.8% in 1987 to 6.4% in 2006, r=0.84, p< 0.01). Among all AOA graduates who trained in IM during the study period, more than a third entered subspecialty training after their initial residencies (422 of 1148), most frequently in cardiology (18.5%), gastroenterology (15.6%), hematology and oncology (10.4%), and nephrology (10.2%). Among the 2001 graduates, 49.1% completed subspecialties after their IM residencies, up from 13.3% among the 1987 graduates (r=0.69, p<0.01), see Figure 1.

CONCLUSION: While there is no decreasing trend in the proportion of AOA graduates entering internal medicine residency programs, an increasing proportion are completing subspecialty training after their IM residencies. AOA graduates are also increasingly selecting lifestyle friendly careers such as radiology over more lifestyle unfriendly programs such as general surgery. These findings support the call for health care reform to improve the attractiveness of general IM to top medical school graduates.

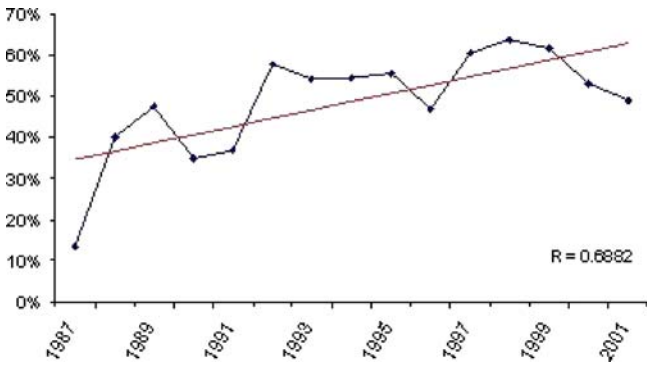


Figure 1. Proportion of AOA graduates (1987–2001) who completed subspecialty training after their internal medicine residencies. N=832.

TRUST, PROVIDER COMMUNICATION, AND HOSPITAL SELF-DISCHARGE AGAINST MEDICAL ADVICE AMONG ADULTS WITH SICKLE CELL DISEASE C. Haywood[1]; S. Lanzkron[1]; L. Lattimer[1]; N. Ratanawongsa[2]; M.C. Beach[1]. [1]Johns Hopkins University, Baltimore, MD; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205076)*

BACKGROUND: Sudden self-discharge from hospitals is associated with an increased rate of hospital readmission, longer lengths of stay upon subsequent readmission, and increased risk of morbidity and mortality. It has been suggested that these discharges may result from poor healthcare quality and/or lower patient trust, but little empirical work explores this hypothesis. We conducted this study to compare patient trust and ratings of the quality of communication with healthcare providers among adults with sickle cell disease (SCD) with and without a reported history of sudden self-discharge from hospitals.

METHODS: We collected data on patient-reported history of sudden self-discharge from hospitals as part of a larger cohort study of adult SCD patient experiences of hospital care for painful crisis at a large urban hospital practice. We used previously validated measures to assess patient trust and patient ratings of the quality of communication with their healthcare providers. We also measured patient characteristics such as age, sex, education, annual household income, annual hospital utilization for pain, and whether or not the patient has had a positive toxicology screen upon hospital admission during the previous 5 years. We examined the associations of patient characteristics, trust, and communication quality with history of sudden self-discharge using chi-square, t-tests, and sequential multiple logistic regressions.

RESULTS: 82 patients contained complete data on all variables of interest. Nearly half (48%) of these patients reported ever having suddenly self-discharged from a hospital. Compared to patients with no history of sudden self-discharge, patients who have ever suddenly self-discharged had lower mean ratings of the quality of provider communication (60 vs. 77, p=0.001), lower mean trust in the medical profession (44 vs. 63, p=0.0001), were more likely to report having had difficulty persuading medical staff about their pain (85% vs. 47%, p< 0.001), were more likely to experience at least 3 hospital admissions each year due to pain (62% vs. 32%, p=0.016), and expressed greater mistrust of hospitals (2.74 vs. 1.79, p=0.001). Poorer quality communication and lower trust remained significantly associated with a history of self-discharge after adjustment for patient characteristics.

CONCLUSION: Having a history of sudden self-discharge from hospitals is associated with lower trust and reports of poorer communication quality with medical providers among adults with sickle cell disease. Future research must be done to specify the causal directionality of associations between self-discharge, trust, and provider communication, as well as to examine the health outcomes of self-discharge among this patient population.

TUBERCULOSIS TESTING IN CORRECTIONAL OFFICERS: RESULTS FROM A NATIONAL RANDOM SURVEY OF JAILS IN THE UNITED STATES I.A. Binswanger[1]; K. O'Brien[2]; K.L. Benton[1]; E. Gardner[2]; J. Hirsh[2]; R. Belknap[2]. [1]University of Colorado Denver, Aurora, CO; [2]Denver Health and Hospital Authority, Denver, CO. *(Tracking ID # 204487)*

BACKGROUND: The Centers for Disease Control and Prevention recommends mandatory baseline testing for latent tuberculosis infection (LTBI) of all employees in correctional facilities who do not have a documented prior positive test, and annual testing for those who are negative at baseline. Correctional facilities are high-risk environments for tuberculosis (TB) transmission and have experienced outbreaks of active TB in inmates and employees. Correctional officers have been shown to have an increased risk for TB infection, likely due to close contact with inmates. The objectives of this study were to describe LTBI screening practices for correctional officers in U.S. jails and factors associated with these practices.

METHODS: We identified all 3,163 jail facilities in the U.S. using the National Jail and Adult Detention Directory, 2005–2007. 1,730 jails were randomly selected. Surveys were mailed to jail administrators for each facility with a letter of endorsement from the American Jail Association and a $2 bill as an incentive. Survey responses were double entered by separate individuals. Analyses were conducted using descriptive statistics and logistic regression of characteristics associated with guideline-concordant screening practices (testing officers annually or more often).

RESULTS: 1,174 (68%) of 1,730 surveys were returned, representing jails from 49 states in the U.S. The median number of officers per jail was 24 (interquartile range [IQR] 12–60), and the median inmate length of stay was 28 days (IQR 13–60). Half of jails reported that they did not have written policy on LTBI testing of officers and 6% did not know if they had a policy. 62% of jails reported testing at start of employment; another 6% who did not test at employment reported periodic testing. Overall, 51% of jails conducted LTBI testing once a year or more frequently. 33% of jails reported an inmate and 2% an officer with active TB diagnosed in the past 10 years. 9% of jails reported an officer with a TB skin test conversion (- to +) in the past 2 years. Large and mega facilities (>250 inmates) were more likely to test officers for LTBI annually or more frequently than small-to-medium sized facilities (adjusted odds ratio [OR] 1.59, 95% confidence interval [CI] 1.04, 2.43). Jails in states with a high prevalence of TB were also more likely to test officers for LTBI (OR 1.87, 95% CI 1.15, 3.05). Jails that did not know if they had an officer (OR 0.57, 95% CI 0.37, 0.89) or an inmate (OR 0.59, 95% CI 0.40, 0.87) with active TB in the last 10 years were least likely to test officers for TB.

CONCLUSION: Despite the risk of TB exposure, LTBI testing of correctional officers in U.S. jails varies widely, and half of facilities have no written policies on testing of officers. Greater than one third of facilities do not test correctional officers for LTBI at all, and half of facilities do not have guideline-concordant LTBI screening practices.

Clear strategies to improve LTBI testing among correctional officers in jails are needed.

UNANNOUNCED STANDARDIZED PATIENTS (USP) CAN ASSESS PROFESSIONALISM AND COMMUNICATION SKILLS IN THE EMERGENCY ROOM S. Zabar[1]; T.K. Ark[1]; C. Gillespie[1]; E.K. Kachur[2]; A. Hsieh[1]; A.L. Kalet[1]; J.A. Manko[1]; L.A. Regan[1]. [1]New York University, New York, NY; [2]New York University School of Medicine, New York, NY. *(Tracking ID # 204788)*

BACKGROUND: In assessing residents' professionalism in actual clinical practice Unannounced Standardized Patients (USPs) may have significant advantages over Objective Structured Clinical Exams (OSCE). To identify areas for research we piloted USPs in an Emergency Medicine residency and report on their feasibility, acceptability and added value.
METHODS: We assessed USP feasibility by monitoring the implementation process, acceptability as reflected by detection rates and residents' attitudes through a survey of all PGY levels (n=28, 10/15 PGY2s who had a USP encounter) and added value by comparing USP performance with measures obtained from SP ratings in a 5-station OSCE. Two cases, designed to require communication interventions only, were used: Medical Error (angry patient recalled for a misread X-ray) and Repeat Visitor (chronic pain patient, frequent ER user, unsatisfied with follow up). USPs were extensively trained to complete the same 26-item behaviorally-specific checklist used by SPs in the OSCE. Scores (% items well done) were calculated for communication (information gathering, relationship development, patient education) and case-specific professionalism (managing a difficult situation, delivering bad news, handling emotions, accountability) domains. In preliminary generalizability (G) analyses of the communication items for residents with 2 USP cases (n=5), overall G=.87, inter-case reliability G=.66, and for the overall consistency across items, G=.81.
RESULTS: Of 27 USP encounters attempted with 15 PGY2s, 17 (62%) were successfully completed. Scheduling snafus explained most incomplete encounters. Detection rates were moderate (44%) as were false positives (24%). Residents who reported having encountered an USP were less likely to agree that USPs would hinder their daily practice (17% vs. 50%) or make them uncomfortable (14% vs. 44%). Of the USP encounters that occurred within one month of the OSCE (n=9) overall aggregate communication scores were similar (USP=64%, SD=28%; OSCE,=67%, SD=16%) but negatively correlated (OSCE and USP communication scores=r-.44 p>.05). Although overall professionalism performance was very similar, with little correlation between OSCE and USP scores (r=-.06. P>.05), residents performed better with USPs than in the OSCE for managing a difficult situation (USP=96%, SD=16%; OSCE=69%, SD=26%, p=0.05) and worse for delivering bad news (USP=48%, SD=34%; OSCE=60%, SD=24%, p=0.30). The scores of residents who detected the USP did not differ from those who had not.
CONCLUSION: Although practically challenging to implement, USPs reliably assess aggregate communication and professionalism skills and are acceptable to residents. Individual variation in USP vs. OSCE scores and between cases suggest that future studies of case and context effects are needed before USPs can be used for high stakes assessment. Significant resources are needed to implement a successful USP program.

UNCERTAINTY OF ADVANCE CARE PLANNING TREATMENT PREFERENCES AMONG DIVERSE OLDER ADULTS R. Sudore[1]; D. Schillinger[1]; T.R. Fried[2]. [1]University of California, San Francisco, San Francisco, CA; [2]Yale University, New Haven, CT. *(Tracking ID # 205200)*

BACKGROUND: Hypothetical scenarios are often used in advance care planning (ACP) to assess preferences for future treatment. Older persons may be unprepared to make treatment decisions and uncertain about their preferences. Using a hypothetical scenario, we assessed certainty about treatment preferences among diverse, older adults.
METHODS: 205 English and Spanish-speakers, aged 50 years, were recruited from a county hospital in San Francisco and were given this scenario: "Imagine your doctor said that you have a serious disease and may die within 6 months. You then get very sick. Your doctor thinks that life-support treatments will not help you live longer and will not cure your disease." Participants were asked to choose: all life support (LS) treatments; try LS with an option of stopping; or no LS, and then were asked how certain they were about this decision (very sure, sure, not so sure, not sure at all). Participants were considered to be completely certain if they reported "very sure." We assessed associations between uncertainty and patient characteristics, religiosity, and literacy.
RESULTS: Mean age of participants was 61 years and 31% were Latino, 25% White, 24% African American, 9% Asian/Pacific Islander,10% were Multi-ethnic, 52% female, 31% had < high school education, 40% had limited literacy, 29% were Spanish-speaking, and 69% had fair-to-poor self-rated health status. Ninety two participants (45%) reported not being entirely certain of their preference: 21% wanted all LS, 30% to try LS, and 49% no LS. Uncertainty prevalence did not vary by treatment preference (p=0.35). In multivariable analyses, uncertainty was associated with being Asian/Pacific Islander (OR 4.90; 95% CI, 1.42–16.90) and Latino vs. White (OR 2.45; 95% CI 1.04–5.81); having limited vs. adequate literacy (OR 1.91; 95% CI 0.99–3.70), and fair-to-poor vs. good-to-excellent health (OR 2.03; 95% CI 1.00–4.15).
CONCLUSION: Approximately half of participants were less than completely certain about a scenario-based ACP treatment decision, even though the scenario included a clear outcome of treatment. Uncertainty was more common among minorities, participants with limited literacy, and poor health status. Culturally sensitive, literacy-appropriate tools are needed to help patients prepare for decision making about their future health care.

UNDERSTANDING BARRIERS TO COMPLETING ADVANCE CARE DIRECTIVES IN TWO CULTURALLY DIVERSE PRIMARY CARE SETTINGS M.J. Cohen[1]; J.B. Mccannon[2]; S. Edgman-Levitan[3]; W.A. Kormos[4]. [1]Massachusetts General Hospital, Chelsea, MA; [2]Massachusetts General Hospital, Revere, MA; [3]Massachusetts General Hospital, Boston, MA; [4]Harvard University, Boston, MA. *(Tracking ID # 204591)*

BACKGROUND: Previous studies have shown that advance care directives (ACD) are not utilized in the same way by different ethnic groups in the United States. The reason for this difference remains uncertain - theories to explain these barriers abound, including lack of access to healthcare, mistrust of the health care system, and absence of surrogate decision makers. In an effort to better understand ethnic and racial differences towards end-of-life care, numerous investigations have been conducted with health care proxies and physicians alike, and it appears that lack of education/knowledge regarding this topic may be universal. However, education is by no means one-size fits all, and must be tailored to different ethnic and cultural populations. It is essential to understand cultural preferences and values in end-of-life planning from both the provider and patient perspective.
METHODS: Several standardized, open-ended focus group interviews among Latino patients were conducted at two community health centers in Boston serving diverse patient populations. Questions focused on understanding knowledge and attitudes about advance directives, barriers to completion, and utility and understanding of current patient educational materials. Transcripts were coded in English for all groups and two members of the research team independently reviewed the transcripts in order to identify themes about knowledge and attitudes. A third interviewer read the transcripts to validate the presence of the themes; discrepancies were resolved by consensus of the three researchers. In addition, basic demographic data was collected from patients at the time of focus groups.
RESULTS: A total of 20 subjects participated in the focus groups. Most, 85%, were Latino with an average age of 54.9. Seventy-five percent of patients did not have a healthcare proxy and 85% had not discussed this topic with their primary care doctor. Two broad themes were identified – integration of belief systems (including religion, ideas about suffering/destiny, and importance of quality of life) as well as process/preferences regarding decision-making (including family roles, provider roles, confusion/uncertainty regarding ACD, and openness to learning about ACD). Most patients emphasized avoidance of suffering as well as the role of destiny and lack of control regarding interventions at the end of life. In addition, patients envisioned heath care proxies in terms of overall family consensus rather than individual decision-making.
CONCLUSION: In a targeted group of patients at two community health centers serving diverse patient populations, we found that knowledge deficits and openness to learning about ACD were nearly universal. Efforts to improve completion of advance care directives should consider patients' emphasis on quality of life and destiny in end-of-life planning as well as the role of family consensus in decision making.

UNDERSTANDING BARRIERS TO HIGH QUALITY CARE IN THE INDIAN HEALTH SERVICE T.D. Sequist[1]; T. Cullen[2]; K. Bernard[3]; S. Shaykevich[1]; E.J. Orav[1]; J.Z. Ayanian[3]. [1]Brigham and Women's Hospital, Boston, MA; [2]Indian Health Service, Rockville, MD; [3]Harvard Medical School, Boston, MA. *(Tracking ID # 204150)*

BACKGROUND: Native Americans experience a significantly higher disease burden and shorter life expectancy than the general US population. The Indian Health Service (IHS) provides health care for most Native Americans, yet there is limited information regarding physicians' perceptions of health care delivery and clinical performance within this system.
METHODS: We surveyed all 873 federally employed physicians working within the IHS during October 2007. Physicians used a 5-point Likert scale ranging from "almost always" to "never" to report on the availability of high-quality subspecialists, nonemergent hospital admissions, diagnostic imaging services, and outpatient mental health services; as well as availability of three specific preventive services: 1) screening mammography, 2) diabetic eye exams, and 3) influenza vaccination. We further assessed primary care physicians' comfort with the complexity of conditions being managed without specialty consultation using a similar scale. Clinical performance on the three preventive services was measured using automated extracts from the IHS national electronic medical record system in 2006. These extracts included performance of biennial screening mammography for women 52–64 years old, annual dilated eye exams for adult patients with diabetes, and annual influenza vaccinations for adults 65 years and older. We calculated Spearman correlation coefficients between the clinical performance rates and proportion of primary care physicians reporting each of these 3 services were "almost always" available at the level of the individual clinics (n=59).
RESULTS: The overall survey response rate was 68%, including 426 primary care physicians (257 family practice, 71 general internal medicine, 86 pediatrics, 12 combined internal medicine-pediatrics). Among primary care physicians, the proportion reporting that essential services were "almost always" available was low for subspecialty care (33%), hospital admission (39%), imaging services (37%), and mental health care (15%). More than half of primary care physicians reported being expected to manage conditions without specialty consultation for which the complexity was either much greater than it should be (15%) or somewhat greater than it should be (43%). The proportion of primary care physicians reporting that preventive services were "almost always" available was relatively low for screening mammography (55%) and diabetic eye exams (54%), but higher for influenza vaccination (83%). Clinical performance was low for biennial mammography (40%) and annual dilated eye exams (49%), and somewhat higher for annual influenza vaccinations (59%). While clinical performance rates were slightly higher at sites where preventive services were reported as "almost always" available (46% for mammography, 52% for diabetic eye exams, and 63% for influenza vaccinations), the correlations were small in magnitude and not statistically significant.
CONCLUSION: Primary care physicians report substantial barriers accessing a wide range of essential services within the IHS. The limited correlations with the clinical performance measures analyzed suggest that future research is needed to identify and address other factors affecting the delivery of preventive services within the IHS.

UNDERSTANDING PATHWAYS TO DISPARITIES IN HYPERTENSION CONTROL: RACE AND TREATMENT INTENSIFICATION M. Manze[1]; A.J. Rose[2]; M.B. Orner[3]; D.R. Berlowitz[2]; N.R. Kressin[2]. [1]Boston Medical Center, Boston, MA; [2]Boston University, Bedford, MA; [3]Bedford VA Medical Center, Bedford, MA. *(Tracking ID # 204565)*

BACKGROUND: Racial disparities in hypertension control and related outcomes persist despite efforts to improve control and reduce disparities. Treatment intensification (TI), the increase in medication for patients with elevated blood pressure (BP), has been linked to improved BP control. Disparities in TI may contribute to racial disparities in BP control, but this issue has not yet been examined. In addition, TI is best viewed as something that patients and providers accomplish in collaboration. A more complete understanding of relational determinants of TI might help in designing interventions to increase TI and thus improve BP control. Our objectives were to explore the extent of racial disparities in TI in hypertension care and elucidate how patient and provider characteristics may contribute to racial disparities in TI.
METHODS: We collected data from 819 Black (58%) and White (42%) patients with hypertension, managed in primary care at an urban safety-net hospital. TI was our main dependent variable, calculated using the formula: (visits with medication changes – visits with elevated BP) / number of clinic visits. Independent variables were collected via patient and provider questionnaires and medical record, and included patient and provider sociodemographics, patient clinical characteristics, health beliefs, perceptions of provider, dietary habits, medication adherence, and provider counseling. We performed a series of linear regressions to investigate the effect of race upon TI, first alone, and then after the addition of patient-level covariates.
RESULTS: Black patients had higher rates of uncontrolled BP (p<.01). In unadjusted analyses, Black patients had significantly less TI compared to Whites, equivalent to approximately one fewer therapy increase per 14 clinic visits (-0.31 vs. -0.24, p<0.001). After including patient sociodemographic variables, clinical characteristics, and provider age/gender into our regression model, race remained significantly related to TI (p=0.04). In the final model, after including patient beliefs, perceptions of provider, dietary habits, provider counseling and medication adherence, race was no longer significant (p=0.46). This final model revealed several determinants of TI. Increased patient concern about BP medications was related to lower TI (p=0.05), as was more provider counseling (p=0.04). Patients viewing their hypertension less seriously received more TI (p=0.01). Older patients or those with private insurance had less TI, while patients with hyperlipidemia or public insurance had increased TI.
CONCLUSION: Black patients have significantly lower rates of TI compared to Whites, even after accounting for differences in their clinical and sociodemographic status. These differences may contribute to racial disparities in BP control and hypertension-related outcomes. Racial disparities in TI were explained by patient characteristics, health beliefs, and provider counseling. Patient concerns about BP medications, and more provider counseling, seem to inhibit rather than promote TI, indicating provider reluctance to intensify treatment when patients express concerns, and suggesting that providers may substitute counseling for TI. The racial differences in BP control suggest that this is not an effective strategy. Improved patient-provider communication, targeted towards addressing patient concerns about medications, may have the potential to reduce racial disparities in TI and ultimately, BP control.

UNDERSTANDING THE ROLE OF SOCIAL CAPITAL IN HIV PREVENTION FOR RURAL AFRICAN AMERICANS C. Wiley Cene[1]; A. Akers[2]; S.W. Lloyd[3]; T. Albritton[1]; W. Powell Hammond[1]; G.M. Corbie-Smith[1]. [1]University of North Carolina at Chapel Hill, Chapel Hill, NC; [2]University of Pittsburgh, Pittsburgh, PA; [3]3-C Institute for Social Development, Cary, NC. *(Tracking ID # 205796)*

BACKGROUND: The role of environmental contributors in reducing the risk of HIV and other chronic conditions among minority populations has gained increased attention. One environmental contributor, social capital, is associated with improved health behaviors and outcomes independent of other social indicators. Social capital is defined as a set of emotional and material resources available to individuals within a social group that facilitate collective action and mutual benefit. Few studies have examined the role of social capital in mediating HIV risk, particularly in rural minority communities. We used qualitative methods to explore how rural African Americans (AA) define social capital as it relates to HIV risk and to develop a theoretical framework for understanding how it contributes to individual and group level HIV risk.
METHODS: We conducted 11 focus groups with AA adults over age 22 (n=93) and 37 semi-structured interviews with multiethnic key informants from political, economic/business, and health sectors in 2 rural counties in NC with high HIV rates among AA. Discussions explored perceived factors at the individual, interpersonal, social, environmental, economic and political levels affecting community HIV rates. Interviews were audio-recorded, transcribed and coded using Atlas.ti. Two analysts independently reviewed each transcript using an iterative process of thematic discovery and verification. We looked for thematic consistency both within and across individual focus groups and interviews.
RESULTS: Three domains of social capital emerged: sense of community, collective efficacy, and political efficacy. Participants noted a strong sense of community and shared history due to the small geographic and population size, relative population stability, and intergenerational

connections between residents. However, beliefs that individuals' health and social needs could be met by shared community resources varied by race for key informants and by county of residence for focus group participants. The latter reflected the differential structural and economic resources available in each county. Participants believed AA possess low collective efficacy to reduce HIV risk due to social disadvantages (e.g., educational inequalities, high poverty, and systemic discrimination in local job and housing markets) that resulted in social exclusion. This social marginalization was felt to limit AA access to resources generally available to other members of society, foster collective hopelessness, engender internalized racism, restrict personal choices in partners and foster substance use, providing a direct link to HIV risk. Although participants identified a number of AA involved in local politics, the AA community was not thought to possess significant political efficacy because issues relevant to the community's health, like HIV were not part of the political agenda.
CONCLUSION: Social capital in rural AA communities takes different forms and is reciprocally influenced by broader social, political and economic factors. Structural inequities in resource availability and access that are conditioned on race and linked to place of residence overshadow the strong collective sense of community, largely accounting for greater HIV risk among AA. This framework for linking social capital to HIV risk suggests that interventions seeking to reduce HIV in minority communities consider how collective community social assets and relationships to other social structures interact to influence risk.

UNDERUSE OF BREAST CANCER ADJUVANT TREATMENT: PATIENTS' KNOWLEDGE, BELIEFS AND MEDICAL MISTRUST. N.A. Bickell[1]; J. Weidmann[2]; K. Fei[2]; H. Leventhal[3]. [1]Society of General Internal Medicine, New York, NY; [2]Mount Sinai School of Medicine, New York, NY; [3]Rutgers, The State University of New Jersey, New Brunswick, NJ. *(Tracking ID # 203710)*

BACKGROUND: Little is known about why women with breast cancer who access surgery do not receive proven effective post-surgical adjuvant treatments.
METHODS: We surveyed 258 women recently surgically treated at 6 NYC hospitals for early-stage breast cancer about their care, knowledge and beliefs about breast cancer and its treatment. As per national guidelines, all women should have gotten an adjuvant treatment. Adjuvant treatment data were obtained from in & out-patient charts. Factor analysis was used to create scales scored to 100 of treatment beliefs and knowledge, medical mistrust and physician communication about treatment. Bivariate and multivariate analyses assessed differences between treated and untreated women.
RESULTS: Compared to treated women (N=226), untreated women (N=32) were less likely to know adjuvant therapies increase survival (66 vs 75 on 100-point scale; p<0.0001), had greater mistrust (64 vs 53; p=0.001) and less self efficacy (92 vs 97; p<0.05); there was no association between physician communication about treatment and patient knowledge of treatment benefits (r=0.8; p=.21). Multivariate analysis found that untreated women were more likely to be >70 years (aRR=1.11; 95% CI: 1.00–1.13), have comorbidities (aRR=1.10;1.04–1.12), express mistrust in the medical delivery system (aRR=1.003;1.00–1.007) and believe adjuvant treatments beneficial (aRR=0.99; 0.98–0.99) (model c=0.84; p=<0.0001).
CONCLUSION: Patient knowledge and beliefs about treatment and medical mistrust are mutable factors associated with underuse of effective adjuvant therapies. Physicians may improve cancer care by ensuring that discussions about adjuvant therapy include a clear presentation of the benefits not just the risks of treatment and by addressing patient's trust in and concerns about the medical delivery system.

UNHEALTHY ALCOHOL USE AND QUALITY OF PATIENT-PROVIDER COMMUNICATION IN HIV CLINICS T. Korthuis[1]; S. Saha[2]; R.D. Moore[3]; J.A. Cohn[4]; V. Sharp[5]; D. Mccarty[1]; M.C. Beach[3]. [1]Oregon Health & Science University, Portland, OR; [2]Portland VA Medical Center, Portland, OR; [3]Johns Hopkins University, Baltimore, MD; [4]Wayne State University, Detroit, MI; [5]St. Luke's-Roosevelt Hospital Center, New York, NY. *(Tracking ID # 204569)*

BACKGROUND: Unhealthy alcohol use is prevalent among HIV-infected persons and complicates treatment. Little is known about how this affects communication in the clinic setting. The objective of this study was to assess the quality of communication among HIV-infected patients with unhealthy drinking. We hypothesized patients with unhealthy drinking would have less favorable patient-provider communication.
METHODS: In 2007, we audio-recorded clinical encounters between 414 HIV-infected patients and 44 providers in 4 HIV clinics participating in the Enhancing Communication and HIV Outcomes study. Patients were surveyed about alcohol use and provider communication quality after the visit. Patient-rated communication quality was assessed with a validated multi-item measure (scale 1–5). Patient-provider encounters were coded into mutually exclusive communication categories using the Roter Interaction Analysis System. Analysis assessed associations between unhealthy drinking (current, former, never) measured by the ASI-lite and dependent variables (dialogue duration, patient and provider communication behaviors, and patient-rated communication quality) using linear and Poisson regression with generalized estimating equations to adjust for covariates, site and provider as random effect.
RESULTS: Patients were predominantly male (65%), African American (58%), high school graduates (72%) and 34% had been seeing their HIV provider for more than 5 years. Patients reported current (10%) and former (49%) unhealthy drinking. Dialogue duration was shorter for those with current (22 min, p=.025) and former (23 min, p=.001) vs. no unhealthy drinking (27 min). In multivariate models (Table), providers made fewer rapport building, question asking, information giving, and engagement statements to patients with unhealthy drinking vs. non-drinkers. Similarly, patients with unhealthy drinking made fewer of these statements to their providers. Patient-rated provider communication quality was lower for patients with current (β=-1.53, p=.003) and former (β=1.24, p<.001) vs. those with no unhealthy drinking.
CONCLUSION: Dialogue duration, patient-rated communication quality, and communication behaviors for both HIV-infected patients and their providers were less favorable for patients reporting unhealthy alcohol use compared with non-users. Understanding the sources of this disparity could lead to more effective care related to both HIV and unhealthy alcohol use for this disadvantaged population.

Table: Association between Unhealthy Alcohol Use and Communication Behaviors

	Provider Statements		Patient Statements	
Alcohol Use (vs. Never):	Current β (p value)	Former β (p value)	Current β (p value)	Former β (p value)
Rapport building	-.088 (<.001)	-.039 (.001)	-.176 (<.001)	-.079 (<.001)
Question asking	-.059 (.026)	-.056 (<.001)	-.118 (.085)	-.089 (.025)
Information giving	-.113 (<.001)	-.079 (<.001)	-.127 (<.001)	-.092 (<.001)
Engagement	-.190 (<.001)	-.109 (<.001)	-377 (<.001)	-.045 (.309)

UNINTENDED CONSEQUENCES OF INCREASING OUTPATIENT COST-SHARING ON HOSPITAL USE IN THE ELDERLY A.N. Trivedi[1]; V. Mor[2]. [1]Brown University, Providence, RI; [2]Department of Community Health and Primary care, Providence, RI. *(Tracking ID # 204350)*

BACKGROUND: In response to higher copayments for outpatient physician visits, elderly patients may forego important ambulatory care leading to increased risk of hospitalization.
METHODS: We reviewed insurance benefits for all Medicare health plans from 2001 to 2006 and identified 18 plans that increased ambulatory copayments without altering prescription drug benefits. We matched these plans to 18 controls on the basis of census region, model type, and tax status. Using a difference-in-differences (DID) design, we assessed annual outpatient visits, inpatient days, and inpatient admissions in case and control plans in generalized linear models adjusting for age, sex, race, area-level SES, inpatient cost-sharing, comorbid conditions, clustering by plans, and repeated measures of enrollees. The final sample was 752,030 enrollees.
RESULTS: In case plans, mean copayments approximately doubled from $7.38 to $14.38 for primary care, $12.66 to $22.05 for specialty care, and $148.33 to $329.17 for hospital stays. In control plans, primary care ($8.33) and specialty care ($11.38) copays were unchanged, and inpatient copays increased from $111.11 to $177.08. Inpatient utilization increased significantly in case plans relative to controls (Table). In contrast, annual rates of outpatient visits/100 enrollees were reduced in case plans relative to controls (adjusted DID -16.2; 95%CI -13.0 to -19.5;p<0.001). The DID estimates for inpatient days were increased by factors of 1.6–2.2 for black enrollees, persons with diabetes and prior myocardial infarction, and those in the lowest area-level income and education quartiles (P<0.01 for all interactions).
CONCLUSION: Increased ambulatory copayments reduce use of outpatient care among elderly managed care enrollees, but this decline is offset by substantial increases in inpatient utilization, particularly among vulnerable groups with low SES and chronic disease.

UNMET NEEDS FOR HEALTH CARE AMONG HOMELESS PEOPLE WITHIN A UNIVERSAL HEALTH INSURANCE SYSTEM S.W. Hwang[1]; J.J. Ueng[2]; S. Chiu[2]; A. Kiss[3]; G. Tolomiczenko[4]; L. Cowan[5]; W. Levinson[6]; D.A. Redelmeier[3]. [1]St. Michael's Hospital, Centre for Research on Inner City Health, University of Toronto, Department of Medicine, Toronto, Ontario; [2]St. Michael's Hospital, Centre for Research on Inner City Health, Toronto, Ontario; [3]Sunnybrook Health Sciences Centre / Institute for Clinical Evaluative Sciences, Toronto, Ontario; [4]Crohn's & Colitis Foundation of Canada, Toronto, Ontario; [5]Street Health Community Nursing Foundation, Toronto, Ontario; [6]University of Toronto, Department of Medicine, Toronto, Ontario. *(Tracking ID # 204443)*

BACKGROUND: Homeless people suffer from a heavy burden of illness and often have unmet needs for health care. For many homeless people in the US, lack of health insurance is a major barrier to obtaining needed care. Few studies have examined unmet needs for health care among homeless people living in a country with a system of universal health insurance. The objectives of this study were to determine the prevalence of unmet health care needs and the factors associated with unmet needs among homeless people in Toronto, Canada, which has a system of universal health insurance.
METHODS: A representative sample of homeless single men, single women, and women with dependent children was enrolled at 58 shelters and 18 meal programs in Toronto. At meal programs, only homeless persons who had not used a shelter within the last 7 days were recruited. Sampling was proportionate to the number of unique homeless individuals served monthly at each site. Recruitment was stratified to recruit a sample that was approximately 50% single men, 25% single women, and 25% adults with dependent children. Information on demographic characteristics and health conditions was obtained by self report. Unmet needs for health care in the past year were ascertained using the question: "Have you needed to see a doctor/nurse in the past 12 months but were not able?" Data on unmet needs for health care in the general population of Toronto were obtained from the Canadian Community Health Survey, cycle 3.1, a population-based survey conducted in 2005 by Statistics Canada. Physical and mental health status was assessed using the SF-12 health survey. Age-adjusted standardized morbidity ratios (SMRs) were used to compare the observed rate of unmet needs among homeless individuals to the expected rate based on general population data. Univariate and multivariate regression analyses were performed to identify characteristics associated with increased odds of unmet health care needs. All factors considered to be plausibly associated with risk of unmet needs were included in the multivariate model.
RESULTS: Unmet needs for health care in the past 12 months were reported by 17% of participants (14% among single men, 22% among single women, and 17% among women with dependent children). Unmet needs were significantly more common among homeless individuals than the general population of Toronto for all 3 groups: single men (standardized morbidity ratio [SMR] 136; 95% confidence interval [CI], 109 to168), single women (SMR 146; 95% CI, 114 to184), and women with dependent children (SMR 227; 95% CI, 168 to 301). In multivariate logistic regression analyses, 4 factors were significantly associated with likelihood of unmet health care needs: age (odds ratio [OR] 0.82 per additional decade; 95% CI, 0.68 to 0.98), having been a victim of physical assault in the past 12 months, (OR 1.58; 95% CI, 1.09 to 2.29), SF-12 mental health score (OR 0.79 per 10 point increase; 95% CI 0.67 to 0.92) and SF-12 physical health score (OR 0.67 per 10 point increase; 95% CI, 0.56 to 0.80).
CONCLUSION: Unmet needs for health care persist among homeless people within a system of universal health insurance, although at lower levels than reported in studies of homeless individuals in the US. Younger age, a recent history of physical assault, and poorer health status are associated with increased likelihood of unmet needs.

USE OF A SHARED MEDICAL RECORD AMONG OLDER PATIENTS WITH DIABETES W.G. Weppner[1]; J.D. Ralston[2]; T.D. Koepsell[1]; L.C. Grothaus[2]; L. Jordan[2]; R.J. Reid[2]; E.B. Larson[2]. [1]University of Washington, Seattle, WA; [2]Group Health Center for Health Studies, Seattle, WA. *(Tracking ID # 204372)*

BACKGROUND: Online "Shared Medical Records" (SMRs) are increasingly popular means of providing patient-centered communication, information and services. Although the implementation of SMRs is increasingly popular, little is known about the level of SMR use in older populations with chronic health conditions.
METHODS: To evaluate characteristics associated with use in older persons, we performed a cross-sectional evaluation of Medicare-aged enrollees at Group Health Cooperative (GHC), a mixed model delivery

Table. Change in Inpatient Utilization in Medicare Plans that Did and Did Not Increase Ambulatory Cost-sharing

Measure	Type of plan	Annual Rates Per 100 Enrollees		Change	Between-Group Difference	
		Yr before Change	Yr after Change		Unadjusted	Adjusted (95% CI)
Inpatients admissions	Increased copayments	25.3	27.6	2.3	2.0	2.3 (1.8-2.7)
	Copayments unchanged	25.8	26.1	0.3		
Inpatient days	Increased copayments	133.5	145.9	12.4	12.3	13.7 (10.4-16.9)
	Copayments unchanged	125.6	126.7	1.1		

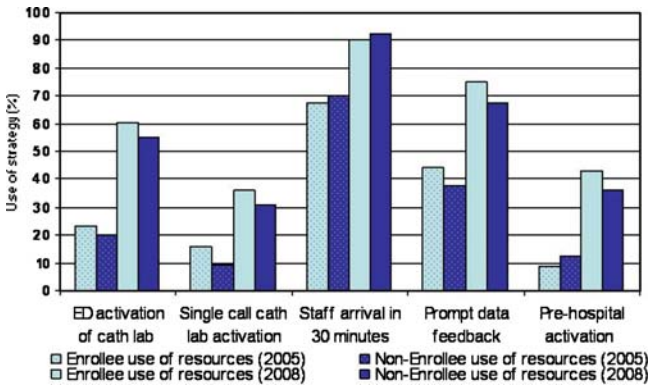
and financing system. The "MyGroupHealth" SMR offered secure messaging with providers, real-time access to portions of the medical record, links to patient-specific information, medication refill delivery and appointment scheduling. To evaluate if age, gender, diabetes-specific morbidity, overall co-morbidity and distance to clinic were related to SMR use status, we analyzed a cohort of 4566 enrollees aged 65+ with diabetes who had been continuously enrolled since the SMR implementation in August 2003. Multivariate logistic regression was used to calculate the odds ratio of SMR use.
RESULTS: Among the sample, 37.1% had registered and used the SMR prior to December 31, 2007. In univariate logistic regression, higher co-morbidity category, estimated distance greater than 30 minutes from clinic, younger age and male sex were each associated with increased odds of use of the SMR. These associations persisted in the multivariate analysis; compared to enrollees aged 65–70 at baseline, persons aged 70–75 had an OR of 0.69 [95% CI 0.59–0.81], and those aged 75 and older had an OR of 0.50 [95% CI 0.43 - 0.58]. Males had an OR of 1.43 for SMR use [95% CI 1.26 – 1.62] compared to females. Those enrollees living 30+ minutes away from their clinic had an OR for SMR use of 1.39 [95% CI 1.09 – 1.78] vs. enrollees living closer. Compared to enrollees with moderate and lower co-morbidity, persons with high co-morbidity had an OR of 1.18 [95% CI 1.01 – 1.39], and those with the highest level had an OR of 1.56 [95% CI 1.32 – 1.85]. Diabetes-specific morbidity, the type of diabetes treatment modality, or the use of secure messaging of the enrollee's associated provider were not found to affect the adjusted odds of SMR use.
CONCLUSION: In this study of Medicare-aged enrollees with diabetes and other diseases, higher levels of overall co-morbidity, longer estimated travel time to clinic, younger age and male sex were associated with increased use of an internet-based shared medical record. This suggests that older persons with higher disease burden and more difficulty in physically accessing the clinic may be more likely to use the health care services offered in a comprehensive SMR.

USE OF CORONARY RISK INFORMATION FOR PREVENTIVE CARDIOLOGY PRESCRIBING DECISIONS: RESULTS OF A PRIMARY CARE PHYSICIAN SURVEY S.D. Persell[1]; C. Zei[1]; K.A. Cameron[1]; M. Zielinski[1]; D.M. Lloyd-Jones[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205137)*

BACKGROUND: Current guidelines for the primary prevention of cardiovascular disease advocate using information of multiple risk factors to guide decision making. Automating risk assessment using information technology could improve guideline concordant care. Recently, methods have been developed to estimate an individual's cardiovascular risk over their remaining lifetime. Physicians who are inclined to not treat a patient whose cholesterol is above a guideline goal might make different decisions for a patient with a high lifetime risk of cardiovascular disease, but providing lifetime risk information could also lead physicians to prescribe treatments inappropriately (such as aspirin to a patient with a low short-term risk of cardiovascular disease).
METHODS: We surveyed all the primary care physicians caring for adults affiliated with an academic medical center. Physicians were presented with 5 specific primary prevention clinical scenarios: first with patients' risk factor information, then with their estimated 10-year coronary disease risk (cardiac death or nonfatal myocardial infarction) based on Framingham Study models, and then with both 10-year and lifetime coronary disease risk estimates. We asked physicians to respond to multiple choice questions about aspirin and lipid-lowering drug prescribing. We used McNemar's test to detect significant changes in guideline concordant choices with different risk information provided.
RESULTS: 100 (50%) of physicians surveyed completed at least some portion of the survey. All who responded were primary care internists and 61% performed more than 20 hours of direct patient care per week. Based on current guidelines, physicians made appropriate aspirin prescribing decisions 53 to 92% of the time when given risk factor information alone. Providing 10-year risk significantly improved appropriate aspirin prescribing when 10-year risk was high and decreased inappropriate aspirin prescribing when 10-year risk was low in 2 of 4 cases. Lifetime risk information increased inappropriate aspirin prescribing when 10-year risk was low and lifetime risk was moderate or high. Physicians selected LDL thresholds for initiating lipid-lowering drugs consistent with the ATP III guideline 42 to 77% of the time with risk factor information alone. Both forms of guideline discordance (selecting too low or too high an LDL threshold) were common. Neither provision of 10-year nor lifetime risk information had much impact on physicians' LDL thresholds for initiating lipid-lowering drugs. Providing the lifetime risk estimate led to a significant increase in willingness to initiate lipid-lowering drug therapy for an LDL level lower than NCEP guidelines when 10-year risk was low but lifetime risk was high.
CONCLUSION: Making 10-year coronary risk information available to physicians improved hypothetical prescribing decisions for aspirin, but lifetime risk information led physicians to over treat with aspirin for primary prevention. Guideline discordant choices for lipid-lowering drug prescribing were common and influenced very little by provision of risk information. These findings suggest that to maximize the benefits of risk calculating tools, they should be coupled with clinical decision support that provides specific guideline recommendations along with risk assessment.

USE OF EVIDENCE-BASED STRATEGIES TO REDUCE DOOR-TO-BALLOON TIME IN THE SETTING OF THE D2B ALLIANCE L. Hansen[1]; J. Ibrahim[1]; I. Nembhard[1]; S.H. Busch[1]; H.M. Krumholz[1]; E.H. Bradley[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 205649)*

BACKGROUND: While substantial effort has been made to understand the effect of membership in national quality campaigns, little attention has been directed toward hospitals that elect not to join these efforts.
METHODS: We conducted a prospective cohort study using a sample of 365 hospitals first surveyed in 2005 before the existence of a national quality improvement campaign, the D2B Alliance, and subsequently surveyed in 2008 using the same questionnaire. Hospitals reported use of strategies recommended by the D2B Alliance and use of resources available through the D2B Alliance. Logistic regression was used to compare rates of strategy use and Alliance resource use in 2008.
RESULTS: Use of recommended strategies to reduce door-to-balloon time significantly increased between 2005 and 2008 in bivariate analysis (single call cath lab activation increased from 14% to 35% [p<.001], emergency department cath lab activation increased from 23% to 59% [p<.001], a thirty minute arrival for cath lab staff increased from 68% to 91% [p<.0001], prompt data feedback increased from 42% to 73% [p<.001], and pre-hospital ECG transmission use increased from 9% to 41% [p<.001]). In logistic regression analysis, odds of adopting recommended strategies were not significantly different when enrolled hospitals were compared to non-enrolled hospitals (single call activation OR .80 [95%CI .61 to 1.94], emergency department activation OR 1.08 [95%CI .42 to 1.53], thirty minute arrival expectation OR .75 [95%CI .23 to 2.43], prompt data feedback OR 1.38 [95%CI .74 to 2.59], pre-hospital ECG use OR 1.35 [95%CI .73 to 2.47]). 85% of enrolled hospitals reported use of any D2B Alliance resource compared to 52% of non-enrolled hospitals. In logistic regression analysis use of Alliance resources was significantly higher among enrolled hospitals for most available resources (Alliance website use OR 3.79 [95%CI 1.87 to 7.71], Alliance newsletter use OR 7.62 [95%CI 3.40 to 17.18], Alliance webinar use OR 3.09 [95%CI 1.50 to 6.38], use of the Alliance online community OR 7.36 [95%CI 3.10 to 17.67], use of the Alliance toolkit for strategy implementation OR 2.82 [95%CI 1.36 to 5.84], attendance at Alliance sessions at the American College of Cardiology annual meeting OR 1.67 [95%CI .75 to 3.74], use of the Alliance mentor network OR 5.74 [95%CI .70 to 47.35]).



Use of Strategies, Enrolled vs. Non-Enrolled Hospitals

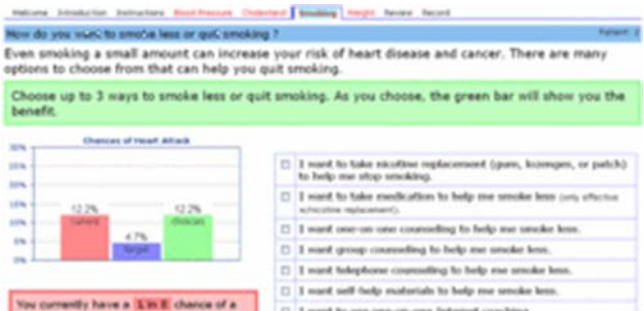
CONCLUSION: Significant increases in the use of performance improvement strategies recommended by the D2B Alliance have been observed in both enrolled and non-enrolled hospitals. A possible reason for similar increases include "herd" effects based on competitive pressure of a high profile quality campaign with spill over use of materials by non-enrolled hospitals.

USE OF PATIENT EXPERIENCE SURVEY DATA BY MASSACHUSETTS PHYSICIAN GROUPS M.W. Friedberg[1]; G. Steelfisher[2]; M. Karp[3]; E.C. Schneider[1]. [1]Brigham and Women's Hospital, Boston, MA; [2]Harvard School of Public Health, Boston, MA; [3]Massachusetts Health Quality Partners, Watertown, MA. *(Tracking ID # 204929)*

BACKGROUND: Patient experience survey (PES) results are increasingly recognized as an important dimension of health care quality. Publicly reporting PES results may help patients choose providers and encourage providers to improve the care experiences of their patients. Massachusetts Health Quality Partners, a multistakeholder collaborative, recently began fielding a statewide PES and publicly reporting results for primary care practices. However, little is known about how physician groups are using reports on their own performance. We evaluated (1) how physician groups have responded to PES results and (2) whether groups' structural characteristics (e.g., size and organizational model) have been associated with efforts to improve patient experience.
METHODS: Between June and November of 2008 we surveyed the leaders of all 122 Massachusetts physician groups with ≥3 physicians providing primary care to adults. Summarized statewide PES results were publicly reported for all groups, and each had been provided a detailed supplemental report of its own performance. In a 30-minute semi-structured interview, each respondent was asked about awareness of PES results, actions taken for low performers within the group, and group-wide initiatives to improve patient experience. We classified groups into 3 stages of PES adoption: stage 1 (no awareness of PES results, or if aware, no efforts to change performance); stage 2 (taking action with low performers but not pursuing group-wide improvement initiatives); or stage 3 (ongoing group-wide improvement initiatives). We also obtained data on group size (number of physicians), group organizational model ("medical group" vs. IPA), affiliation with multi-group networks, employment of physicians, and exposure to PES-based financial incentives. Bivariate relationships between stage of PES use and other group characteristics were evaluating using Wilcoxon rank-sum and Mantel-Haenzsel tests for trend.
RESULTS: Seventy-two group leaders (62%) responded. Median group size was 18 physicians (range, 3–87), 62% had a "medical group" organizational model, 66% were network-affiliated, and 32% reported financial incentives based on PES results. Most groups were in stage 3 of PES adoption (67%), with 12% in stage 2 and 21% in stage 1. Compared to groups in stage 1 and 2, groups in stage 3 were larger (median physician count 24, compared to 15 in stage 2 and 14 in stage 1; P<0.001 for trend) and more likely to be organized as a "medical group" (78% vs. 44% and 20%; P<0.001), employ physicians (68% vs. 38% and 14%; P<0.001), affiliate with a network (73% vs. 56% and 47%, P=0.04), and have PES-based financial incentives (47% vs. 22% and 0%; P=0.002). While 63% of groups in stage 1 and 2 used the statewide report as their main source of PES results, only 35% of stage 3 groups did so (P=0.04). Leaders of the remaining 65% of stage 3 groups reported using supplemental commercial survey products as their major sources of PES results, identifying frequent performance updates and targeted guidance on improvement as advantages of these products.
CONCLUSION: Massachusetts physician groups varied widely in their use of patient experience results. Larger group size, integrated organizational structures, and financial incentives may facilitate the development of PES-based improvement efforts. Leaders of groups already engaged in these efforts sought PES reports providing enhanced support of improvement activities.

USING A PATIENT'S ABSOLUTE AND RELATIVE RISK FOR CARDIOVASCULAR DISEASE TO MANAGE THERAPY N.R. Shah[1]; J.B. Jones[2]; W.F. Stewart[2]. [1]New York University, New York, NY; [2]Geisinger Center for Health Research, Danville, PA. *(Tracking ID # 204067)*

BACKGROUND: As the patient role evolves from that of a traditional, passive participant in the care process to an engaged, active "consumer" of health care goods and services, new venues and/or tools for provider-patient communication will be required. The Electronic Health Record (EHR) can be used to facilitate such communication. We consider one model for how measures of individual risk derived from EHR data can be used in different ways to improve and maintain health. Our objective was to explore how use of absolute risk (AR) or relative risk (RR) of cardiovascular disease can be used to select patients for intervention, communicate risks for informed choice and shared decision making, and then guide clinical decision support for targeted intervention and continuous care.
METHODS: We embedded the Framingham risk score in our EHR to calculate a patient's individual risk for cardiovascular disease. Absolute risk for 10-year mortality from cardiovascular disease (CVD) was calculated based on actual patient data, with decision support automatically ordering any missing values such as labs. A patient's relative risk (compared to an hypothetical, optimally managed age-and sex-matched control) was used to select patients for intervention. Patients then selected therapeutic preferences from among multiple evidence-based and rank-ordered options for their modifiable risk factors, via an interactive touchscreen kiosk in the waiting room. These selections were summarized and used to guide clinical decision support. The specific treatment options presented to each patient were selected as a function of the maximal relative risk reduction that could be achieved by compliance with those treatments.
RESULTS: Risk scores were used for four purposes in this study: - Patient Stratification - selecting only those patients for intervention who are 1) at high risk, and 2) have available options to reduce that risk; - Informed Choice - allowing patients to model risk scenarios by selecting different combinations of interventions (see Figure); - Optimizing Decision Making - presenting a final list of patient-selected interventions that summarize relative risk reduction across all modifiable risk factors for a patient; and - Outcomes Tracking - following risk over time to guide care
CONCLUSION: Behavior change is most likely to occur when patients understand the severity of their modifiable risks in the context of available treatment options.



Interactive Preference Capture

USING A VIRTUAL WORLD AS AN INSTRUCTIONAL METHOD TO TEACH MEDICAL TRAINEES HOW TO DELIVER BAD NEWS: A PILOT STUDY A. Andrade[1]; K. Zaw[2]; A.S. Bagri[2]; B.A. Roos[2]; J.G. Ruiz[2]. [1]Jackson Memorial/University of Miami, Miami, FL; [2]University of Miami Miller School of Medicine, Miami VA GRECC and Stein Gerontological Institute, Miami, FL. *(Tracking ID # 205576)*

BACKGROUND: Delivering bad news (DBN) is an integral skill for internists. However, obtaining this skill is challenged by the shortage of training experiences involving interactions with real or standardized patients. Virtual worlds — computer-generated simulated environments in which users interact via graphical representations, or avatars, of real persons — offer promise for the development of simulated patient encounters in a controlled environment for deliberate practice of DBN. The aim of our study was to ascertain the feasibility and effectiveness of such training, the quality of "presence" (sense of being there) of

participants during a virtual encounter, and the nature of the association (if any) between presence and performance in this DBN training.
METHODS: In a single-group pilot study we tested the feasibility of the Second Life virtual world platform as instruction for DBN. We recruited 8 participants from the UMMSM (3 geriatric medicine fellows and 5 internal medicine PGY1s). Participants first completed demographic data, the affective competency score (ACS; a tool that assesses communication skills), and a tutorial on the SPIKES protocol for DBN. Participants then logged into Second Life, where they interacted with a female standardized virtual patient avatar. The DBN task was set in a simulated office, where the participant, acting as an internist, was to inform the avatar of her newly diagnosed breast cancer. At the end of the encounter, participants again completed the ACS and Witmer's Presence Questionnaire. The virtual encounters were recorded, and each trainee's DBN performance was evaluated by 2 palliative care specialists using a Modified Breaking Bad News Assessment Schedule (BAS) and the ACS. We calculated the Pearson correlation coefficients between educational outcomes and presence.
RESULTS: The average age of the participants was 29. There was demonstrated improvement in ACS score after the encounter: before, 20.25±4.03, versus after, 24.375±2.83 (p=0.001). The modified BAS was 46.63±7.12. The presence scale showed a moderate correlation with trainees' self-assessment by ACS after the virtual encounter (r= 0.35) and small correlation with the modified BAS (r=0.11). There was a small correlation between the expert observers and the trainees' ACS (r=011). No significant association was noted between the trainees' ACS and the experts' modified BAS. All participants considered the experience to be positive and commended on the novel approach; however, they noted the inability to observe body language or emotions. Participants viewed the virtual world method as an excellent resource for learning DBN, but believed it could not supplant real patient interactions.
CONCLUSION: Self-perceived competence of the participants did not demonstrate an association with experts' evaluation on the bad news assessment scale. However, the sense of presence correlated with trainees' self-perceived competence and weakly with experts' observations. This association helped this feasibility study conclude that the virtual world Second Life platform may be a viable educational tool to facilitate skill in breaking bad news. With minimal computing resources, this instructional method could allow for deliberate practice of simulated patient encounters in a cost-effective manner and create a platform for preliminary coaching and evaluation of DBN competence and performance in advance of labor-intensive and costly simulated and real patient interactions.

USING COGNITIVE MAPPING TO IDENTIFY FACULTY PERSPECTIVES FOR SUCCESSFUL WARD ATTENDING ROUNDS A. Salanitro[1]; A. Castiglioni[2]; L.L. Willett[3]; R.M. Shewchuk[3]; H. Qu[3]; G.R. Heudebert[3]; R.M. Centor[3]. [1]Birmingham VA Medical Center, Birmingham, AL; [2]University of Alabama at Birmingham, Birmingham VA Medical Center, Birmingham, AL; [3]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 204425)*

BACKGROUND: In prior work, housestaff identified factors which contributed to successful ward attending rounds. Less is known about faculty perception of successful rounds; therefore, we sought to understand the conceptual framework of faculty by: 1) identifying factors faculty felt were similar and most important for successful rounds, and 2) create a cognitive map representing faculty perspective on dimensions that contribute to successful rounds.
METHODS: From multi-institutional nominal group technique sessions, housestaff previously identified 30 factors contributing to successful rounds. For the card sorting activity, factors transcribed onto index cards were mailed to academic faculty who had attended the 2008 Southern Regional Society of General Internal Medicine meeting. Faculty grouped factors by similarity of ideas then ranked each factor's importance in contributing to successful rounds (Likert scale, 1=least important, 5=most important). We used multdimensional scaling (MDS) and hierarchical cluster analysis to create a cognitive map.
RESULTS: Of those recruited, 36 (46%) faculty participated: 8% were instructors, 47% assistant professors, 25% associate professors, 14% full professors, of equal gender mix. Nearly all respondents (94%) endorsed the work-teaching style of rounds at their institution. We observed 6 clusters of related factors: 1) learning climate (mean 4.30, SD 0.45), 2) clinical rationale (4.15, 0.38), 3) respect (3.84, 0.71), 4) managerial skills (3.73, 0.47), 5) teaching style/content (3.71, 0.49), and 6) expectations (3.13, 0.63). We plotted the clusters on a cognitive map, with the x-axis describing attending attributes (interpersonal and professional skills) and the y-axis describing externalities affecting rounds (time, management, and organization).
CONCLUSION: Faculty recognized similar factors that contribute to successful rounds, and endorsed learning climate and clinical rationale as the dominant areas for achieving success. The cognitive map identified attending attributes and external factors related to management as the two dimensions defining the clusters. Future studies will investigate how housestaff conceptualize and map their factors of successful ward attending rounds.

USING COMMUNITY-BASED PARTICIPATORY RESEARCH METHODS TO STUDY THE HEALTH NEEDS OF A FORMERLY HOMELESS POPULATION A. Yesus[1]; A.L. Diamant[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205935)*

BACKGROUND: Previous work has demonstrated that homeless individuals have higher rates of morbidity, mortality, and acute care utilization, and lower perceived health status than the general population. Findings from studies that evaluated health service utilization of previously homeless individuals after receiving housing have varied with regard to acute care utilization. However, there is a paucity of information about the health status of previously homeless individuals after they receive housing, and even less incorporating the voice of community organizations which serve them.
METHODS: Our partner organization provides permanent supportive housing and support services, including but not limited to on-site case management and referral-based assistance for mental health and substance abuse, to chronically homeless people with a diagnosed mental illness in LA county. Using community based participatory research principles to guide our collaboration, we performed a needs assessment of residents living in these housing properties to learn about their health status and healthcare needs, and to inform the development of an intervention to improve their health. This study is a cross-sectional needs assessment, evaluating the health behaviors, health status, and health service utilization of 134 residents in permanent supportive housing. Information was gathered through a one-time structured questionnaire, administered by case managers to a randomly selected proportional sample of residents at 11 housing properties. The study's primary outcome for this analysis is perceived physical health status, measured with the SF-12 and reported as a physical component score (PCS). Descriptive and bivariate analyses were performed to describe the population, and multivariate linear regression analysis was performed to identify variables that are independently associated with good physical health status.
RESULTS: The response rate was 92%. The mean age of the study population is 49 (±11.3); 50% women; 62% African American. 85% of the population earn less than $1,000/month, and 79% are at least high school educated. Mean length of tenancy in the housing property is 53 months (±36). 23% of participants have diabetes; 52% hypertension; 42% hyerlipidemia – these rates are higher than a low-income population of LA county. 50% of participants are obese, with an additional 34% overweight (average BMI=31.1±7.2). 90% report having a medical home, compared to 71% from the low-income LA count adults. Tenants report an average of 8.8 clinic visits in the past year for their physical, not mental, health, and 14% report unmet need for medical care, similar to the low-income adults. Mean PCS and MCS scores are 42.6 (±13.5) and 42.2 (± 14.2) respectively, well below the general population. Multivariate regression revealed that, adjusting for all other variables, decreases in PCS were associated with having back problems (9.8, p<.001), reporting food insecurity (4.6, p<.05), each additional year of age (-0.33, p<.001), increase in BMI (.26, p=.072), and each additional chronic condition (1, p=0.072).
CONCLUSION: Despite high rates of having a medical home and regular clinic visits, this population reports poor physical health status, with significant rates of food insecurity, back problems, and obesity contributing to this finding. This information provides a target for additional support services geared towards improving nutrition, eliminating food insecurity, and increasing exercise.

USING ELECTRONIC HEALTH RECORD DATA TO PREDICT HEART FAILURE DIAGNOSIS N.R. Shah[1]; J. Roy[2]; W.F. Stewart[2]. [1]New York University, New York, NY; [2]Geisinger Center for Health Research, Danville, PA. *(Tracking ID # 204066)*

BACKGROUND: Heart Failure (HF) is one of the most common and serious progressive illnesses among elderly patients. It is usually detected at a relatively advanced stage, after irreversible damage has occurred to the heart. Early detection offers the potential to substantially reduce patient disability and health care costs. Out objective was to develop a novel detection strategy, making use of longitudinal electronic health record (EHR) data to create a heart failure early detection prediction model.
METHODS: All data for this study were obtained from Geisinger Clinic's EHR among patients who had a primary care provider. A prediction model was developed using a nested case-control study design, where HF cases diagnosed between 2003 and 2006 were identified and controls were randomly selected matched on sex, age, and clinic. We used conditional logistic regression to model the relation between EHR data and detection of HF 6+ months and 18+ months before the actual date of diagnosis. Variables for the conditional logistic regression model included diagnoses, the most recent lab and clinical (e.g., SBP, DBP, pulse pressure) measures, medication orders and ambulatory care use in the previous two years, and smoking status. Data were only used if they occurred in the record either 6 + months or 18+ months before the diagnosis date, depending on the specific model. Model results were validated by combining a bootstrap re-sampling approach with a backwards elimination selection method.
RESULTS: We identified at least one matching control for 2,239 of the 2,764 cases; 9 or 10 controls were identified for 81% of the cases. A total of 24,249 controls were selected. The model for detecting HF 6 or more months before usual diagnosis had an AUC of 0.80; the parallel model for detecting HF 18 or more months before usual diagnosis had an AUC of 0.75 (95% CI: 0.73, 0.79). The AUC findings were similar for separate models completed on systolic HF and diastolic HF.
CONCLUSION: In practice, clinicians do not have the time or ability to process seemingly disparate data points over a series of visits that might suggest "preclinical" HF for a given patient. Our analysis of EHR data indicate that HF can be detected 6 or more months before usual diagnosis with good AUC and high specificity. These findings suggest that routine evaluation of EHR data may be useful in screening for patients at high risk of HF, creating numerous opportunities for early and aggressive intervention and potentially altering the natural history of heart failure for many patients.

USING IMPLICIT ASSOCIATION TESTS TO FACILITATE MEDICAL STUDENT REFLECTION ABOUT PERSONAL BIAS P. Haidet[1]; C. Teal[1]; B. Thompson[2]; R. Shada[2]; G.B. Villarreal[2]; E. Frugé[2]; C. Patton[2]; A. Gill[2]. [1]DeBakey VAMC/Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine, Houston, TX. *(Tracking ID # 205097)*

BACKGROUND: Cultivating cultural competence among medical students has been suggested as a strategy to reduce healthcare disparities. However, this can be a challenging task, particularly when students have biases towards patients about which they are unaware. One approach to the illumination of biases that has received increasing attention is the Implicit Association Test, or IAT (https://implicit.harvard.edu/implicit). We performed this study to examine the effectiveness of the IAT for generating reflection and discussion among medical students about their own particular biases.
METHODS: We designed a small group discussion session and recruited third-year student volunteers to participate. Prior to the session, we required all students to complete an IAT about disability attitudes, and one additional IAT from a menu that included the topics of sexuality, race, gender, and weight/obesity. Group sessions were one hour in length, limited to eight students per group, and led by experienced faculty facilitators who had participated in a training session prior to the student session. Facilitators used a discussion guide that structured the session into four phases (opening/safety, reactions to receiving IAT results, bias in clinical care, and closing/affirmations). Both students and facilitators completed evaluation surveys before and after the session. We conducted analyses of pre-post differences using t-tests or their non-parametric counterparts.
RESULTS: 72 (out of a class of 160) students participated in one of 10 groups. Mean student age was 26.1, and 61% were male. 51% were Caucasian, 35% Asian, 10% Latino, and 4% African American. 71% had majored in science disciplines during college. Of the ten faculty facilitators, 7 were physicians, two were psychologists, and one was a public health professional. Half of the facilitators were male. Six facilitators were Caucasian, two were Asian, and one each were Latino and African American. Overall, students reported high levels of awareness about their personal biases. However, students with lower awareness prior to the session (n=14) reported significantly higher awareness after the session ($p < .001$). Across all students, beliefs that personal bias could impact patient relationships were higher after the session ($p<.001$), as were perceptions of the IAT as an effective tool for: a) increasing reflection about bias ($p=.01$), b) increasing awareness of bias ($p=.008$), and c) generating discussion about bias ($p<.001$). The session did not generate increases in student beliefs that the IAT could illuminate personal bias. Facilitators significantly lowered their belief that the IAT was an effective tool for illuminating personal bias ($p=.039$), and half suggested that students discounted their personal results due to concerns about the IAT's validity.
CONCLUSION: Despite concerns about the IAT's validity as a measure of personal bias, the IAT can be an effective trigger for generating reflection and discussion about the impact of providers' personal biases on healthcare. Future sessions using the IAT would benefit from additional facilitator training in managing validity concerns.

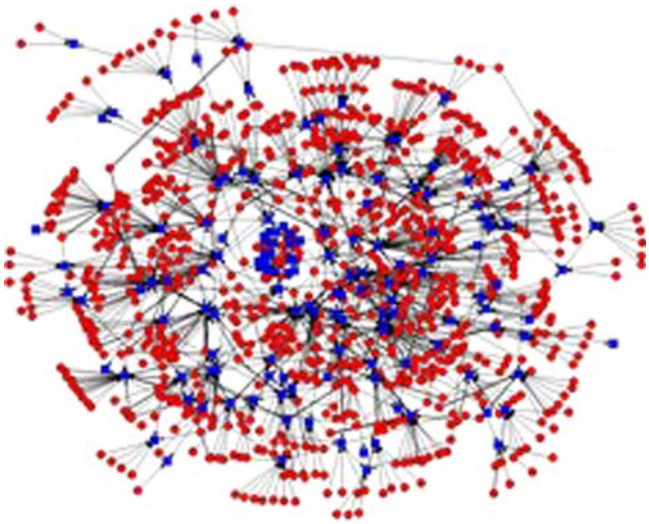
USING MOTIVATIONAL ENHANCEMENT TO REDUCE BARRIERS FOR HEPATITIS-C VIRUS TREATMENT AMONG INDIVIDUALS IN ISRAELI METHADONE CLINICS D.S. Morse[1]; M. Schiff[2]; S. Levit[3]; R. Cohen-Moreno[3]; Y. Neumark[4]. [1]Society of General Internal Medicine, Rochester, NY; [2]Paul Baerwald School of Social Work Hebrew University, Jerusalem, ; [3]Methadone Treatment Clinic of Jerusalem, Jerusalem, ; [4]Hebrew University-Hadassah, Jerusalem, . *(Tracking ID # 205357)*

BACKGROUND: Hepatitis C virus (HCV) is the most common chronic bloodborne infection in many countries, including Israel, particularly among injection drug-users. Although HCV-treatment (HCVT) is offered virtually free in the country and is 60–90% effective, only 2–6% of HCV-infected methadone patients are treated, making patient adherence a key issue. Unique treatment-uptake barriers exist, including knowledge gaps, navigating the medical system, fears of medical procedures, and treatment side-effects, including depression. Motivational Enhancement (ME) and Self-Determination (SD) methods have demonstrated efficacy in changing health behavior in numerous domains, but have not been studied regarding patient utilization of HCVT. Our goals were to assess: 1. feasibility of training staff; 2. reliability and validity of motivational measures; 3. applicability of ME for patients considering HCVT; and 4. transferability of ME into Israeli culture.
METHODS: For goal 1, ME training workshops were developed, addressing known HCVT issues for this population, with subsequent supervision and analysis of translated taped intervention sessions. Staff training was evaluated using anonymous feedback questionnaires. For goal 2, measures of motivation (IMI, TSRQ), self efficacy (PCS) were tested for construct validity among 33 patients from the same clinic who were HCV positive. For goal 3, a pilot five session intervention was performed on four selected HCV patients by four counselor trainees, using ME to address patient fears and ambivalence about HCVT and its physical and psychological side-effects. For goal 4, at trainings, an interpreter facilitated mutual understanding between counselors and the trainer. Training materials and measures were translated or subtitled into Hebrew. The pilot patients received the intervention in their native language.
RESULTS: For goal 1, two training workshops attended by a total of 30 counselors received positive feedback, with areas of comfort and need for further training in ME identified. All four counselor trainees performing the pilot intervention ultimately demonstrated mastery of ME tactics, including simple and complex reflection, exploring ambivalence, reframing, empathy, and affirming, after six supervision sessions. For goal 2, most PCS, TSRQ, and IMI motivation scales demonstrated adequate inter-item reliability with Cronbach alpha between 0.76–0.82. Construct validity using Pearson r-correlation was adequate, eg 0.38 ($p<.05$) comparing the adapted TSRQ and the validated IMI in competence subscales. For goal 3, all four clients completed the pilot intervention, and review of taped sessions revealed change talk regarding HCVT. All patients reported depressive symptoms, minimal healthy behaviors, low self efficacy, and barriers to HCVT, which were addressed in the ME intervention. For goal 4, wording in materials inconsistent with Israeli culture were identified and addressed.
CONCLUSION: ME training addressing HCVT was feasible. Supervision using translated audio or videotaped sessions was feasible and useful. In

this sample of 33 patients, there was reliability and construct validity for several translated subscales that had been adapted for HCVT. The five session intervention had 100% adherence in this pilot of four patients, and change talk was noted. Culturally appropriate subtitled videotape examples supported the training. Future studies could apply and evaluate ME on a larger scale with Israeli methadone patients considering HCVT.

USING NETWORK ANALYSES TO EXAMINING REFERRAL PATTERNS FOR CANCER CARE C. Pollack[1]; G. Weissman[2]; Y. Wong[3]; K. Liao[1]; C. Montague[1]; K. Armstrong[1]. [1]University of Pennsylvania, Philadelphia, PA; [2]Jefferson Medical College, Philadelphia, PA; [3]Fox Chase Cancer Center, Philadelphia, PA. *(Tracking ID # 205612)*

BACKGROUND: Despite attempts to promote the use of high quality specialty care, there is little understanding of the current pattern of referrals. This study characterizes referral networks between primary care physicians and urologists for the diagnosis of prostate cancer using network analytic techniques. It examines whether urologists' positions in this network are related to whether and what type of treatment men receive for localized disease. Network analysis is a modeling technique that explores the structure of relationships between actors.
METHODS: Incident cases of prostate cancer were selected from SEER-Medicare data from Detroit (1999) and Atlanta (1998–1999). Algorithms were developed to identify primary care physicians and diagnosing urologists by matching SEER data to the 1999 AMA Masterfile. A network of PCPs linked to the urologists was created with patients serving as the ties between the physicians. Different subgroups of urologists, indicating factions that are highly clustered by PCP referrals, were empirically derived. Network structure data were then used in logistic regression analyses at the patient-level to test whether the subgroup of urologists that a patient sees is associated with his odds of undergoing prostatectomy.
RESULTS: In Detroit, 1708 patients with prostate cancer were seen by 918 PCPs and 144 urologists. Urologists are connected to an average of 9 PCPs (range 1 to 35). Figure 1 shows the network of PCPs and urologists. In Atlanta, 666 patients were seen by 314 PCPs and 96 urologists. Urologists are connected to an average of 6 PCPs (range 1 to 21). In both cities, subgroups of urologists were identified. Patients seen by certain subgroups of urologists are significantly more likely to undergo prostatectomy for localized disease, even after adjusting for age, race, SES, and comorbidity (i.e., AOR 2.24, CI 1.19–4.21, for a subgroup in Atlanta).
CONCLUSION: Referral patterns can be visualized using network analytic techniques, and urologists' position in the referral network is associated with the care that patients receive. Reforms that encourage the use of high quality specialists should be built upon a deeper understanding of existing referral patterns.



Network of urologists (blue) and primary care providers (red) as connected by patient referrals in Detroit, 1999.

USING PATENT DATA TO ASSESS THE VALUE OF PHARMACEUTICAL INNOVATION A.S. Kesselheim[1]; J. Avorn[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205681)*

BACKGROUND: Despite rising drug industry revenues, fewer new pharmaceutical products have been approved in recent years, intensifying the debate over the relative roles of pharmaceutical manufacturers and non-profit research settings in generating innovation in drug development. We sought to assess the value of pharmaceutical industry and non-profit drug-related research by analyzing characteristics of the patents generated from these sectors.
METHODS: We analyzed a publicly-available database of drug-related patents granted in the U.S. from 1969–1994, including information on the inventor, institutional assignee, and number of citations each patent made and received. Many prescription drugs in use today received their patents during this time frame. We classified each institution into one of two sectors —non-profit (including national or state government and academia), and all other organizations (industry). We tabulated and compared certain quantifiable characteristics of patents filed by pharmaceutical industry and non-profit drug research organizations, including the number of times each patent subsequently received citations by other patents, one well-established measure of importance to the field. We measured the average number of citations made per patent and the average number of citations received per patent. Finally, we calculated the fraction of patents receiving no citations, and the average regulatory review time per patent. We used a nonparametric equality of medians test to compare citations received, and t-tests to compare regulatory review times and citations made. To account for different patterns of behavior by particular assignee organizations, we conducted a secondary analysis using a generalized estimating equation with samples clustered at the level of the assignee, with the number of citations received as the dependent variable.
RESULTS: A total of 44,287 patents met the study criteria, of which nearly a third (32%) were granted in the last five years of the study period and 91% were assigned to industry. There was no difference between the two groups in the mean number of citations per patent (4.1 for non-profit institutions vs. 4.2 for industry; p=0.51). However, patents originating in the non-profit sector received significantly more subsequent citations than industry-generated patents (7.0 vs. 5.4, p<0.001). Among patents from industry, 22% received no subsequent citations, while 15% of patents from the non-profit sector were not subsequently cited. The average regulatory review time was 2.3 years for patents assigned to the non-profit sector, compared to 2.0 years for patents from industry sources (p<0.001).
CONCLUSION: Though many more patents emerge from industry sources, drug-related patents generated in the non-profit setting appear to have greater importance than patents arising from the commercial sector, which helps demonstrate the value non-profit research institutions can have in driving drug development.

USING PATIENT COMPLEXITY TO INFORM PHYSICIAN PROFILES IN THE PAY-FOR-PERFORMANCE ERA A. Salanitro[1]; C.A. Estrada[1]; M.M. Safford[2]; W. Curry[2]; T.K. Houston[2]; J. Williams[2]; F. Ovalle[2]; J.J. Allison[2]. [1]Birmingham VA Medical Center, Birmingham, AL; [2]University of Alabama at Birmingham, Birmingham, AL. *(Tracking ID # 203438)*

BACKGROUND: Patient complexity may influence diabetes control, which is used to assess quality of care and financial incentives eligibility. In rural areas, where access barriers are considerable, the impact of patient complexity on assessed diabetes quality of care is unknown. We sought to assess changes in ranks of practice-level glycemic control, after adjusting for factors reflecting patient complexity.
METHODS: We used baseline data from an implementation trial testing an intervention designed to improve diabetes quality of care, conducted in the Southeastern US. Physicians were ranked based on observed proportions of their diabetes patients with A1c<7%, and then again after adjusting for patient factors using linear regression (age>65, race, insulin use, obesity, diabetes complications [retinopathy, neuropathy, or nephropathy], Medicaid insurance, self-testing, appointment adherence). We determined the agreement between the observed and adjusted ranks in the Center for Medicare and Medicaid Services financial eligibility categories (top 2 deciles, 1% and 2% bonus; bottom 2 deciles, 1% and 2% penalty) using the Kappa statistic. Kappa=0–0.19 is considered poor agreement, 0.20–0.39 fair, 0.40–0.59 moderate, 0.60–0.79 substantial, and 0.80–1 almost perfect.
RESULTS: Data were available for 114 physicians and 1,414 of their patients. Strongly associated with A1c<7% were age, insulin use, self-

testing and appointment adherence. After adjustment, physician ranks changed by a mean of 29 ranks (SD 23.3, range 0–100); 34 physicians (29.1%; 95% CI 21.0, 38.2) moved down in rank by >1 decile. Agreement between the observed and adjusted ranks was fair (Kappa=0.21; 95% CI 0.05, 0.36; P=0.003); 63 physicians (55.2%) remained in the same financial eligibility category (Table, bold) and 51 (44.8%) changed category.
CONCLUSION: Patient complexity has potential profound implications on physician rankings in the pay-for-performance framework, especially in rural settings where access to care is related to glycemic control and cannot easily be controlled by the physician.

N (%) of physicians who remained in the same rank category for proportion of patients with A1c ≤ 7% with and without adjustment for patient factors

Rank Category Without Adjustment	Rank Category With Adjustment			Remained in Original Rank
	Top 20%	Middle 60%	Bottom 20%	
Top 20%	**11 (9.6%)**	11 (9.6%)	1 (0.9%)	11 (47.8%)
Middle 60%	12 (10.5%)	**43 (37.7%)**	13 (11.4%)	43 (63.2%)
Bottom 20%	0	14 (12.3%)	**9 (7.9%)**	9 (39.1%)

USING PATIENT EXIT INTERVIEWS TO ASSESS RESIDENTS' QUALITY OF COUNSELING AFTER AN OBESITY CURRICULUM M. Jay[1]; S. Schlair[1]; C. Gillespie[1]; S. Zabar[1]; J.G. Adams[1]; R. Caldwell[1]; T.K. Ark[2]; E. Choudhury[1]; D. Wu[1]; A.L. Kalet[1]. [1]New York University, New York, NY; [2]New York University, New York City, NY. *(Tracking ID # 204002)*

BACKGROUND: Physicians report lack of training in obesity management and often fail to counsel obese patients about their weight. We implemented a 5-hour obesity counseling curriculum based on the 5A's (Assess, Advise, Agree, Assist, Arrange), utilizing multiple active instructional methods, to improve residents' obesity counseling praxis. The goal of this curriculum was to improve the frequency and quality of obesity counseling in the residents' continuity clinic.
METHODS: We used a quasi-experimental design to examine the impact of the curriculum. Twenty-three primary care internal medicine residents were assigned to either an intervention (curriculum, n=12) group or a control (no curriculum, n=11) group. Group assignment was random and based on scheduling done by outside administrators. Within 2 weeks to 8 months following the curriculum, 158 of the residents' patients (3–15 per resident) who had a body mass index (BMI) ≥30 completed structured interviews immediately after their medical visit. The survey examined patients' experience during the visit, including whether their physicians performed obesity counseling, and if so, whether they exhibited nineteen 5A's-related counseling skills (e.g. Assess: "Did your doctor ask whether you are currently trying to lose weight?"). We compared the intervention and control groups' performance on the 19 items individually and within the 5A's domains using chi square or fisher's exact tests. We calculated both an overall counseling score as the percentage of all skills done and an advanced skills score that included higher-level items (mostly from 'Agree' and 'Assist' categories) based on prior work. We used a 2×2 ANOVA with BMI category (<35/ ≥35) and group (intervention vs. control) as the between-subjects factors to assess whether the effect of the curriculum was associated with patients' BMI status.
RESULTS: After excluding 6 patients from 3 residents who had <3 patients participating (1 resident from the intervention group, 2 from the control group) and 1 patient with BMI data missing, we analyzed data from 151 patients (n=80 in intervention group, n=71 in control group). Sixty-nine percent of patients from the intervention group and 59% from the control group reported being counseled about their weight (p=.22). Compared to the controls, patients of intervention residents were more likely to report being engaged in goal-setting about weight management (41% vs. 77%, (p=.02). For the remaining individual counseling items and scores for each of the 5A's categories, there were positive trends but no significant differences. We found significant main effects of the curriculum on both the overall counseling score (39% vs. 29%, F=4.6, p=.03) and advanced skills score (39% vs. 25%, F=7.2, p=.01). For advanced skills, there was an interaction between BMI category and intervention group where the greatest difference in score occurred in patients of residents in the curriculum group with a BMI≥35 (48% vs. 22%, F=4.8, p=.03).
CONCLUSION: A multi-modal obesity curriculum based on the 5 A's improves the quality of residents' obesity counseling based on patient report. The curriculum appeared to have the biggest impact on residents' advanced counseling skills in patients with a BMI≥35. There was no significant difference in percentage of patients counseled for obesity, which may represent a ceiling effect.

USING RECORDED EXCEPTIONS TO DECISION SUPPORT TO BUILD A LEARNING HEALTHCARE SYSTEM S.D. Persell[1]; N.C. Dolan[1]; J.A. Thompson[1]; E.M. Friesema[1]; D.D. Kaiser[2]; D.W. Baker[1]. [1]Northwestern University, Chicago, IL; [2]Northwestern Medical Faculty Foundation, Chicago, IL. *(Tracking ID # 203753)*

BACKGROUND: As clinical quality improves, many patients not receiving recommended care may have valid medical reasons for deviating from guidelines. However, it is important to ensure that medical misconceptions are addressed. Additionally, performance measurement systems that allow for medical exceptions may be prone to gaming.
METHODS: We performed an observational study of a quality improvement technique set in a large academic internal medicine clinic. We implemented computerized decision support with mechanisms for physicians to enter standardized documentation of medical exceptions for 16 chronic disease and preventive care quality measures. We performed peer review of exceptions and provided feedback when appropriate. When the peer review determined that the documentation function was used improperly (e.g. the reason for not complying with the decision support was not due to a medical reason), we judged the exception as invalid, deleted it from the decision support system, and notified the physician. Remaining medical exceptions were judged by a three-physician peer review panel as appropriate, inappropriate or of uncertain appropriateness over a 6-month period between February and July of 2008. We reviewed medical records after 3 months in cases where feedback was given to determine the impact on subsequent clinical care.
RESULTS: 89 physicians recorded 659 standardized medical exceptions. The reporting tool was used in an invalid fashion 38 times (5.8%). Of the remaining 621 medical exceptions, 93.6% were judged appropriate, 3.4% inappropriate and 3.1% of uncertain appropriateness. Frequencies of appropriate, inappropriate, and uncertain exceptions were 168 (87.8%), 7 (3.7%), and 13 (6.9%) for cardiovascular diseases; 75 (81%), 10 (11%), and 8 (9%) for diabetes; and 338 (99%), 2 (1%), and 0 for preventive services respectively. Of the cases with inappropriate exceptions where physicians received direct feedback, 8 of 19 (42%) had a change in management following feedback. Two of 13 uncertain cases in which feedback was given resulted in a management change. The peer review process took 50 hours 32 minutes of physician time (approximately 4 minutes 36 seconds per case). Areas of medical uncertainty or physician misconceptions that were detected through this process provided valuable content for group continuing medical education activities and could potentially be used to inform the development of clinical guidelines.
CONCLUSION: Most medical exceptions to performance measures were judged to be appropriate on physician peer review, and substantial physician effort was required to detect a small number of errors. Even when these were detected and one-to-one feedback given, treating physicians changed their management in response to feedback less than half of the time. Peer review of medical exceptions appears to be a potentially valuable means of identifying clinical content that is worth disseminating. However, at sites similar to the study site, the review process would need to be made much more efficient to be sustainable. Ways to improve efficiency would be to limit peer review to only performance measures where significant numbers of inappropriate exceptions were recorded or to capture common appropriate exceptions in a standardized way so that peer review could be avoided in these cases. Future work should examine if applying financial incentives to quality improvement increases the proportion of invalid or inappropriate exceptions that physicians record.

VALIDATION OF THE BBN MINI-CEX: A TOOL FOR ASSESSING COMPETENCY IN BREAKING BAD NEWS G. Cordts[1]; C. Bowen[2]; D. Doberman[3]; R. Maraj[4]; M.T. Hughes[1]. [1]Johns Hopkins University School of Medicine, Baltimore, MD; [2]National Center for Education Statistics, Washington, DC; [3]Greater Baltimore Medical Center Palliative Care Program, Towson, MD; [4]Good Samaritan Hospital, Baltimore, MD. *(Tracking ID # 205955)*

BACKGROUND: Skillful communication is critical in the physician-patient relationship, particularly when the physician must deliver bad news to the patient. Several frameworks for breaking bad news have been proposed, and tools to assess skills in breaking bad news exist. Although experts agree on key features, no systematic research has determined which behaviors are crucial for breaking bad news. Our aim was to develop a practical evaluation tool for breaking bad news with valid and reliable psychometric properties.
METHODS: The SPIKES six-step protocol (Setting, Perception, Invitation, Knowledge, Empathy, Strategy) for delivering bad news was used to construct a 36 item survey to be used as a mini-CEX in clinical encounters. Each behavioral item was ranked on a 9 point scale from unsatisfactory to superior. Faculty reviewers used the survey to rate videotaped encounters of physicians breaking bad news to a simulated patient. Descriptive statistics were generated for each survey item. Factor analysis with varimax rotation was used to identify clustering of the behavioral items. Factor loadings >0.70 were considered significant in creating independent scale scores. Reliability analysis was used to determine the internal consistency of the items comprising each scale. Inter-scale correlations determined whether the identified factors were measuring different underlying constructs.
RESULTS: A total of 154 observations (29 faculty reviewed 26 video encounters) were made. Factor analysis did not show clustering of items according to the six intended dimensions of SPIKES. Four discrete factors were identified in the rotated component matrix: Factor 1. Establish the encounter's setting (2 items): locate a quiet, private space Factor 2. Attend to the interpersonal relationship (6 items): ensure the patient feels at ease Factor 3. Invite the patient's perspective (7 items): assess what patient knows and wants to know Factor 4. Fulfill physician responsibilities (15 items): relay information, respond to emotions, check understanding, outline next steps Each of the four factors had high internal consistency (Cronbach's alpha greater than or equal to 0.93). Inter-scale correlations showed low correlation between factor 1 and factors 2, 3, 4 (r=0.28, 0.06, 0.08, respectively), moderate correlation between factor 2 and factors 3 and 4 (r=0.67, 0.65, respectively), and high correlation between factor 3 and factor 4 (r=0.88). Based on these data, a new 30-item evaluation tool (***BBN mini-CEX***) was created. Of note, the item "fired a warning shot" had a factor loading <0.70 and was dropped from the final scale.
CONCLUSION: The ***BBN mini-CEX*** is a validated measure for evaluating a physician's skill in breaking bad news. Four discrete factors are important in the process of delivering bad news. Some overlap in the underlying constructs of the factors exists, particularly for those that are physician-centered duties in the communication dyad—e.g. assessing information needs (as in factor 3) and delivering information sensitively (as in factor 4). A limitation of the study was use of simulated encounters. Further validation of the ***BBN mini-CEX*** can occur with use in varied clinical settings and with clinicians having a range of skill levels from novice to expert. It is hoped that the ***BBN mini-CEX*** can become a useful teaching and evaluation tool for medical students, residents, and practicing physicians.

VARIATION IN PRESCRIPTION DRUG SPENDING IN THE VA HEALTHCARE SYSTEM AND THE RELATIONSHIP TO QUALITY W.F. Gellad[1]; J.C. Lowe[2]; C.B. Good[3]. [1]VA Pittsburgh Healthcare System/University of Pittsburgh and RAND Health, Pittsburgh, PA; [2]VHA Pharmacy Benefits Management, Pittsburgh, PA; [3]VA Pittsburgh Healthcare System, Pittsburgh, PA. *(Tracking ID # 205317)*

BACKGROUND: Although geographic variation in health care utilization and spending are well-described for Medicare beneficiaries, few studies have assessed geographic variation in prescription drug use. We used national data on prescription spending for diabetes and hyperlipidemia in the Veterans Affairs Healthcare System (VA) to (1) assess the level of geographic variation in outpatient prescription spending in the VA; and (2) determine if VA medical centers that spend more per patient for medications performed better on accepted quality metrics for these chronic conditions.
METHODS: Data on national outpatient prescription spending for fiscal year 2008 was aggregated at the VA medical center level (n=135). Lipid-lowering agents included statins, ezetimibe, niacin, and fibrates. Diabetes medications were limited to oral hypoglycemics for this analysis. At each medical center, the cost per patient per year for these agents was calculated, based on the total yearly costs to the VA divided by the number of patients on these agents. Since acquisition cost varies little across VA facilities, the cost per patient will vary based on which drugs are prescribed and to what extent more costly agents are used. For the lipid-lowering agents, the % brand name prescribed at each facility was measured; for diabetes medications, the % thiazolidinediones was measured. In order to test the association between spending and quality, standard HEDIS measures from each medical center were obtained from the VA Office of Quality and Performance. The percent of diabetics with LDL<100 and percent of patients with coronary disease with LDL<100 were used as measures of quality of care for hyperlipidemia. Preliminary analyses of diabetes quality was also performed, using the HEDIS measure of percent of diabetics with A1C>9 or not measured. Spearman correlation coefficients and analysis of variance were used to assess the relationships between prescription spending and quality, and prescription spending and brand name use, respectively.
RESULTS: The median cost per patient per year for lipid-lowering agents was $49.60 in fiscal year 2008 (interquartile range $42.80 to $61.00). VA medical centers had 5-fold variation in spending on these medications, ranging from $23.50/patient to $125.00/patient. The percentage of patients who were on brand-name lipid lowering agents in VA facilities in the least expensive to most expensive quartiles averaged 7.7%, 9.6%, 12.7%, and 15.5%, respectively (p<.001). The median cost per patient per year for oral diabetic agents was $76.20 (interquartile range $57.00 to $98.03), and ranged from a low of $19.40 to a high of $143.10. The percentage of patients on thiazolidinediones was 5.8% in the least expensive centers, to 14.4% in the most expensive (p<.001). There was no significant correlation between average prescription spending and performance on the HEDIS score across the medical centers (r=0.06, p=0.46 for diabetics with LDL <100; r=.003, p=0.98 for heart disease patients with LDL<100; r=-.03, p=0.71 for diabetics with A1C>9).
CONCLUSION: Significant variation in prescription spending exists across VA medical centers, and this variation is due in part to differences in the use of brand name agents. As is the case with Medicare hospital and physician services, spending more, in this case for prescriptions, is not associated with better health outcomes.

VARIATION IN REOPERATION RATES FOLLOWING DECOMPRESSION SURGERY FOR LUMBAR HERNIATED DISC. B. Martin[1]; R.A. Deyo[2]; T.M. Wickizer[1]; D.R. Flum[1]; P.J. Heagerty[1]; S.K. Mirza[3]. [1]University of Washington, Seattle, WA; [2]Oregon Health & Science University, Portland, OR; [3]Dartmouth Hitchcock Medical Center, Hanover, NH. *(Tracking ID # 205305)*

BACKGROUND: Laminectomy and diskectomy are spinal decompression procedures performed to correct herniated discs or to alleviate back pain or sciatica caused by neural impingement. Repeat operations following lumbar decompression surgery may sometimes indicate poor quality of care or missed opportunities to better coordinate care. Variation in surgeon reoperation rates following lumbar decompression for herniated discs has not previously been reported, but may be useful to inform policies aimed at improving surgical safety and provide a benchmark for examining outcomes. We sought to determine the rate of reoperation following decompression surgery for herniated discs in Washington State, and report the variation in these rates among individual surgeons using several common measures of variability.
METHODS: We calculated the 4-year, 1-year, and 30-day cumulative incidence of subsequent lumbar spine surgery using a retrospective cohort from an inpatient discharge registry that included all non-federal acute-care hospitals performing lumbar decompression surgery for

herniated discs from 2000–2002. To account for clustering of patients "within" surgeons, we used a multilevel mixed-effects logistic regression, adjusting for age, sex, co-morbidity and insurance type, to estimate the statewide and individual surgeon reoperation rates. To provide meaningful analysis for provider profiling, we excluded cases performed by surgeons who performed fewer than 5 lumbar surgeries per year. Several common measures of variability for the reoperation rates were reported.

RESULTS: We included adults who underwent an initial inpatient lumbar decompression operation for a herniated disc. We excluded those with previous spine surgery, cancer, arthritis or pregnancy. A total of 8,090 patients received inpatient lumbar decompression for herniated discs; operations were performed by 153 surgeons. The mean age of the cohort was 46 years (SD 13.2), with 39% female; 21% on received workers' compensation insurance, and 14% reported any comorbidity. The average number of decompressions for herniated discs performed by surgeons over the three years was 231, ranging from 16 to 573. After adjusting for patient differences and clustering, we found a greater than four-fold difference in the variation among surgeon reoperation rates at 4-years (ranging from 9.5% to 43.6%); a three-fold variation at 1-year (ranging from 4.2% to 13.4%); and a 2.2-fold variation at 30-days (ranging from 0.5% to 1.1%). The estimated 4-year, 1-year, and 30-day cumulative incidences of reoperation were 20.5% (SD 0.05), 7.6% (SD 0.18), 0.7% (SD 0.09), respectively.

CONCLUSION: Our study provides a benchmark for monitoring surgical safety following decompression surgery for herniated disc. The high variation in reoperation rates that we observed with long term follow-up may reflect uncertainty regarding patient selection, varying complication rates, progression of disease, or treatment failures. Comparing reoperation following decompression surgery may allow comparisons of safety outcomes across providers. This is an attractive target for reporting programs because variations may reflect overuse of services, variation in the amount and quality of care, and variations in outcomes. Further research to identify factors that account for the variation in surgeon reoperation rates may provide an opportunity to improve clinical care and reduce unnecessary surgery.

VOLUNTEERING AND MORTALITY IN OLDER AMERICANS S.J. Lee[1]; I. Stijacic[1]; K.E. Covinsky[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204059)*

BACKGROUND: Volunteering may improve health outcomes by expanding retirees' social networks, increasing their access to resources and improving their sense of self-efficacy. Previous studies showing that volunteering is associated with lower mortality have generally focused on subjects born before 1920 and have been limited by insufficient adjustment for possible confounding factors, such as socioeconomic status (SES) and chronic diseases. Thus, we examined the association between volunteering and 4-year mortality in retired Americans born before 1935 with extensive adjustment, including a propensity analysis.

METHODS: We examined 6360 retirees over age 65 enrolled in the 2002 wave of the Health and Retirement Study (HRS), a nationally representative population-based study of community-dwelling US elders (mean age 78, 60% women). Subjects were asked, "Have you spent any time in the past 12 months doing volunteer work for religious, educational, health-related or other charitable organizations?" The outcome of death by 2006 was determined by proxy report through standard HRS procedures. We sequentially accounted for possible confounding factors including demographics, SES, chronic conditions, geriatric syndromes and functional limitations. We also adjusted for a subject's propensity for volunteering, determined using all the above risk factors as well as depression, cognition and overall self-rated health.

RESULTS: We found that volunteering is strongly associated with lower mortality, with 12% of 1766 volunteers dying by 2006 compared to 26% of 4594 non-volunteers. Although our extensive adjustment markedly decreased the strength of the association, volunteering remained strongly associated with decreased mortality. (see Table)

Model Adjusted for:	Odds Ratio of Mortality for Volunteers (95% CI)
Demographics	0.44 (0.37 – 0.52)
Demographics and SES	0.48 (0.41 – 0.57)
Demographics, SES and geriatric syndromes	0.51 (0.43 -0.61)
Demographics, SES, geriatric syndromes and chronic conditions	0.59 (0.50 – 0.71)
Demographics, SES, geriatric syndromes, chronic conditions and functional limitations	0.65 (0.54 – 0.78)
Propensity (all above factors, depression, cognition and overall self-rated health)	0.70 (0.58 – 0.84)

CONCLUSION: In this population-based study, we found that volunteering remains a powerful predictor of decreased mortality among current US retirees, even after extensive adjustment for possible confounding factors.

WEIGHT LOSS AND HOT FLUSHES IN OVERWEIGHT AND OBESE WOMEN A.J. Huang[1]; L.L. Subak[1]; D. Smith-West[2]; J. Macer[1]; A. Hernandez[1]; D.G. Grady[1]. [1]University of California, San Francisco, San Francisco, CA; [2]University of Arkansas for Medical Sciences, Little Rock, AK. *(Tracking ID # 204770)*

BACKGROUND: Hot flushes affect up to 80% of women during menopause and persist for 5 or more years past menopause in up to a third of women. Given the adverse effects of long-term estrogen therapy, there is growing interest in identifying alternative interventions to alleviate these symptoms. Multiple observational studies have indicated that higher body mass index (BMI) is associated with more severe flushing during menopause, but evidence of a beneficial effect of weight loss on hot flushes is lacking.

METHODS: We conducted an ancillary study to the Program to Reduce Incontinence by Diet and Exercise, a 6-month, randomized, controlled trial in 338 overweight and obese women with urinary incontinence. Participants were randomly allocated in a 2:1 ratio to either an intensive behavioral weight loss program (intervention) involving weekly group visits with weight loss experts, meal replacement, and physical activity support (intervention, n=226), or a structured education program (control) consisting of 4 group health awareness classes (control, n=112). Hot flushes were assessed at baseline and 6 months using self-administered questionnaires in which women indicated how bothersome their hot flushes had been in the last month ("not at all," "a little bit," "moderately," "quite a bit," or "extremely"). Body mass index (BMI) was calculated using height measured at baseline and weight recorded at baseline and 6 months. Repeated measures multinomial models were developed to examine the effect of the intensive behavioral weight loss program versus structured education on hot flush severity at 6 months, as well as the relationship of weight loss and change in BMI to symptom severity.

RESULTS: The mean (± SD) age of participants was 53 (± 10) years, and 19% of women were African American. The mean (± SD) BMI at baseline was 36 (± 6) kg/m2. At baseline, 50% of participants (n=154) reported being bothered by hot flashes (25% "a little bit" bothered, 13% "moderately" bothered, 8% "quite a bit" bothered, and 4% "extremely" bothered). Among these participants, those who were randomized to the intensive weight loss intervention were substantially more likely to report improvement in their hot flushes after 6 months compared to control (OR=2.23, 95%CI=1.19–4.15, P=.01). Both weight loss and decrease in BMI predicted significant improvement in hot flushes, independent of age, race, last menstrual period, estrogen use, depressive symptoms, hysterectomy, and oophorectomy (OR for improvement in hot flush severity=2.23, 95%CI=1.19–4.15, per 5-kg decrease in weight; OR=1.16, 95%C=1.02 - 1.32, per 1-point decrease in BMI).

CONCLUSION: Among overweight and obese women with hot flushes, an intensive behavioral weight loss intervention resulted in substantial improvement in self-reported hot flush severity relative to control. Overweight and obese women suffering from bothersome hot flushes may be advised that weight loss is likely to alleviate their symptoms.

WEIGHT-RELATED BEHAVIORS AND OBESITY TREATMENT PREFERENCES IN URBAN LATINO PRIMARY CARE PATIENTS
M. Freeman[1]; M. Mcmacken[1]; I. Lobach[1]; C. Torgersen[1]; N.R. Shah[1]. [1]NYU School of Medicine, New York, NY. *(Tracking ID # 205180)*

BACKGROUND: Latinos are disproportionately affected by the obesity epidemic in the United States, yet limited information is available to guide health care providers in developing culturally appropriate weight loss strategies for adults in this population. Our goal was to examine weight-related behaviors and treatment preferences in Latino patients and to identify potential differences between Latino and non-Latino patients in an urban primary care setting.
METHODS: In August 2008, we distributed an anonymous, 38-item written survey to a convenience sample of English- or Spanish-speaking patients in the primary care clinic of an urban safety-net hospital. Survey questions, drawn from previously published studies conducted among Latinos and other ethnicities, were designed to assess weight-related attitudes and behaviors in several domains: perceptions about weight, interest in weight loss, prior attempts at weight loss, weight loss barriers, and obesity treatment preferences. The survey instrument also included questions on self-reported ethnicity and country of origin. Height and weight were objectively measured for body mass index (BMI) calculation.
RESULTS: Demographics and BMI. Of the 115 participants who completed the survey, 66 (57%) identified themselves as Latino, and 49 (43%) identified themselves as non-Latino (22 African Americans, 11 Caucasians, 4 Asians, 4 Indians, 8 other). The mean BMI was 30.6 and 30.1 for Latino and non-Latino participants, respectively; 40% of Latinos were overweight (BMI 25–29.9) and 41.5% were obese (BMI≥ 30). Weight Loss Behaviors. Of all overweight and obese participants, 74% reported trying to lose weight in the past year, including 85% of Latinos and 60% of non-Latinos. Among the 74 patients who described their prior weight loss attempts, the most popular behavior was decreasing the intake of fried or fatty foods (77% of Latinos, 81% of non-Latinos). Other popular behaviors among all patients included eating more fruits and vegetables, decreasing carbohydrate intake, and reducing portion sizes. Latinos were more likely to cite walking as a weight loss behavior than non-Latinos (68 vs 48%). Weight Loss Barriers and Obesity Treatment Preferences. Sixty-nine patients described weight loss barriers. Latinos more frequently reported being unable to control food cravings (53 vs 7%), not knowing how to lose weight (42 vs 23%), eating when feeling anxious or sad (40 vs 23%), not having time to cook healthy foods (33 vs 12%), and not knowing how to exercise (23 vs 8%) compared with non-Latinos. Common preferences for obesity treatment among Latinos included learning more about nutrition, starting an exercise program, and obtaining physician advice on weight loss; 78% of obese Latinos expressed interest in obtaining weight loss advice from their regular physician. Weight loss medications and bariatric surgery were the least popular choices for weight loss among Latinos.
CONCLUSION: Three-fourths of overweight or obese Latino patients have attempted weight loss; popular methods include several healthful behaviors. However, food cravings, emotional eating, and a perceived lack of knowledge about weight loss are important obstacles. Latino patients are eager for more education on nutrition and exercise and for advice from their primary care providers. Future research efforts should address culturally appropriate counseling strategies for this population.

WHAT ARE FACULTY MEMBERS DOING WHEN ASSESSING A MEDICAL STUDENT'S CLINICAL REASONING FROM A BRIEF PATIENT NOTE?
T.K. Ark[1]; A.L. Kalet[1]; C. Gillespie[1]; J. Hyland Bruno[1]; L.R. Tewksbury[1]. [1]New York University, New York, NY. *(Tracking ID # 205546)*

BACKGROUND: Rating medical students' clinical reasoning (CR) based on their patient note (PN) is a challenging evaluation task. Existing tools for assessing CR are often unreliable and fail to capture full CR complexity. Our goal was to explore the relationship between faculty ratings of student PNs and their global CR ratings.
METHODS: 3rd year medical students (N=161) underwent a high-stakes 8-station Objective Structured Clinical Examination (OSCE). After a 15 minute clinical interaction with a standardized patient (SP) where students were evaluated on their communication, physical exam and history gathering skills, students had 10 minutes to complete a PN in which they wrote a history, listed up to 5 possible diagnoses and described next steps for diagnostic work-up and management. PNs were evaluated by medical faculty (N=6) for: logical organization, content (pertinent positive and negative findings), both the consistency, accuracy and appropriateness of the differential diagnosis and work-up plan. Faculty globally rated the student's CR quality on a 4 point scale (1=poor, 4=excellent). An overall history gathering performance score (% checklist items 'well done') was computed across all six cases and compared to PN to support the validity of the PN evaluation tool.
RESULTS: On average students listed more pertinent positive (7.9, SD=1.2) than negative (5.4, SD=1.4) findings per case ($p<0.001$). The overall history gathering score was positively correlated, as expected, with logical organization ($r=0.35$) and pertinent negative ($r=0.32$), and positive findings ($r=.35$, all $p<.0001$); history gathering was less correlated than expected with accuracy of the diagnosis ($r=0.17$, $p=.02$), consistency of the differential diagnosis ($r=0.17$, $p=.02$) and work-plan ($r=0.16$, $p=.04$). To explore the relationship among evaluation domains and CR, a multiple hierarchical regression was conducted with CR scores as the dependent variable. Logical organization (Beta=5.2, $p<0.001$), consistency of the note with the work plan (Beta=2.9, $p<0.01$), differential diagnosis (Beta=2.1, $p=0.04$), and the pertinent negative findings (Beta=2.0, $p=0.04$) together significantly accounted for variance in CR scores ($r=.63$, $p<0.01$), while accuracy of the work-plan (Beta=-.7) and accuracy of the differential diagnoses (Beta=1.6), and pertinent positive findings (Beta=.02) did not ($p>0.05$ for all comparisons).
CONCLUSION: Faculty ratings of CR appear to be influenced more by pertinent negative than positive findings, and by the consistency of the differential diagnosis and work-up plan than its accuracy. These components of the PN are also less correlated with SPs' ratings of history gathering skills and suggest that faculty may view CR as a focused ability separate from obtaining a history. This is a starting point to determine which components of the PN can lead to more accurate ratings of CR and a greater association with measures of performance.

WHAT ARE THE DECISION SUPPORT CAPABILITIES OF COMMERCIAL EHR SYSTEMS? RESULTS OF A SURVEY OF NINE CCHIT-CERTIFIED SYSTEMS
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BACKGROUND: In this study we evaluated the decision support capabilities of nine Certification Commission for Health Information Technology (CCHIT) certified electronic health records on a number of taxa that can enhance clinical care. We used a taxonomy described by Wright et al. of clinical decision support capabilities that an electronic health record (EHR) might provide along four axes: (1) Triggers: events that cause a decision support rule to be invoked (e.g. ordering a lab test); (2) Input data: data used by a rule to make inferences (e.g. the patient's problem list); (3) Interventions: possible actions a decision support module can take (e.g. showing a guideline); (4) Offered choices: Many decision support events require users of a clinical system to make a choice. (e.g. choosing a safer drug). Overall, there was a great deal of variability among capabilities of the systems possessed. The two weakest systems evaluated were missing 18 of 42 capabilities, while the strongest system was missing only a single capability.
METHODS: We compared the capabilities of nine commercially available clinical information systems against the 42 functional taxa from the Wright et al. taxonomy. The nine systems were chosen via a purposive sample of some of the best-selling CCHIT certified systems in the United States. Data collection involved a series of in-person or phone interviews with representatives from the developing companies or customers of the systems. If a respondent was unsure of whether the system supported an element of the taxonomy, the authors consulted other contacts in the vendor organization, the system's handbook, or explored the system manually to ascertain the system's functionality.
RESULTS: Four of nine unique triggers (order entered, outpatient encounter opened, user request, and time) were available in all nine systems examined. Three systems had deficiencies, with the weakest system offering only four of the nine triggers. Of the 14 input data

elements examined, seven elements were available in all systems. Four systems were missing input data elements, with two systems missing one element each, one system missing five elements, and one system missing six elements. The analysis also examined seven possible interventions among the systems. Two interventions: notify and show data entry template, were available in all systems. Three systems were missing at least one intervention, with the weakest system missing three intervention types. Finally, 12 offered choices were examined. Three offered choices (override rule or keep order, cancel current order, and enter height, weight, or age) were available in all nine systems. Only one system possessed no deficiencies among offered choices. The number of offered choices missing throughout the remaining eight systems ranged from three to eight missing types. Across the four categories of the taxonomy, the two weakest systems evaluated were missing 18 capabilities, while the strongest system was missing only one capability.

CONCLUSION: The clinical decision support (CDS) capabilities of these CCHIT-certified EHRs were variable and none of the systems had every capability. Since the most effective CDS interventions are tightly integrated into EHR systems, developers should extend the capabilities of their systems and physicians adopting an EHR should consider CDS capabilities during system selection.

WHAT DO OUR WORDS REVEAL? PREDICTORS OF WRITTEN FORMATIVE FEEDBACK FOR STUDENTS ON THE MEDICINE CLERKSHIP K.T. Johnston[1]; J.D. Orlander[2]; A. Spires[3]; B. Manning[4]; W. Hershman[3]. [1]Harvard University Medical School, Boston, MA; [2]Veterans Affairs Hospital, Boston, MA; [3]Boston University, Boston, MA; [4]Boston Medical Center, Boston, MA. *(Tracking ID # 204967)*

BACKGROUND: Feedback based on direct observation is an accepted, if not empirically proven, tenet in facilitating development of medical students' clinical skills. How factors specific to physician-evaluators, student-learners, and the environment they create impact feedback is unknown. Clerkship directors would benefit from understanding facilitators and barriers to the feedback process. We sought to examine if physician-evaluator academic rank, student or evaluator gender, or evaluator-learner gender concordance predict the content or quality of written formative feedback comments provided to students during a medicine clerkship.

METHODS: We retrospectively examined written formative feedback from physician-evaluators to students. Medicine clerkship directors asked resident and attending physicians to observe students' interactions with patients during clinical rotations. The physician-evaluators were requested to give both oral feedback and provide written comments on pocket cards designed to guide feedback following direct observation. There were two card types: one for history taking and one for physical examination. Each card listed specific elements that should have been observed during history taking or physical examination. Students submitted completed cards to the clerkship director. Two independent investigators qualitatively coded and categorized comments. Themes were identified using the constant comparative method and informed by techniques of Grounded Theory methodology. Disagreements in assessment were resolved by consensus. Bivariate analyses were used to examine differences in written feedback according to academic rank, student gender, evaluator gender, and gender concordance. Multivariate logistic regression was used to examine predictors of each comment category, with control for the physician-evaluator involved in each interaction using generalized estimating equations.

RESULTS: 132 medical students submitted 512 feedback cards. Written themes included praise, advice, and the sub-domains of non-specific comments, specific behaviors, technical and interpersonal skills. Resident physicians were significantly more likely to record non-specific comments compared to attending physicians, AOR 4.0 (95% CI 1.5–11.2), p=0.007, and were significantly less likely to record specific behaviors for improvement, AOR 0.4 (95% CI 0.2–0.5), p< 0.0001. Students observed by physicians of the opposite-gender were more likely to receive recommendations for improvement of technical skills and advice on interpersonal skills compared to students being observed by physicians of the same gender (AOR 2.0 (95% CI 1.2–3.2), p=0.006; AOR 3.1 (95% CI 1.4–7.0), p=0.004, respectively). These effects were consistent after controlling for the physician-evaluator involved in each interaction.

CONCLUSION: Resident physicians were less likely to document specific behaviors or provide clear advice for medical student clinical skill development using the structured feedback cards. Fewer recommendations for improvement were recorded by same-gender evaluators. These results reveal that both academic rank and gender concordance are significant predictors of both the content and quality of written formative feedback. Whether academic rank and gender are in and of themselves predictors, or whether each serve as a proxy for other unmeasured factors warrants further study.

WHAT INFLUENCES CLINICIANS' JUDGMENTS ABOUT COMPLEMENTARY AND ALTERNATIVE MEDICINE RESEARCH EVIDENCE: A RANDOMIZED EXPERIMENTAL VIGNETTE STUDY J. Tilburt[1]; S. Jenkins[1]; A. Ottenberg[1]; D. Bolcic-Jankovic[2]; B. Clarridge[3]; T.J. Kaptchuk[4]; F.G. Miller[5]; E. Emanuel[5]; F.A. Curlin[6]. [1]Mayo Clinic, Rochester, MN; [2]University of Massachusetts at Boston, Boston, MA; [3]University of Massachusetts, Boston, MA; [4]Osher Center, Harvard Medical School, Boston, MA; [5]National Institutes of Health (NIH), Bethesda, MD; [6]University of Chicago, Chicago, IL. *(Tracking ID # 205719)*

BACKGROUND: Clinicians' prior beliefs may influence whether and how they interpret new evidence from complementary and alternative medicine (CAM) research. This study tested the influence of four factors in hypothetical reports of CAM research on clinicians' judgments about CAM treatments.

METHODS: We used a randomized factorial vignette design embedded in a national survey of 2400 conventional and alternative clinicians'. Each participant received 2 hypothetical research summaries: 1 reporting positive and 1 reporting negative results and rated effectiveness of treatment and "likelihood of recommending" the therapy. Within hypothetical abstract summaries we randomly varied source of information (Annals of Internal Medicine vs. Journal of CAM), and treatment type (acupuncture, massage, Reiki, glucosamine and meditation) to assess their influence on physician's rating of treatment effectiveness and their self-rated likelihood of recommending. In addition, within the likelihood of recommend response item we randomly varied whether or not clinicians received additional information specifying that a patient was requesting CAM therapies as well as whether a patient had chronic symptoms, refractory to standard conservative medical interventions. The influence of each factor on ratings of effectiveness and legitimacy (dichotomized) were tested separately between physician and alternative clinicians in vignettes using logistic regression.

RESULTS: 1561 clinicians (65%) responded. In the vignette showing efficacy, among physicians, treatment type did not influence effectiveness ratings (49–53% rating treatments as "very/moderately effective") but did influence "likelihood of recommending" ratings; physicians were more likely to recommend glucosamine (84%) followed by massage (78%), acupuncture (70%), meditation (69%), and Reiki (65%) (p= 0.004). Journal type did not influence physicians' judgments regarding effectiveness (54% for Annals vs. 48% JCAM, p=0.09) or legitimacy (76% Annals vs. 70% JCAM, p=0.18) – a trend even less evident in the alternative clinicians (85% Annals vs. 83% JCAM for efficacy, p=0.47; 87% Annals vs. 87% JCAM for legitimacy, p=0.84). Treatment type did influence alternative clinicians' effectiveness (p<0.0001) and legitimacy judgments (p<0.0001) with high ratings for acupuncture and massage (95% and 89%, respectively) and relatively lower ratings for Reiki and Meditation (76% and 78%, respectively); likelihood of recommending ratings ranged from 97% for acupuncture followed by glucosamine (91%), massage (90%), meditation (86%), and Reiki (71%). Patient requests did not influence alternative clinician judgments (89% with request vs. 85% without; p=0.22), and only modestly influenced physicians' judgments (77% with patient request vs. 70% without, p= 0.049). Symptoms refractory to standard medical therapies did not influence physician or alternative clinician judgments (p=0.22 and 0.63, respectively). In vignettes showing inefficacy neither treatment type, journal source, chronic refractory symptoms, or patient requests influenced physicians' judgments of effectiveness or likelihood of recommending which were very low (2–5% effectiveness and 3–9% legitimacy). Treatment type did influence alternative clinician ratings of the effectiveness (p<0.0001) and legitimacy (p<0.0001).

CONCLUSION: Translating CAM research results into practice may require addressing clinicians' prior beliefs about specific treatments.

WHAT IS THE RELATIONSHIP BETWEEN BEHAVIORAL FACTORS AND QUALITY OF LIFE IN ADULTS WITH DIABETES AND HYPERTENSION? N. Young[1]; N. Sathe[2]; J. Friedberg[3]; S.R. Lipsitz[4]; M. Rodriguez[2]; M. Ulmer[2]; S. Natarajan[3]. [1]University of Hawaii John A. Burns School of Medicine/ New York Harbor Healthcare System, Department of Veterans Affairs, New York, NY; [2]New York Harbor Healthcare System, Department of Veterans Affairs, New York, NY; [3]New York University School of Medicine, New York, NY; [4]Harvard Medical School, Boston, MA. *(Tracking ID # 205757)*

BACKGROUND: Health-related quality of life (HRQOL) plays a crucial role in the treatment and outcome of care in diabetes. To better understand influences on HRQOL in diabetics with hypertension, we evaluated the relationship of several health variables with HRQOL.
METHODS: General HRQOL (a transformed 0–100 scale) was measured with the EuroQol. Physical and mental components of HRQOL (0–100 scales) were measured with the SF-36V standardized Mental and Physical Component Scales (MCS, PCS). Other variables (with scale) were: stress (0–40) from the Perceived Stress Scale (PSS), social functioning (0–100) from the SF-36V, medication adherence (0–100%) from refills, and exercise (hours/week) from 7-day Physical Activity Recall. Since HRQOL scores were not normally distributed, robust regressions were used to examine how these variables related to general HRQOL, MCS, and PCS, controlling for other confounders.
RESULTS: We assessed 219 male hypertensive diabetic veterans (mean age 64 years, 38% white) as part of an RCT to control hypertension. For general HRQOL, each point increase in social functioning and each additional hour of exercise/week were associated with increases in EuroQol of 0.21 ($p<.0001$) and 0.41 ($p<.05$) respectively. In contrast, each point increase in stress and % increase in medication adherence were associated with decreases in EuroQol of 0.49 ($p<.01$) and 11.1 ($p<.05$) respectively. Each point increase in BMI was associated with a 0.47 ($p<.005$) decrease in PCS, while each additional hour of exercise/week was related to a .47 point ($p<.005$) increase in PCS. Each point increase in stress was associated with a 1.21 point ($p<.0001$) lower MCS. Age and blood pressure were not multivariately associated with HRQOL.
CONCLUSION: Demographic and physiological factors had less impact on HRQOL than behavioral factors. Also, increased medication adherence decreased HRQOL, suggesting that taking medications consistently may promote a negative perception of health. Interventions should address often ignored behavioral aspects of treatment by reducing stress, providing social support, and increasing aerobic exercise to achieve better HRQOL and improve long-term management of diabetes.

WHAT PHYSICIAN CHARACTERISTICS ARE ASSOCIATED WITH HIGHER QUALITY CARE? R.L. Orler[1]; M.W. Friedberg[2]; J.L. Adams[3]; E.A. Mcglynn[3]; A. Mehrotra[4]. [1]University of Pittsburgh School of Medicine, Pittsburgh, PA; [2]Harvard School of Public Health, Boston, MA; [3]RAND Corporation, Santa Monica, CA; [4]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205389)*

BACKGROUND: As evidenced by pay-for-performance incentives and physician quality "report cards," there is a growing interest in identifying high quality physicians. However, the characteristics of physicians providing the best care are unknown. Previous studies of the relationship between physician characteristics and quality measure performance have been limited by low numbers of physicians, few available physician characteristics, and limited scope of quality measures. In this study we examined, in a large sample of Massachusetts physicians, the relationship between several individual physician characteristics and performance on a broad range of quality measures.
METHODS: We obtained insurance claims generated by over 1 million adult patients continuously enrolled in 4 of the largest commercial health plans in Massachusetts during 2004–2005. These claims reflected clinical care provided by 12,781 physicians in 27 specialties. The RAND Quality Assurance (QA) Toolkit, which contains 131 measures of acute, chronic, and preventive care processes, was used to generate claims-based quality measure performance scores for each physician on each measure. QA Toolkit measures consist of performance of guideline-based care (e.g., screening for anemia at a first prenatal visit). On each measure, physician performance was calculated as a ratio: the number of instances in which indicated care was delivered, divided by the number of times a patient was eligible for indicated care. We created 4 composite performance scores (overall, acute, chronic, and preventive) for each physician by summing the individual measure numerators and dividing by the sum of the corresponding individual measure denominators. The composite scores were adjusted for the degree of difficulty of each measure. Physician characteristics were obtained from publicly available data from the Massachusetts Board of Registration: gender, medical school attended, years in practice, board certification status, and disciplinary and malpractice information. Medical school rankings were obtained from U.S. News and World Report. 10,776 physicians (84.31%) had complete demographic and quality profiles. We constructed multivariate linear regression models of performance on the 4 composites, using all available physician characteristics as predictors.
RESULTS: The only physician characteristics independently associated with significantly higher overall performance scores were gender (female 1.4% higher), board certification status (board certified 3.0% higher), and medical school location (domestically trained 0.9% higher). The higher scores in these groups were primarily driven by preventive care measures. Differences on acute and chronic care measures were much smaller. For example, the effect of gender on performance was much greater for preventive care (female 3.8% higher) than for chronic care (male 0.2% higher) or acute care (female 0.55% higher). Notably, characteristics such as malpractice claims, medical school ranking, or years of experience were not associated with higher or lower performance scores.
CONCLUSION: Few characteristics of individual physicians are associated with higher quality, and when present, the associations are small in magnitude. Publicly available characteristics of individual physicians are poor predictors of quality of care. Reporting physician performance scores—or shifting the focus of reporting to higher levels of physician organization—may offer the best guidance to patients seeking high-quality care.

WHAT RESIDENTS NEED TO KNOW: CAREER PLANNING IN INTERNAL MEDICINE: A QUALITATIVE ASSESSMENT J.R. Rosenbaum[1]; D.M. Windish[1]; R.L. Garcia[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 205952)*

BACKGROUND: Residency programs provide training in their respective disciplines, but few have centralized resources or courses to prepare residents for their careers beyond residency. Little is known about the informational needs of residents that would help program directors improve their current approaches to career planning for residents. To explore these issues, we surveyed residents who were completing their residencies regarding their informational needs and barriers during the career planning process.
METHODS: In 2007 and 2008, we surveyed the graduating residents (N=89) from ten Yale and Yale-affiliated hospitals' traditional medicine, primary care, and medicine/pediatrics programs via Survey Monkey and postal mail regarding their experiences with applying for positions after residency. We included questions about demographics, mentorship, and the stress of the process of finding a job or fellowship. We also included open-ended questions to assess barriers and frustrations during the application process and to assess the residents' further informational needs regarding career planning. Qualitative data were coded independently by two of the authors (J.R. and R.G.), and a classification scheme was negotiated by consensus.
RESULTS: Sixty-seven participants (75%) found career planning during residency training at least somewhat stressful. The following themes regarding the application needs of residents emerged from our analysis: 1) knowledge about the application process, 2) knowledge about career paths and opportunities, 3) time as a major factor in the application process, 4) the importance of adequate personal guidance and mentorship, and 5) self-knowledge regarding the desired outcome of the process and priorities. When asked to identify the single most important piece of information that would have helped their application process, residents reported the need to start the process as early as possible with clear knowledge of the process timeline, the need to be clear about personal goals and priorities, and the need to be well-informed about their prospective employer and what that employer is looking for in an employee. Residents who applied for fellowship also emphasized the importance of research and initiating projects early during residency, whereas residents applying for jobs desired further information on the business aspects of medical practice. Furthermore, eighty-two residents

(93%) stated that career planning should be structured into the residency curriculum, with 80% stating that this teaching should occur either in the first year or throughout residency training.
CONCLUSION: This study highlights the need for structured dissemination of information and counseling with regards to career planning during residency. Designing more formal courses or resources, including practical issues such as timelines for job and fellowship applications, may increase satisfaction, and ease the process for medical trainees. Our data suggest that exposure to such resources may be of benefit as early as the first year of training.

WHAT YOUR LANDLORD DOESN'T KNOW MAY KILL YOU: SECONDHAND SMOKE HEALTH HARM KNOWLEDGE AMONG MULTI-UNIT HOUSING OWNERS AND MANAGERS AND SMOKE-FREE POLICIES ON THEIR PROPERTIES M.K. Ong[1]; Q. Zhou[1]; A.L. Diamant[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205280)*

BACKGROUND: Secondhand smoke is a significant cause of cardiovascular, pulmonary, and cancer morbidity and mortality. Although the proliferation of smoke-free environments at home and in workplaces have reduced secondhand smoke (SHS) exposure, SHS can enter smoke-free homes located in multi-unit housing (MUH) through seepage via cracks in walls, shared ventilation, or open windows. Smoke-free MUH policies are legal, but MUH owners and managers have been reluctant to implement them. This study examines the relationship between knowledge of SHS health harms for MUH owners or managers, and the likelihood of having smoke-free policies on their properties.
METHODS: We conducted a telephone survey in 2008 of 161 MUH owners or managers who were members of the statewide California Apartment Association Respondents were asked about their own demographics, history of tobacco use, and beliefs about SHS health harms. Respondents were also asked about characteristics, costs, and policies at the property with the most recently vacated unit. We conducted bivariate analyses and multivariate logistic regression analyses that examined the effect that respondent SHS health harm knowledge had on the likelihood of a complete (indoor and outdoor) smoke-free policy at the property with the last vacated unit. Multivariate analyses controlled for age, gender, ethnicity, smoking status, and owner or manager status for the respondent; and also controlled for number of units, and rent for the last vacated unit.
RESULTS: Complete smoke-free policies were reported by 26.7% of respondents; 58.4% thought SHS was a health issue, and 41.6% thought SHS was not a health issue. Bivariate analyses found that 32.8% of those who thought SHS was a health issue, and 7.7% of those who thought SHS was not a health issue, reported properties with complete smoke-free properties (p=0.002). In the multivariate analysis, MUH owner and manager knowledge of SHS health harms was a significant predictor of a complete smoke-free policy on the property (p= 0.005, adjusted odds ratio=6.61, 95% confidence intervals 1.77 to 24.60). In addition, lower number of units (p=0.03) was a significant predictor of a complete smoke-free policy. Stratifying the total number of units into large and small categories based on onsite manager requirements (15 or more units), the adjusted odds ratio of having a complete smoke-free policy on the property was 5.38 (95% confidence intervals 1.91 to 15.18).
CONCLUSION: MUH owners and managers who know SHS is a health harm are more likely to manage properties with complete smoke-free policies. Primary care physicians should advise generally about SHS health harms to help educate MUH owners and managers on SHS health harms. Primary care physicians may also consider advising patients with health conditions exacerbated by secondhand smoke that live in MUH properties to consider seeking smaller MUH properties which have a higher likelihood of having smoke-free policies.

WHAT'S AGE GOT TO DO WITH IT? PROVIDER CHARACTERISTICS AND SATISFACTION WITH ELECTRONIC HEALTH RECORDS AMONG PRIMARY CARE PROVIDERS A.R. Wilcox[1]; P.M. Neri[1]; V.A. Lynn[1]; D.H. Williams[2]; H.Z. Ramelson[1]; D.W. Bates[2]. [1]Partners HealthCare, Wellesley, MA; [2]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205075)*

BACKGROUND: As increasing numbers of primary care physicians and other health care professionals adopt electronic health records (EHRs), interest has grown in understanding the impact of current technologies on health care delivery and on the providers who deliver it. However, few objective data have been published regarding provider characteristics and satisfaction with an EHR, though many hold strong convictions. For example, many believe that older providers are less satisfied with EHRs. We examined whether basic demographic differences, such as age, correlated to provider satisfaction with a home-grown electronic health record.
METHODS: We surveyed a random sample of 415 primary care providers across a large integrated delivery system regarding their satisfaction with an EHR. 165 providers (40%) (155 Physicians, 10 Nurse Practitioners) responded to our survey. The survey included questions regarding their overall satisfaction with the system as well as their satisfaction with specific aspects of the EHR. They rated their overall satisfaction on a Likert-type scale (1=Very Satisfied; 6=Very Dissatisfied). We excluded one provider who did not answer the overall satisfaction question. Based on their overall satisfaction level, we placed the remaining respondents into one of two groups: Satisfied (Very Satisfied, Satisfied) or Less Satisfied/Dissatisfied (Somewhat Satisfied, Somewhat Dissatisfied, Dissatisfied, Very Dissatisfied). We compared demographic characteristics, including age, role, institution, gender and years using the EHR among the two groups.
RESULTS: When compared to the non-responders, the responders were less likely to practice in the community setting, and were authorized to use the EHR for a longer average length of time. However, the responder and non-responder groups were similar across all other measured demographic characteristics, including age (p=0.26). Of the 164 respondents in our analysis, 92 (56%) reported that they were satisfied with the EHR overall compared to 72 (44%) who reported that they were less satisfied/dissatisfied with the EHR overall. There was no statistical difference between the mean ages for the satisfied group (47 years old) and the less satisfied/dissatisfied group (49 years old) (p=0.29). Similarly, there were no statistically significant differences among the other measured demographic characteristics. The less satisfied/dissatisfied group and the satisfied group were both mostly female, mostly physicians, mostly practicing at an academic medical center, and both authorized to use the EHR for an average of 4.7 years.
CONCLUSION: Older providers were not less satisfied than younger providers with the EHR overall. There were no significant differences between the group of providers who reported a moderate-to-high level of satisfaction and those who were less satisfied on the measured demographics and EHR length of use. This suggests that provider satisfaction with EHRs is related to other factors which will need to be examined and addressed to support ongoing efforts to improve these tools.

WHO IS STILL SMOKING? HIGH RATES OF TOBACCO SMOKING AMONG INDIGENT HIV-INFECTED ADULTS IN SAN FRANCISCO J. Penko[1]; D. Guzman[2]; M. Kushel[1]. [1]University of California, San Francisco, San Francisco, CA; [2]UCSF/San Francisco General Hospital, San Francisco, CA. *(Tracking ID # 206090)*

BACKGROUND: Following two decades of tobacco control initiatives in California, smoking rates have decreased to 14.3% of the adult population. However, people living in poverty and those with substance abuse and mental health disorders have not achieved the same declines. This study was conducted to evaluate past and current smoking rates, current tobacco consumption, readiness to quit among current smokers, and factors associated with smoking behavior in the REACH cohort, a representative sample of indigent HIV infected adults in San Francisco.
METHODS: Trained interviewers administered questionnaires to 296 participants soliciting information about demographics, smoking behavior (California Tobacco Survey), depression (Beck Depression Inventory), and substance abuse history (DIS-IV alcohol and substance use disorder modules). Current smokers are defined as those endorsing ever smoking at least 100 cigarettes in their lifetime and currently smoking everyday or some days. Current smokers are classified as contemplating quitting if they reported intention to quit within 6 months. Relationships between smoking behavior and demographic variables were tested using contingency tables and Fisher's Exact Test.
RESULTS: The study sample is predominantly male (72%), ethnically diverse (41.2% black, 38.5% white, 20.3% other), and has a mean age of 48.1 years. A large proportion (82.1%) was homeless at one point in their lives. Almost half (46.3%) met criteria for a lifetime history of

alcohol abuse; large proportions met criteria for lifetime crack/cocaine, methamphetamine, and heroin/opiate abuse (42.0%, 32.6% and 17.7% respectively). Over one-fourth (28.2%) of the sample qualify for moderate or severe depression. Most (88.8%) of the sample reported smoking at least 100 cigarettes in their lifetime and three-fourths (72.6%) reported current smoking. Over half (57.1%) of the sample are everyday smokers and, of those, 51.5% smoke 15 or more cigarettes per day. Among current smokers, 63.3% usually smoke their first cigarette within 30 minutes of waking. Two-fifths (42.3%) of current smokers stopped smoking for one day or longer during the past year because they were trying to quit and one-fifth (20.5%) are contemplating quitting in the next six months. Neither current smoking status nor intention to quit smoking was statistically associated with age, sex, ethnicity, depression, or current substance abuse.

CONCLUSION: Unlike the general adult population in California, participants in our study exhibit high rates of tobacco smoking, with approximately three quarters current smokers and few former smokers. However, the population shows evidence of willingness to quit. With prolonged survival of persons living with HIV, smoking related cardiovascular and cancer morbidity are important causes of overall morbidity and mortality in this population. Existing tobacco control initiatives and interventions have not effectively reached them. Given a sizable percentage of participants endorsing a readiness to quit smoking, this population may have the potential to respond to appropriately-designed and targeted cessation interventions.

WHO YOU GONNA CALL? ETHNICITY-BASED VARIATION IN TRUSTED SOURCES OF HEALTH INFORMATION C.L. Martin[1]; R. A. Pope[1]; T. Cutts[2]; L. Spraybery[1]; J.E. Bailey[1]. [1]University of Tennessee Health Science Center, Memphis, TN; [2]Methodist Healthcare Center of Excellence in Faith and Health, Memphis, TN. *(Tracking ID # 206086)*

BACKGROUND: This study examines variation by ethnicity in trusted sources of health information. Our hypothesis was that a person's primary and most trusted sources of health information vary by ethnicity.

METHODS: This cross-sectional study used data from a 2007 telephone survey of 512 randomly selected African American and white adults in a mid-sized metropolitan area. Frequencies were compared by the Chi-square test of independence. Statistical significance was assumed when the p-values were equal or less than 0.05.

RESULTS: Blacks are more likely than whites to seek news from television, and whites are more likely to seek news from newspapers. For health news TV is the primary source for most people, and newspapers are the second most common source. Blacks are more likely than whites to rely on TV for health news, and whites are more likely than blacks to rely on newspapers. Most (91.2%) people trust their doctor's judgment about their medical care with no difference between blacks and whites in their trust of health messages received from their doctor or healthcare professional. Blacks place more trust than whites in information received from their place of worship, TV, and newspapers.

CONCLUSION: Individuals and organizations that communicate health messages should consider their target audiences when selecting the media they will use. Information reaches more people through television than through newspapers, radio, family members, co-workers, friends or neighbors. Health messages via TV reach more blacks than whites, and messages via newspapers reach more whites than blacks.

Information Source	Blacks	Whites	Chi-Square
Watches national TV news daily	46.8%	33.6%	2=14.5 p<.05
Watches local TV news daily	64.1%	44.2%	2=24.113 p<.001
TV is primary source of health news	61.4%	44.6%	2=20.096 p<.001
Subscribes to newspaper	34.0%	57.5%	2=28.163 p<.001
Reads local newspaper daily	21.4%	34.2%	2=17.138 p<.05
Newspaper is primary source of health news	11.7%	23.3%	2=20.096 p<.001

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Completely trusts health information from church, synagogue, or mosque	30.0%	15.7%	2=39.870 p<.001
Completely trusts health information from TV news	13.8%	3.6%	2=22.457 p<.05
Completely trusts health information from local newspapers	11.7%	4.7%	2=21.644 p<.01

WHO'S AT RISK? THE LINK BETWEEN HS-CRP AND BMI IN PATIENTS WITH INTERMEDIATE FRAMINGHAM RISK SCORES C.B. Kumar[1]; K. Remus[2]; H. Kirchner[3]; N.R. Shah[2]. [1]Memorial Sloan Kettering Cancer Center, New York, NY; [2]New York University, New York, NY; [3]Center for Health Research, Geisinger Clinic, Danville, PA. *(Tracking ID # 204692)*

BACKGROUND: Elevated C-reactive protein (CRP) has recently been shown to be specifically predictive of myocardial infarction, ischemic stroke and vascular death in over twenty large trials. Prior studies relating inflammatory biomarkers to obesity demonstrate a correlation between elevated Body Mass Index (BMI) and elevated CRP. In this cross-sectional study, we compared the high sensitivity assay for CRP (hs-CRP) to BMI in a cohort of men and women with Framingham risks scores of greater than 5%, in order to further characterize the role of hs-CRP in cardiovascular risk stratification.

METHODS: 1,610 subjects were screened for inclusion from the Geisinger Health System, a network of community-based, primary care clinics in Eastern Pennsylvania. Data was collected on age, gender, medical history, alcohol use, smoking status, medications, physical activity, height, weight, high-density lipoprotein, low-density lipoprotein, brain natruretic peptide and diagnosis of diabetes, hypertension, coronary artery disease and congestive heart failure. The data was analyzed using Spearman's correlation coefficients and multivariate linear regression.

RESULTS: Patients were enrolled if they had a Framingham risk score of greater than 5% over ten years. Patients were excluded if they had less than 5% risk, laboratory data was incomplete, or if BMI or hs-CRP values were outside three standard deviations from the mean. A total of 376 subjects met all inclusion criteria: 52% were male, with mean age 62 and mean BMI 30.6. As per the literature, values of hs-CRP over 3 mg/L were designated elevated. 38.6% met this definition, and in this subset there was a significant positive correlation between BMI and hs-CRP ($p<0.0001$), particularly amongst subjects with BMI >35 kg/m2. After adjustment for all patient variables described above, the association was significant for both women (R square 0.07, Beta 0.13, P 0.0024, CI 0.05–0.21) and for men (R square 0.07, Beta 0.11, P 0.014, CI 0.02–0.19). For every 5 kg/m2 increase in BMI, the mean hs-CRP was estimated to be 1.22 (95% CI: 1.12, 1.33) times higher.

CONCLUSION: BMI and hs-CRP are strongly correlated in patients with Framingham risk scores over 5%. The effect size of this association is considerably greater in women than in men, and remained strong despite adjustment for numerous co-morbidities (e.g. hypertension, diabetes, and coronary disease) and risk factors (smoking, alcohol use, lipid levels). In light of recently published studies such as the JUPITER trial, this study adds to the evidence base supporting the important role of hs-CRP in cardiac risk stratification, particularly among obese patients.

WHY ARE FINANCIAL INCENTIVES NOT EFFECTIVE AT INFLUENCING SOME SMOKERS TO QUIT? RESULTS FROM A PROCESS EVALUATION A.E. Kim[1]; K. Kamyab[1]; J. Zhu[2]; K. Volpp[3]. [1]Research Triangle Institute, Research Triangle Park, NC; [2]Division of General Internal Medicine, University of Pennsylvania, Philadelphia, PA; [3]Center for Health Incentives, Leonard Davis Institute of Health Economics, University of Pennsylvania School of Medicine and the Wharton Schoolp; CHERP, Philadelphia VA Medical Cen, Philadelphia, PA. *(Tracking ID # 205513)*

BACKGROUND: Financial incentives are increasingly utilized to modify health behaviors. In a randomized trial of 878 smokers, we demonstrated that a $750 incentive effectively tripled smoking cessation rates in the incentive group compared to controls (14.7% vs 5.0%, p<0.0001). To better understand why incentives did not influence some smokers to quit, we conducted a process evaluation to explore participants' awareness about the program; their perceptions about the value and structure of the incentives; and analysis of sociodemographic, smoking, and environmental characteristics that may have mitigated the impact of incentives.
METHODS: Closed-ended process evaluation measures were developed and added to 6 and 12 month follow-up surveys and administered to all participants in the incentive group of the main trial. A subset of these participants was asked more in-depth open-ended questions at the end of their survey. Qualitative responses were coded for emergent themes and analyzed with the quantitative responses to triangulate findings. Responses are compared for quitters vs. non-quitters in the incentive group.
RESULTS: There was high confirmed awareness about the incentive among quitters and non-quitters alike. The majority of non-quitters (68%) said a larger incentive would not have motivated them to quit; nearly 40% report that even 2x the incentive amount ($1500) would not have influenced them to quit. Non-quitters felt that they should quit on their own and not be motivated by money to do something that they know is beneficial to their health In contrast, nearly 88% of quitters said they would have quit for less money, with 48% responding that they would have quit even if no incentives were offered. In general, non-quitters were more addicted to nicotine than quitters and fewer at baseline were seriously thinking about quitting. Non-quitters were also historically less successful at quitting, with fewer past quit attempts and a shorter duration of successful abstinence. Additionally, non-quitters had lower incomes and were more likely to live in homes where smoking is allowed, which may have mitigated the impact of incentives.
CONCLUSION: Incentives may have lower efficacy among smokers who have had less previous personal success in quitting, who are not seriously motivated to quit, and who live in homes where smoking is allowed. More research is needed to better understand the optimal design of incentive programs to maximize impact across subgroups of the target population.

WHY DO PHYSICIANS OVERPRESCRIBE STRESS ULCER PROPHYLAXIS? S.M. Hussain[1]; M. Stefan[1]; P. Visintainer[2]; M. Rothberg[2]. [1]Tufts University School of Medicine/Baystate Medical Center, Springfield, MA; [2]Baystate Medical Center, Springfield, MA. *(Tracking ID # 204971)*

BACKGROUND: Stress ulcer prophylaxis (SUP) is only indicated in a few situations, most of which occur in the intensive care (ICU) setting. Although multiple studies have shown that inappropriate use of SUP is common for non-ICU hospitalized patients, little is known about why physicians prescribe SUP without supporting evidence. This study seeks to understand which factors influence physician prescribing behavior regarding stress ulcer prophylaxis.
METHODS: We designed a cross sectional web-based survey for internal medicine residents and hospitalists at Baystate Medical Center, a University-affiliated tertiary care hospital. The survey consisted of 20 questions which assessed physicians' knowledge and behaviour surrounding prescribing of SUP for non-ICU patients. The survey was emailed to 150 residents and hospitalists. Bivariable analyses were performed and variables with a p-value of <0.05 were included in a logistic regression model to determine characteristics most associated with inappropriate prescribing.
RESULTS: Ninety-nine physicians (32 hospitalists and 67 residents) completed the survey (response rate 66%). Based on their answer to the question "When you round on non-ICU hospitalized patients, how often do you prescribe SUP?" respondents' prescribing was categorized as either high (>25% of the time) or low (≤25% of the time). Sixty-nine percent of physicians were high prescribers, and 59% thought that their prescribing was not evidence-based. Although 40 of 98 physicians stated they prescribe according to a guideline, all but 2 referenced guidelines that do not exist (e.g. ACP). Most (65%) thought that they prescribed as often as their peers and that their peers prescribed too much. The majority (66%) recommended SUP for a hypothetical patient on glucocorticoid therapy. In the bivariable analysis the following factors were associated with high prescribers: poor knowledge about SUP indications (p=0.007), fear of potential gastrointestinal bleeding without SUP (p=0.04) and fear of the legal repercussions of not prescribing SUP (p=0.04). There was no association with age, sex, level of training, or place of training (US vs. international graduate). Concern about side effects was inversely related to prescribing (p=0.002), and 51% of the respondents did not know any of the side effects of acid suppressive therapy. The same 4 factors remained statistically significant in a multivariable analysis that also controlled for gender, level and place of training. High prescribing was more likely among physicians who feared gastrointestinal bleeding without SUP (OR 2.7, 95%CI: 1.01, 7.28) or feared legal repercussions (OR 3.02, 95%CI: 1.07, 8.56). High prescribing rates were less likely among physicians with good knowledge about SUP (OR 0.39, 95% CI: 0.20, 0.74) and those expressing concern about side effects (OR 0.24, 95%CI: 0.09, 0.61).
CONCLUSION: As in prior studies, we found that physicians often prescribe stress-ulcer prophylaxis in the non-ICU setting. Fear of legal repercussions and ignorance of the side effects of acid suppressive therapy were strongly associated with inappropriate prescribing. Educating physicians about the adverse effects of acid suppression therapy and about existing national guidelines might reduce inappropriate prescribing.

WOMEN AND WAR: HOW ARE VETERANS HEALTH ADMINISTRATION (VA) FACILITIES ADAPTING TO THEIR CHANGING DEMOGRAPHICS? E.M. Yano[1]; B. Bean-Mayberry[1]; D. Rose Ash[1]; I.A. Canelo[1]; D.L. Washington[2]. [1]VA Greater Los Angeles HSR&D Center of Excellence, Sepulveda, CA; [2]VA Greater Los Angeles HSR&D Center of Excellence, Los Angeles, CA. *(Tracking ID # 205870)*

BACKGROUND: In sharp contrast to other U.S. health care settings, women are a numerical minority in VA facilities, typically representing fewer than 5% of those served. Yet, with legislative changes opening military careers to women (20% of new recruits are now women), substantial efforts to enroll returning veterans from Iraq and Afghanistan in VA care, and general declines in insurance availability among Americans, women veterans now represent one of the fastest growing segments of new VA users with an anticipated doubling within a few short years. Our objective was therefore to evaluate on a national scale how VA facilities have responded to the infusion of women into a system historically focused on the care of men.
METHODS: We surveyed key informants among all VA facilities serving 300+ women veterans nationwide in 2001 and 2007, matching facilities by year (83% and 85% response rates, respectively, n= 113). We asked about local primary care (PC) delivery arrangements, women's health (WH) service availability and local authority over practice changes (e.g., determining staffing arrangements) predictive of clinical quality.
RESULTS: Use of separate women's PC clinics increased (52% to 77%, p<.0001); though one-third were providing gender-specific exams rather than comprehensive PC services by 2007. Fewer facilities reported designating PC providers to care for women in general PC clinics (48% to 41%, p<.005). Reductions in referrals to specialty WH occurred, but not always with concomitant increases in PC delivery. For example, fewer VAs referred out for contraceptive services (71%-to-53%), but PC provision was low and did not increase to the same degree (8%-to-18%) (p<.05), a pattern similar to cervical cancer screening (referral reduction 68%-to-59%; PC provision 6%-to-14%) (p<.05). More VAs have PC providers provide pregnancy tests (34%-to-49%, p<.001), and osteoporosis management (31%-to-51%, p<.05). Overall, the proportion of VAs offering on-site basic WH services declined for screening mammography (31%-to-18%, p<.001), menopausal management, treatment of menstrual disorders, hormonal and IUD contraception, and prenatal care (each p<.05). On-site specialty WH services also declined for breast cancer surgery (59%-to-48%, p<.001), and non-surgical/adjuvant treatment (63%-to-57%, p<.001). Senior WH clinicians reported declines in authority for almost every measure (establishing clinical policies, implementing practice guidelines, terminating staff, determining staffing arrangements, and establishing referral guidelines) (all p<.05).
CONCLUSION: VA facilities are handling the infusion of women into the system of care chiefly through efforts to concentrate women to specific providers within or outside general PC, at the same time many separate

WH clinics experienced restricted scopes of practice and reduced local authority over practice arrangements for WH services. In contrast to expectations, we noted a striking erosion of on-site basic service availability paralleling centralization of specialty services. Centralization may afford women access to more experienced providers, but also institutionalizes fragmented care as women must travel to other VAs or community providers to obtain routine services. The VA will continue to face substantial challenges in caring for women until systematic efforts to retrain their PC workforce are in place. In the interim, stronger organizational supports for comprehensive PC delivery in separate clinics are warranted.

WORK LIFE AND WORK CONTROL FOR ACADEMIC PRIMARY CARE PHYSICIANS: DIFFERENCES WITH THE PRIVATE SECTOR

B.L. Duffy[1]; L. Baier Manwell[1]; R.L. Brown[1]; M. Linzer[1]. [1]University of Wisconsin-Madison, Madison, WI. *(Tracking ID # 204949)*

BACKGROUND: It is not known if stress, burnout and satisfaction differ between academic and non-academic physicians. Differences in work control, a factor associated with less job stress for physicians and the general work population, are also unclear. We analyzed data from a survey of primary care physicians to determine how academic physicians differ from their private practice colleagues in perceptions of work control, job satisfaction, personal stress and burnout, and intent to leave the practice.

METHODS: Data are from surveys of 422 generalist physicians from 119 clinics in New York City and the upper Midwest participating in the Minimizing Error, Maximizing Outcome (MEMO) Study. Stress was measured with a four-item scale and job satisfaction with a five-item scale. Burnout and intent to leave were each assessed by a single question with five response options. Work control was measured by a 14-item scale adapted from the Physician Worklife Study that queried amount of control over such items as length of stay, paperwork, scheduling, and work pace. Data were analyzed with a MIMIC (Multiple Indicator Multiple Cause) model, also known as covariate factor analysis, using Mplus Version 5.1. The model covariates included physician age, sex and specialty, as well as academic-non academic status.

RESULTS: Of the 422 respondents, 165 (39%) were in academically-owned practices and 257 were in private practice. Half were general internists, half were family physicians, and 44% were female. Academic physicians were more likely to be internists (63%, $p<0.001$) and female (56%, $p<0.001$). Factor analysis of the 14 work control items revealed two dimensions: control of medical decision making (5 items) and control of workplace characteristics (9 items). Both conceptually and statistically, the data fit this two dimensional structure well. Academic physicians perceived significantly less control of workplace characteristics than private practice physicians ($p=.001$), particularly in terms of clinic schedule, patient load, and work pace. There were no significant differences between academic and non-academic physicians in terms of stress, satisfaction, burnout, or intent to leave the practice.

CONCLUSION: Academic physicians perceive less control of workplace characteristics than their private practice counterparts. However, no differences were found in terms of physician reactions such as stress and burnout. To improve work life in academia, clinic leadership could focus on improving physician control over scheduling, patient volume, and pace of work.

WORKFLOW INTERRUPTIONS IN THE HOSPITALIST MODEL OF CARE

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BACKGROUND: The advent of hospital medicine programs has allowed for 24/7 direct access to physicians. This may have implications to the workflow and the frequency of interruptions yet there are no current studies that address this. Implications are that cumulative interruptions lead to delayed patient care and potential adverse patient outcomes. In healthcare, there are multiple methods of communication that create organizational chaos which may promote errors. Implementation of electronic medical records (EMR) despite the obvious benefits may be another contributing factor because of poor communication, miscommunication or cognitive distraction secondary to interruption. In healthcare today, the likelihood of completing a task without interruptions is becoming harder; in fact with many interruptions following in rapid succession paying 100% attention to a single task becomes impossible. In our traditional community hospital medicine program there are two types of organizational structure to the hospitalist model. One is a geographic rounder and the other non-geographic. Geographic signifies a hospitalist who has the majority of his patients on one single unit whereas, non-geographic rounders have patients scattered over 9 different medical –surgical units. Our goal was to assess the number, type and impact of interruptions in geographic versus non-geographic rounders.

METHODS: This was an observational study using the shadowing method. A sample of 5 attending hospitalists was observed and data recorded during the 08:00 – 16:00 rounding shifts for the number of interruptions, their duration, time spent dealing with interruptions and nature of the interruptions.

RESULTS: A geographic physician was assigned as such with >75% of their patients on one single unit (equivalent to 10–12 out of 14–16 patients on average on the single unit). We recorded a total of 229 interruptions over a total of 16 hrs of observation. Of these 41% (105 interruptions) were by nurses, 11% (26 interruptions) were by other physicians and the rest were scattered in small percentages amongst other ancillary staff / caregivers. 50% of the interruptions were equal to or less than 1 minute and ranged up to 6 minutes. The physicians returned to the original tasks that they were performing up to 77% of the time. In the non-geographic model of care there were 6.7 interruptions per hour compared to 5.7 interruptions per hour for the geographic model. The most frequent type of interruption was usually a verbal face to face conversation (48%) followed by paging (30%) with other interruptions including cell or other phone calls.

CONCLUSION: We found that the geographic model of care had fewer interruptions over time which may lead to fewer disruptions in workflow with underlying implications for improved overall quality of care. This likely was due to physical proximity of the physician requiring less repeat calls / pages where one conversation was enough. Returning to the original task 77% of the time though is worrying as it encourages misuse, underuse or overuse because of incomplete tasks. Interruptions can have cost implications, if we take an estimate of 15% of a hospitalists work being consumed by interruptions (which our data suggests) that amounts to ~1.2 hrs of lost work (per 8 hr shift) which may amount to an estimated $30,000 lost per hospitalist per year in terms of unproductive work. Methods to reduce interruptions and their distracting effects need to be studied.

"YOU DON'T GO TELL WHITE PEOPLE NOTHING": DEPRESSED AFRICAN-AMERICAN WOMEN DISCUSS THE INFLUENCE OF VIOLENCE AND RACISM ON DEPRESSION AND DEPRESSION CARE.

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BACKGROUND: African-Americans receive less guideline-concordant depression care than non-Hispanic Whites. They also bare a disproportionate burden of violence victimization. Few depression care programs are tailored to meet the needs of African-American women.

METHODS: We formed a community-academic partnership whose goal is to improve depression care for African-American women (The Interconnections Project). We used a community-based participatory research (CBPR) approach to conduct a focus group study of African-American women with symptoms consistent with Major Depressive Disorder (PHQ9>=15). Community partners recruited and screened potential participants from local social service agencies and at community events. Eligible women were asked to participate in a focus group discussion facilitated by community partners. Academic and community partners jointly analyzed focus group transcripts using thematic analysis with an inductive approach (consistent with Grounded Theory), at a semantic level with an essentialist paradigm. The team jointly decided how to use study results to serve the community's interests.

RESULTS: 30 women participated in 4 focus groups. We had intended to separate groups based on whether or not they had experienced violence, but all potential participants reported violence victimization. When talking about their health, women described a viscous cycle of violence, depression and substance abuse that "messes you up" and leads to poor health and more violence. Discussions about depression care or other health care primarily revolved around racism. Women felt the racist experiences of their grandparents led to ongoing cultural messages to avoid care. They deeply mistrusted the healthcare system as a White system and attributed their own negative experiences with healthcare to racism. They voiced very negative attitudes toward antidepressants, be it due to the fear that they are addicting, to the desire to cope on one's own, or to mistrust of providers' motives in prescribing them. The image of the "Strong Black Woman" was seen as a barrier both to recognizing depression and seeking care. When asked what they would need from a depression care program, they emphasized the importance of addressing the violence, drug use, and other stressors that permeated their lives. They wanted African-American providers and valued life experience more than educational credentials. They were enthusiastic about the use of African-American advocates to bridge to a White health care system. Community partners used these results to create a depression awareness campaign around the theme of "Strong Black Woman – what are you burying, your feelings or the myth?" The team also used findings to create a culturally-tailored, community-based depression care program.
CONCLUSION: Participants described a vicious cycle of violence, substance use and depression that affected every aspect of their health. Discussions about health care were dominated by issues of racism. Women wanted depression care programs by and for African-Americans, with attention to violence, drugs use and other practical life issues. Results are limited to a small sample of low-income women in a single city that has a low proportion of African-Americans. Still, results imply that providers should carry an appreciation of racism and how it may inform the experiences and beliefs of African-American patients. Future work is needed to test the effectiveness of community-based depression care interventions.

Innovations in Medical Education

A BLOG AND STUDENT-CENTERED SEMINARS FACILITATED REFLECTIVE LEARNING IN CARING FOR UNDERSERVED PATIENTS B.C. Williams[1]; B. Simons[2]; S. Schooley[2]; D. Gordon[1]. [1]University of Michigan, Ann Arbor, MI; [2]Henry Ford Health System, Detroit, MI. *(Tracking ID # 204290)*

STATEMENT OF PROBLEM OR QUESTION: Students' professional values and identities develop throughout medical school, including those related to caring for disadvantaged patients. Traditional explicit medical curricula focus on mastery of clinical knowledge and skills through didactic and apprentice-model clinical experiences, without structured opportunities for students to reflect on their professional growth in the context of specific clinical experiences. Such facilitated reflection may enhance students' interest in careers that include caring for disadvantaged patients.
DESCRIPTION OF PROGRAM/INTERVENTION: In 2007 and 2008 we offered a one-month elective in Care of the Underserved to up to four fourth year medical students for four months each year. The rotation held didactics to a minimum, and included: a) 5 half-days each week in urban "safety net" clinics (e.g., homeless shelter clinics, school-based clinics in poverty areas, public mental health clinics), b) assigned readings (to replace didactics in the delivery of facts), c) two weekly four-hour seminars with student-led discussions of readings, clinical cases, clinic profiles, and physician role models at the clinic sites; and outside discussants, and d) a closed blog (only the students that month and course faculty had access) where students described and discussed the effects of patients or rotation experiences on their emotions, attitudes, values, and career plans.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Describe characteristics of the "safety net", underserved patients, and related social and behavioral factors and health policies; and career paths of physicians caring for underserved patients. 2. Communicate effectively with underserved patients and systematically assess their medical, behavioral, social, and environmental challenges. 3. Clarify values related to personal, professional, and societal responses to health needs of vulnerable patients.
FINDINGS TO DATE: 13 students have completed the rotation. Student evaluations of the rotation were excellent (mean 4.5 to 5 on a 5-point scale for specific components, sites, and the overall value of the rotation). Themes evident in the blog included: a) the uniqueness of the experience in the curriculum, b) profound personal impact of the rotation (e.g., in describing a patient encounter: "…when I almost felt tears I noticed myself detaching instinctively…", "…this week has been an emotional roller coaster for me… particularly the day at Clinic X"), c) contact with inspirational physician role models, and d) exposure to a broader array of clinical conditions and their management that go beyond the biomedical model.
KEY LESSONS LEARNED: Structured opportunities for reflective learning in caring for vulnerable patients had a subjectively powerful immediate effect on a small number of self-selected students. The closed blog and small group discussions appeared to effectively facilitate students' abilities to understand and process their experiences, and connect them to their professional identities and career plans. Students could be coached into becoming effective peer discussion facilitators. Faculty and administrative resources required, and low enrollment capacity limit the scalability of the rotation. The rotation may have been under-subscribed due to conflicts with interviews or off-site rotations during the fourth year of medical school. Funding for this rotation was provided in part by the Blue Cross/Blue Shield Foundation of Michigan.

A CURRICULAR INNOVATION TO TEACH DISCLOSURE OF MEDICAL ERRORS TO RESIDENTS R. Bonnema[1]; A.R. Gonzaga[2]; C.L. Spagnoletti[2]. [1]University of Nebraska Medical Center, Omaha, NE; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 203696)*

STATEMENT OF PROBLEM OR QUESTION: When medical errors occur, effective doctor-patient communication is essential. While patients desire full disclosure of errors, physicians are often unsure of what to say or how to say it. In particular, trainees have a strong emotional response about committing or sharing errors and are often unaware of any clear protocol for error disclosure.
DESCRIPTION OF PROGRAM/INTERVENTION: We designed a curriculum for second-year internal medicine residents on medical error disclosure with a didactic component/small group discussion (1 hour) and small group role-play practice session with a trained facilitator (1.5 hours). Prior to developing the didactic portion of the curriculum, we performed a literature review to identify key elements of medical error disclosure that are important to patients. The didactic session taught residents what to include in error disclosure and reviewed verbal and non-verbal responses to emotion. The opportunity to practice learned skills has been well documented as a tool for teaching communication skills, thus we developed brief cases based on real-life scenarios for both small group discussion and role play. Cases highlighted learning objectives and prompted open discussion of error. Each resident role-played both patient and physician with different cases. We distributed a survey to participants after the final session that assessed their attitudes toward and comfort with disclosing medical error, both prior to the training session (in a retrospective manner) and after. The survey was based on a previously published instrument and assessed, using 5-point Likert scale (1 lowest, 5 highest), preparedness to discuss errors and the importance of the topic to their training and future career.
OBJECTIVES OF PROGRAM/INTERVENTION: Create a curriculum for residents that helps them: 1. develop the verbal and non-verbal communication skills unique to medical error disclosure. 2. demonstrate basic knowledge about the disclosure process (including components important to patients) during small group discussion and role play.
FINDINGS TO DATE: Data was collected on an 8 month experience with the curriculum. All 23 participants were second-year residents at a single institution. Results indicate significant improvement in pre-post scores (all $p<0.001$) in 9 areas of error disclosure including content and introduction of discussions, dealing with a patient's emotional reaction, expressing empathy, responding to patient questions regarding how an error occurred, addressing patient concerns about future consequences, dealing with legal questions, recognizing one's own emotions when discussing medical errors and keeping those emotions from adversely affecting disclosure. Residents felt they would be very likely to use the skills learned both in the remainder of residency (4.6) and in their future career (4.7). Overall, the educational quality of this session was highly rated (4.7).
KEY LESSONS LEARNED: Our innovative, experiential curriculum demonstrates a model for enhancing resident communication skills and

for teaching error disclosure. Our method requires about 2.5 hours of faculty and resident time away from clinical duties. However, when teaching communication skills, it is imperative that residents have the opportunity to practice the learned skills. Teaching medical error disclosure presents an opportunity for residency programs to potentially impact patient care as well as to address core competencies in resident education such as communication skills and professionalism.

A LONGITUDINAL, PATIENT-CENTERED GERIATRICS CURRICULUM FOR THE CAMBRIDGE INTEGRATED CLERKSHIP A. Fabiny[1]; W. Suen[2]. [1]Cambridge Health Alliance, Cambridge, MA; [2]Cambridge Health Alliance, Somerville, MA. *(Tracking ID # 205790)*

STATEMENT OF PROBLEM OR QUESTION: Many medical schools lack a well developed geriatrics curriculum. According to the ADGAP survey of Geriatric Medicine Program Directors in 2005, only 23% of medical schools required a geriatrics rotation and 48% integrated some geriatrics into a required clinical rotation. Even when a geriatrics curriculum exists, the most effective way to integrate it into the third year is unclear. A study at McGill University in 2003 showed that knowledge acquisition was better in a single integrated week in geriatric medicine than ten weekly sessions. This study did not assess change in clinical behavior over time, rather only medical knowledge acquisition at a single point in time.
DESCRIPTION OF PROGRAM/INTERVENTION: We propose to develop and implement a year-long geriatrics curriculum for the Cambridge Integrated Clerkship (CIC). The year-long geriatrics curriculum includes the following elements: 1. Each student will be paired with a community-dwelling older adult at the beginning of the year. 2. Students will participate in the routine, urgent and emergent care of their patients during the course of the year. This will include care provided in the home, clinic, hospital, subacute unit and nursing home. In addition, it is possible that a small minority of the patients will require palliative care during the year. All episodes of care will be precepted by geriatricians. 3. Students will meet for 1.5 hour-long monthly sessions with geriatricians to present their patients to the group and participate in didactic sessions on core topics in geriatric and palliative care medicine. 4. Assessment will include: a. Evaluation of their progress notes using a standardized checklist to assess students' acquisition of knowledge and identification of behavior change in the clinical care of their older adult patients b. Participation in the Fourth Year Comprehensive OSCE Geriatrics Station c. Pre- and post-intervention knowledge and attitudes survey d. A brief reflective essay on how this experience has influenced their understanding of aging and care of older adults
OBJECTIVES OF PROGRAM/INTERVENTION: Our goal is to train third-year medical students in the care of older adults in the context of a relationship with a patient over time. Specifically: 1. effectively manage medical problems in a variety of health care settings within the context of the patients' goals of care 2. perform a thorough and efficient functional assessment 3. conduct thoughtful and effective conversations about advance care planning 4. manage end-of-life care 5. identify geriatric syndromes and have some understanding of their evaluation and management. 6. appropriately prescribe medications
FINDINGS TO DATE: After a Geriatrics Intensive Week in July, all twelve students were paired with an older adult patient as described above. They have had at least three clinical encounters with their patients, one of which was a home visit. The students have submitted their progress notes from those visits to their geriatrician preceptors. The students have had monthly didactic sessions with geriatricians. The curriculum for those sessions is designed to help them achieve the AAMC Geriatric Competencies for Medical Students.
KEY LESSONS LEARNED: 1. Although this experience is a required feature of the Integrated Clerkship, because the patient encounters do not occur in their primary care clinic it has been a challenge to ensure that the students conduct the encounters. 2. Their write-ups contain content that demonstrates acquisition and performance of the AAMC Geriatric Competencies.

A MULTI-DISCIPLINARY ELECTIVE ENHANCES ADVOCACY SKILLS IN GRADUATE LEVEL TRAINEES R.S. Lee[1]; J. Long[1]; S. Wong[1]; C. Battaglia[2]; K. Kennedy[3]; M.A. Earnest[1]. [1]University of Colorado Denver, Aurora, CO; [2]University of Colorado Denver, Denver, CO; [3]University of Denver, Denver, CO. *(Tracking ID # 206002)*

STATEMENT OF PROBLEM OR QUESTION: Healthcare providers are uniquely positioned to be advocates of health care reform, but often avoid doing so due to lack of training in leadership and advocacy skills.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a 3-week long elective, Leadership, Education, Advocacy, Development, Scholarship (CU-LEADS), for graduate level trainees across disciplines, including Internal Medicine, Pediatrics, nursing, speech and physical therapy, psychology, social work, and epidemiology. The course covered topics including overview of the current US healthcare system, alternative models of healthcare, legislative advocacy, how to interact with the media (written and television), community organizing, and coalition building. In addition, trainees selected their four highest priority leadership topics from a menu of 24 (exemplary leadership practices, systems thinking, assertiveness, program planning and management) for the curriculum.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To describe how the medical community can effectively partner with community organizations to better meet the needs of vulnerable populations; 2) To identify public policy initiatives that could improve the health of vulnerable populations and communities; 3) To describe legislative strategies to implement policy initiatives.
FINDINGS TO DATE: Participants valued the diversity of a multi-disciplinary group and the different perspectives it offered. They felt this added to the conversation and highlighted the need for collaboration and teamwork. After the elective, participants reported more self-confidence in their ability to advocate in clinical settings ($p<0.0001$), to work with community organizations ($p<0.001$), to influence public policy ($p<0.001$), to write opinion editorials ($p<0.0001$), to give a media interview ($p<0.0001$), to influence legislation ($p=0.007$), and to be a community leader ($p=0.004$). All participants agreed or strongly agreed they would apply the skills they learned to clinical practice and that this elective would help them achieve their career goals.
KEY LESSONS LEARNED: A brief, intensive elective is effective in improving graduate level trainee self-confidence in their ability become effective advocates and plans to use their advocacy skills in clinical practice. A multi-disciplinary environment enhances the educational experience by integrating a variety of perspectives, therefore, highlighting the need for collaboration and partnership in advocacy ventures.

A NOVEL CURRICULUM IN LEADERSHIP FOR MEDICAL STUDENTS M.A. Earnest[1]; R.S. Lee[1]; S. Wong[1]; J. Long[1]; S. Federico[1]; C. Battaglia[1]; K. Kennedy[2]. [1]University of Colorado Denver, Aurora, CO; [2]University of Denver, Denver, CO. *(Tracking ID # 204296)*

STATEMENT OF PROBLEM OR QUESTION: Leadership competencies are important to cultivate in physicians. Few curricula exist to train medical students in leadership. A frequent challenge in training medical students in leadership is the lack of life experience on which to draw.
DESCRIPTION OF PROGRAM/INTERVENTION: Students accepted into the LEADS (Leadership, Education, Advocacy, Development, Scholarship) summer program completed a survey delineating which leadership content areas they felt were most important. The group chose six leadership topics from a menu of 24 (Systems thinking, project management, exemplary leadership practices, time management, values clarification and personal vision, and "getting to yes"). Students were placed into pairs and chose which topics they wished to facilitate. Pairs were assigned mentors who were leadership content experts to advise them in preparing a 3 hour leadership seminar. Each pair then facilitated the workshop for their peers in the summer program. All students received an introduction to techniques of small-group facilitation in the initial introductory session.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To provide an experiential curriculum in seven leadership content areas 2) To provide an exercise requiring teamwork for successful completion 3) To provide mentorship, instruction and practice in small group facilitation skills 4) To increase comfort, confidence, and willingness of learners to assume leadership roles and lead small groups
FINDINGS TO DATE: Students completed questionnaires at the start and at the end of the curriculum. Students felt significantly more confident in leading small groups to attain common goals, reported better understanding of their own strengths and weaknesses as leaders, and reported more confidence in changing their leadership approach and style to attain goals at the end of the course. Students rated the experience highly and appreciated being active participants in the

conduct of the course as well as being able to select the topics. They felt the experience of facilitating the sessions was very valuable.
KEY LESSONS LEARNED: With mentorship, students can teach leadership skills to their peers. The process of teaching peers in small group workshops provides a valuable leadership experience that can augment the skills they are learning.

A RESIDENT CLINIC QUALITY IMPROVEMENT PROJECT THAT USES PEERS AS MOTIVATORS FOR CHANGE
J. Sage[1]; R. Raina[2]; D. Mansour[2]; H. Perzy[2]; D. Kaelber[1]. [1]MetroHealth Medical Center, Cleveland, OH; [2]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205970)*

STATEMENT OF PROBLEM OR QUESTION: Residents need to master the quality improvement skills that are necessary to provide good patient care and thrive in the pay for performance environment.
DESCRIPTION OF PROGRAM/INTERVENTION: During an ambulatory clinic rotation during their 2nd and 4th years, med-peds residents are paired with one another. As a pair, they conduct a quality improvement project. First, they are taught about pay for performance and life-long quality improvement. Then, they audit each other's performance in the care of their internal medicine and pediatrics continuity clinic patients. The internal medicine review focuses on the processes and outcomes of diabetic care, including the LDL cholesterol, hemoglobin A1c, and microalbuminuria. The pediatrics review is for anemia screening and vaccination rates. The reviewing resident collates the data and shares it with the reviewee. They recommend areas for improvement. The reviewee then provides a reflective statement on their performance and makes a plan for improvement.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Residents will learn about the intersection of quality improvement and pay for performance. 2. Residents will audit the internal medicine and pediatrics charts of one of their colleagues and make recommendations to improve the delivery of care. 3. Residents will take steps to improve their process and outcome data.
FINDINGS TO DATE: Residents find the quality improvement project relevant and important. They mentor each other and make salient recommendations. Residents are motivated to improve their performance measures and set one or two improvement goals. In general, 4th year residents have better process and outcome measures.
KEY LESSONS LEARNED: Residents think quality patient care is important and want to do well on pay for performance measures. Residents are receptive to feedback from their peers and use the feedback to improve their practice. The peer-to-peer mentoring provided by this curriculum serves as an effective catalyst for improvement in the processes and outcomes of patient management.

AMBULATORY TRAINING GROUPS: A NOVEL MECHANISM TO ENSURE LONGITUDINAL RELATIONSHIPS WITH CONTINUITY CLINIC PRECEPTORS FOR INTERNAL MEDICINE RESIDENTS
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STATEMENT OF PROBLEM OR QUESTION: ACGME approved Internal Medicine Residency Program Requirements effective July 2009 include the new requirement that "each resident's longitudinal continuity experience must include supervision by faculty who develop a longitudinal relationship with residents". This goal is challenging to achieve given duty hour restrictions, whereby residents no longer have clinic on the same day each week and therefore no longer work with one consistent faculty mentor in clinic.
DESCRIPTION OF PROGRAM/INTERVENTION: To address this challenge, we designed and implemented Ambulatory Training Groups (ATGs). 97 categorical IM residents were divided into ten ATGs. Each ATG consisted of one to two attendings from the General Internal Medicine faculty and three to four residents from each PGY level, for a total of nine to ten residents per group. ATGs functioned as small practice groups with rotating off duty pager coverage. These groups met monthly outside of the normal clinic time for one hour in lieu of a previously scheduled noon conference. The curriculum addressed three core topics: telephone medicine, practice management, and clinic note audits. Telephone medicine was discussed during the first half of each meeting by reviewing written logs of after hours phone calls received in the previous month. Practice management topics included test follow-up and use of ancillary services, in addition to management of challenging patients. Lastly, clinic note audits were performed to improve documentation and billing.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of our program were to establish longitudinal relationships between faculty and residents, to provide faculty supervision for residents caring for patients outside of clinic hours and to formally teach residents clinical practice management skills.
FINDINGS TO DATE: To ascertain the impact of ATGs on resident education and patient care, we conducted an end of the year survey of all residents. 73% (71/97) of residents responded. 65% of residents felt that ATGs increased their sense of support and supervision in their Continuity Clinic. In addition, 60% of residents agreed that ATGs improved their satisfaction with Continuity Clinic. Of note, 14% of residents initiated contact with their ATG preceptor outside of clinic and ATG hours, often for help with an emergent patient issue (i.e. insulin overdose, cord compression and abdominal aneurysm). One resident summarized: "it is nice to have someone whom you have met with in the past to curbside about issues since we now do not often have continuity in the clinic setting with the same preceptor due to scheduling issues."
KEY LESSONS LEARNED: Ambulatory Training Groups are a novel mechanism to ensure longitudinal relationships with Continuity Clinic faculty given the constraints of IM residency today. In addition, residents used their ATG preceptor as a resource for outpatient issues during critical patient decisions. This model may be helpful for other IM programs struggling with similar mentoring, supervision and satisfaction challenges in ambulatory education.

CAN CHARTING SMARTPHRASES IMPROVE PATIENT CARE?
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STATEMENT OF PROBLEM OR QUESTION: Compliance with clinical guidelines for management of chronic disease among physicians is poor. Physicians in training often create mnemonics or other devices to aid in recalling important clinical knowledge points. At current, electronic medical records (EMR) often include software tools which could be adapted for this purpose. Smart phrases are tools in an EMR that allow the user to customize charting by typing a few characters that automatically expand into longer phrases or blocks of text. Smartphrases are both system supplied and user created and can allow the user to pull in previously entered data. We developed an outpatient seminar for Internal Medicine residents to promote guideline concordant care by having residents identify weaknesses in their clinical knowledge, develop smart phrases to address these weaknesses, and implement them during clinical encounters.
DESCRIPTION OF PROGRAM/INTERVENTION: Internal Medicine physicians developed a two-session curriculum for PGY1 and 2 Internal Medicine residents. During the first session, we instruct the residents to write down their practice patterns in the management of diabetes or hypertension as it pertains to lab work, referrals, and medications. Residents are then presented with the evidence based guidelines per HEDIS and American College of Physicians for diabetes, and Joint National Committee for hypertension, and subsequently asked to reconcile their diabetes and hypertension care practices with the guideline recommendations. Once these deficiencies in their practices are identified, they are introduced to the smartphrase tool in the outpatient EMR (EPIC, EPIC Systems Corporation). They are asked to utilize their smartphrases for the next two weeks when charting their progress notes. In Session 2, the residents discuss problems that were encountered and their opinions regarding utility and efficacy. To assess the impact of the curriculum on the delivery of care and quality of documentation, 3 clinical notes per resident done prior to session one were evaluated, to identify baseline diabetes and hypertension practice patterns. Five notes per resident, documented after the intervention, were then abstracted. A survey was presented at the end of the session to assess level of satisfaction.
OBJECTIVES OF PROGRAM/INTERVENTION: 1.To help Internal Medicine residents identify knowledge based gaps in the management of diabetes and hypertension 2.To teach Internal medicine residents

how to create an EMR based tool to aid in the compliance of evidence based guidelines for diabetes and hypertension
FINDINGS TO DATE: Sixty-five PGY1 and 2 Internal Medicine residents have participated in the curriculum to date. Eighty percent (52/65) created smartphrases for diabetes versus 20% (13/65) for hypertension. Satisfaction with the curriculum was high. In the post-interventional survey, most residents expressed enthusiasm regarding the utility of smartphrases: 87% of PGY1's and 77% of PGY2's reported that they would continue to use smartphrases, and 66% and 74% respectively stated that smartphrases helped them order appropriate lab work. Most smartphrases are being utilized for ordering and trending lab work, ordering vaccinations, and trending blood pressures.
KEY LESSONS LEARNED: This brief two-session curriculum enhanced residents' knowledge of clinical guidelines and was well received. Additionally, residents were introduced to valuable tools available in many different EMR's. We are in the process of collecting data on the effect of smartphrases on quality of care in diabetes and hypertension management.

CATCH THEM WHILE YOU CAN: A COMPREHENSIVE PROFESSIONALISM PROGRAM TO IDENTIFY AND REMEDIATE UNPROFESSIONAL BEHAVIOR IN MEDICAL STUDENTS
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STATEMENT OF PROBLEM OR QUESTION: Professionalism is recognized as one of the six general competencies of the ACGME. Studies have shown that unprofessional behavior in medical school is associated with subsequent disciplinary actions by state medical boards. Best strategies to promote professional behavior and prevent or modify unprofessional behavior remain unclear.
DESCRIPTION OF PROGRAM/INTERVENTION: The University of Miami Miller School of Medicine has created a comprehensive professionalism program. Documents that define professional standards are communicated to the medical school community. Traditional evaluation tools that measure student behavior are utilized in non-clinical and clinical settings. Additionally, students complete peer and self assessments using a customized survey that measures motivating and disruptive behaviors. Used for formative purposes only, the survey compares self-perception versus peer perception and provides students guidance on behaviors to start, stop, or keep doing. A unique feature of the program is a web-based reporting system open to all members of the medical community. Physicianship Incident Reports (PIRs) submitted through this system are received by the dean for student affairs and forwarded to the student for response. All PIRs are reviewed by the class promotions committee, and in most cases, result in formative counseling. Recently, the system has been expanded to allow students to report the unprofessional behaviors of residents or faculty. Attempts to enhance professionalism and correct unprofessional behaviors range from formative counseling to disciplinary actions. Students who demonstrate recurring or significant unprofessional behaviors may be referred to the Physicians Development Program (PDP), a program that performs a comprehensive evaluation, prescribes an individualized plan for remediation, and monitors the student's progress.
OBJECTIVES OF PROGRAM/INTERVENTION: To: (1) foster a professional learning environment; (2) measure the professional behavior of medical students; (3) improve their professional behavior; and, (4) provide remediation to those who demonstrate unprofessional behavior.
FINDINGS TO DATE: The comprehensive professionalism program appears to be well accepted by all members of the community, including the medical students. The annual professionalism survey has shown consistent improvement in motivating and disruptive behaviors among students. Over 300 PIRs have been submitted over the past four years. Most cases have resulted in formative feedback. Thirty students have been referred to the PDP for evaluation, counseling and monitoring. Twelve students have since graduated from medical school, and nine remain enrolled and are making progress toward the medical degree. Nine students have been dismissed from the medical school due to continuing problems.
KEY LESSONS LEARNED: There have been many benefits realized through the comprehensive program. Students have a clearer understanding of expected professional behaviors. The annual formative survey appears to have had a positive impact on student behavior. Reporting and documentation of professionalism incidents have greatly improved, leading faculty to become more comfortable in addressing concerns. Students of concern are recognized earlier in their education. The PDP has helped identify underlying causes of unprofessional behavior. In most cases, students who have demonstrated unprofessional behavior have responded well to remediation. We believe this program can serve as a model for other medical schools developing professionalism programs.

CODE BLUE DRILL EDUCATIONAL PROGRAM
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STATEMENT OF PROBLEM OR QUESTION: A survey of our internal medicine residents showed a majority were uncomfortable with code blue events and desired more knowledge and experience. Published studies have shown that delay in defibrillation is common and is associated with lower rates of survival after in-hospital cardiac arrest. Recent work demonstrated that a simulation-based educational program improves quality of care provided by residents during actual ACLS events. Furthermore, there are reports that surprise resuscitation drills can improve performance in real emergency resuscitation.
DESCRIPTION OF PROGRAM/INTERVENTION: The Code Blue Drill Educational Program will take place at the beginning of each ICU block at an unknown time and location. A mock code cart will be utilized and participants include nursing, anesthesiology, respiratory therapy, pharmacy and public safety. Data collected will be time to: hearing the overhead, nursing staff arrival, ICU team arrival, ICU resident announcing s/he will lead code, initial assessment, code cart arrival to room, placement of pacer pads and time to defibrillation. After the code blue drill, participants will be debriefed on: 1) Institutional code blue policy, 2) Understanding specific roles and responsibilities for all code team members, 3) Communications and teamwork effectiveness, 4) Review of code crash cart and code sheet, and 5) Overall team management with respect to time to defibrillation and adherence to ACLS guidelines.
OBJECTIVES OF PROGRAM/INTERVENTION: To utilize a Code Blue Drill Educational Program to: 1) Evaluate the time to defibrillation during cardiac arrest events for primary ventricular fibrillation (VF) and pulseless ventricular tachycardia (PVT), comparing a high-fidelity simulation environment to actual in-hospital cardiac arrests; 2) Determine the effect of the Code Blue Drill Educational Program on teamwork characteristics during codes and on resident self-confidence in subsequent in-house arrests; 3) Identify barriers to timely assessment and intervention for VF and PVT.
FINDINGS TO DATE: The survey of our internal medicine residents had a 73% response rate. The survey showed that 67% of respondants agreed that they needed more knowledge of codes, 84% agreed they needed more experience with codes, 71% were not confident in leading codes and over 50% were not confident in recognizing or treating dysrhythmias. The Code Blue Drill Educational Program is measuring multiple endpoints including time to defibrillation for in-house arrests and resident comfort level with codes. This data will be available to present in May 2009.
KEY LESSONS LEARNED: A Code Blue Drill Educational Program involving all members of a code team is expected to improve residents' confidence in codes and decrease time to defibrillation in actual cardiac arrest events. The time performance data points collected will help identify instituitional and human factors that lead to delay of definitive care. Also, this will assist our quality assurance program in developing strategies to expedite treatment. This intervention represents a multidisciplinary approach to educate residents with the goal of positively impacting patient care outcomes.

CREATING A "COMMUNITY OF PRACTICE": USING DISTANCE LEARNING TECHNOLOGY TO LINK HIV TREATING CLINICIANS
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STATEMENT OF PROBLEM OR QUESTION: HIV care is increasing in complexity with the development of new therapies and longer patient

life expectancies. However the majority of continuing medical education (CME) opportunities rely on traditional didactic-based models to address the rapidly evolving training needs of HIV clinicians. These CME models fail to address the needs of low-volume HIV clinicians to discuss challenging healthcare issues with more experienced high-volume treaters.

DESCRIPTION OF PROGRAM/INTERVENTION: A collaborative group of key local and regional clinicians from several institutions developed a community of practice linking statewide clinicians via video-conferencing to engage in open discussions regarding challenging HIV/AIDS cases. The "HIV Treaters" conference is a one-hour monthly non-didactic case discussion linking five sites in four cities throughout the state to bring rural and urban clinicians together. Two real cases with clinical dilemmas are presented and discussed at each conference by approximately 60 attendees. Participating clinicians volunteer to present cases for discussion. After the case presentation the presenter seeks input from attendees on treatment decisions. The same clinician serves as discussion facilitator for all sessions. The attendees are candid and open with feedback and recommendations. The program is held at noon and lunch is provided to allow busy clinicians to attend on their lunch hour. CME credit is provided.

OBJECTIVES OF PROGRAM/INTERVENTION: We sought to create a community of practice for HIV clinicians throughout Wisconsin using a case-driven, monthly CME activity. The objectives of this project include: 1) creating a forum for low-volume HIV clinicians to learn from experienced high-volume HIV clinicians; 2) providing timely input into the care of complex HIV patients; 3) assessing the feasibility of linking clinician learners in multiple regions of the state.

FINDINGS TO DATE: Approximately 60 clinicians statewide attend the program. A small group (8) of committed high-volume HIV clinicians volunteer to provide clinical cases for discussion. Lower-volume clinicians participate in the discussions and are increasingly volunteering to present cases. Clinician feedback was solicited via a self administered qualitative survey of attendees. Respondents noted that case discussions were timely and "relevant" to their clinical practices with an "excellent" variety of cases. A number of respondents commented "the discussions allowed me to receive cutting-edge clinical advice from colleagues" and believed the discussions improved their own patient care. Most felt that this activity promotes collegiality and collaboration within the HIV treating community.

KEY LESSONS LEARNED: It is feasible to create a statewide community of practice among HIV clinicians via a regularly scheduled, case-based videoconference. A core group of committed clinicians that attend regularly is important to sustaining the program. A skillful discussion leader is needed to establish the non-threatening environment that allows for open discussion leading to potential changes in patients' treatment. We recommend an advisory committee of clinician opinion leaders to generate participation and establish "buy-in" to the process. Technician and program coordinator support is needed to ensure effective functioning of the distance learning technology. This model of CME can provide added value over didactic or self-study learning activities, and promotes collegiality and collaboration within the HIV clinician community.

CREATING AGENTS OF PATIENT SAFETY AND QUALITY: A PREP FOR THE CLERKSHIPS COURSE FOR MS2 STUDENTS
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STATEMENT OF PROBLEM OR QUESTION: Patient safety and quality is an interdisciplinary competency which needs to be integrated into the already crowded medical school curriculum. There is little information on the ideal timing or method for instruction in this content. We reasoned that embedding patient safety objectives in a skills-based "prep for the clerkships" course would be optimal timing.

DESCRIPTION OF PROGRAM/INTERVENTION: We designed a 2-day course for MS 2 students at the end of the basic science curriculum. We began with a needs assessment questionnaire delivered to MS3 students, PGY2 residents, and hospital nurses to identify needs of students as they arrive on the hospital wards. The 2 day course consisted of didactics on error reporting systems, patient identification, fall risk and prevention and writing medication orders; panel discussions on interdisciplinary teams; communications laboratory exercises, BCLS Certification, a Pandemic Simulation, and a series of Sim Center stations including hospital infection control, surgical scrub and sterile procedures and practicing informed consent with a standardized patient. Students tracked their activities with a "passport."

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Students will have improved knowledge of patient safety issues, especially as pertains to hospital-based medicine. 2. Students will have the attitude that they can reduce harm to patients by their personal actions and behaviors, and contribute to improved systems of quality care. 3. Students will have demonstrated skills related to patient safety, such as appropriate infection control procedures and communication procedures. 4. The course will be engaging and be perceived worthwhile to students.

FINDINGS TO DATE: 112 students completed the 2 day course. 70% of students rated the course as useful or very useful. The skills-based activities were rated most useful (85–91%) and the communications lab and teamwork discussions the least useful (56%). In pre/post-test comparisons, students showed improvement in confidence and self-efficacy in the patient safety objectives (34.7±17.9 vs. 87.7±4.8 percent rating agree/strongly agree). Knowledge of patient safety objectives increased from 46.7±25.8 to 59.8±25.4 percent correct. 37 students (33%) responded to a follow-up questionnaire after the first core clerkship block. Students reported applying the informed consent skills (82%) and read back communication skills (76%) in this first clerkship. The most helpful activities of the course reported by these students were scrub and gowning procedures (54%), hospital infection control (54%), BCLS (40%) and avoiding patient mis-identification (27%). One student had entered the hospital's patient safety network reporting system.

KEY LESSONS LEARNED: The timing of the course was excellent for engaging students in the topic of patient safety, although a longer course may have resulted in better knowledge gains. There is a need to re-iterate principles of the course in core clerkships in order to sustain these positive attitudes and behaviors.

DELIVERING BAD NEWS: THE IMPACT OF EDUCATIONAL INTERVENTIONS ON MEDICINE SUBINTERNS' SELF-ASSESSED SKILLS
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STATEMENT OF PROBLEM OR QUESTION: Delivering bad news is a common but difficult clinical task that requires the full spectrum of communication skills. A lack of formal training leaves students without a framework for conducting these discussions.

DESCRIPTION OF PROGRAM/INTERVENTION: This study used two experimental designs. In cohort 1 (2006–2007) the experimental group received a pre-rotation SP encounter on delivering bad news, including immediate faculty and SP feedback, and a one-hour interactive seminar. The seminar included a pre and post-test, trigger tape, discussion, didactics, and role play. The control group received only the pre-rotation SP encounter with feedback. Both groups participated in a post-rotation SP interview with immediate feedback. The two cases in the pre and post-rotation encounters were: 1. An emotional women with a worrisome breast mass who needed a biopsy; 2. A stoic male with a positive lymph node for Hodgkin's Disease who needed chemotherapy. Analysis of data from cohort 1 suggested that the impact of the pre-rotation SP encounter on control group self-assessed skills overshadowed any effect from the interactive seminar. To test this hypothesis and assess the impact of the pre-rotation SP encounter alone, the cohort 2 (2007–2008) experimental group received immediate feedback on a pre-rotation SP encounter, while the control group received no intervention. Both groups conducted a post-rotation SP interview. We measured self–assessed comfort and competence in delivering bad news at the beginning and the end of the rotation using five-point Likert scales. T-tests were used to compare responses of control and experimental groups.

OBJECTIVES OF PROGRAM/INTERVENTION: Our objectives were to assess: 1. The natural development of self-assessed comfort and competence in delivering bad news during the course of a subinternship rotation. 2. The impact of standardized patient (SP) encounters with immediate faculty and SP feedback alone or combined with a interactive small group seminar on self-assessed delivering bad news skills.

FINDINGS TO DATE: All four groups' self-ratings improved. In cohort 1 (N=29) subinterns in the experimental group had larger improvements than the control group in self-assessed comfort and competence in delivering bad news. These differences did not reach statistical signif-

icance (self-assessed comfort: mean difference 2.26±0.92 vs. 1.56± 0.70, p=0.13; self-assessed competence: mean difference 1.36±1.21 vs. 0.89±.0.93, p=0.35). In cohort 2 (N=24) subinterns in the experimental group had statistically significant greater improvements compared to the control group in self-assessed comfort (mean difference 1.29±1.20 vs. 0.40±0.52, p=0.03) and competence (mean difference 1.43±1.16 vs. 0.70±0.48, p=0.05).

KEY LESSONS LEARNED: In cohort 1 the addition of an interactive seminar to the SP encounters produced no significant incremental benefit; however the sample size may have been too small to detect a difference. In cohort 2 we demonstrated that self-assessed comfort and competence improved during the course of the subinternship. The skills-building educational intervention of an SP encounter with immediate feedback significantly increased perceived skill acquisition.

DEVELOPING A FOUR-YEAR, INTEGRATED QUALITY AND PATIENT SAFETY CURRICULUM FOR MEDICAL STUDENTS E.I. Rosenberg[1]; R.A. Davidson[1]; L.M. Cooper[1]; H.E. Harrell[1]; T.C. Flynn[1]; N.S. Hardt[1]; O. Marrero[1]; A. Stevens[2]; R.L. Wears[3]; D. Marvin[1]. [1]University of Florida, Gainesville, FL; [2]Malcolm Randall VA Hospital, North Florida/ South Georgia VA Health System, Gainesville, FL; [3]University of Florida, Jacksonville, FL. *(Tracking ID # 206057)*

STATEMENT OF PROBLEM OR QUESTION: Despite calls for integration of patient safety training into undergraduate medical education, few comprehensive safety and quality improvement curricula are available for medical students.

DESCRIPTION OF PROGRAM/INTERVENTION: An eleven member task force comprised of educators, senior administrators, clinicians, and a senior medical student met between December 2007 and May 2008 to develop a four-year required course that focuses on the epidemiology of adverse medical events and the importance of organizational safety and quality improvement. "Quality and Patient Safety" (QPS) grows incrementally to parallel students' gradual growth in fund of scientific knowledge and clinical experience. In the first year, students complete online modules that introduce basic terminology and concepts such as "error" and "quality." They attend case-based grand rounds and workshop presentations that emphasize the public's concerns regarding threats to safety and the human impact of preventable adverse events. The second year of our curriculum builds upon core concepts taught in the first year to introduce specific safety and clinical quality improvement methods. For example, students learn about root cause analysis and discuss the often contentious interaction between adverse event prevention efforts and the medical malpractice tort system. The third year capitalizes upon students' clinical experiences to encourage discussion of actual critical or "near miss" incidents encountered during their clerkships. Students are encouraged to present possible system level improvements likely to reduce future adverse events. In the fourth year, students are encouraged to analyze safety and quality issues commonly encountered in their chosen specialty area. Students demonstrate teamwork and communication skills by participating in adverse event simulation and role-playing exercises, such as one focused on how to apologize and disclose appropriately an error to a patient.

OBJECTIVES OF PROGRAM/INTERVENTION: 1) To improve students' understanding of the impact of preventable, adverse medical events on patients, physicians, and other medical professionals. 2) To prepare students to identify and participate in corrective strategies that improve quality and safety throughout their future careers. 3) To develop and nurture a culture of quality and safety at our institution that enhances patient satisfaction and quality of care outcomes.

FINDINGS TO DATE: QPS I was officially inaugurated in October 2008 with a presentation by the parents of a child at our institution who died as a result of a series of medication errors. Components of QPS II, III, and IV also began in Fall 2008 and continue to be revised. First-year students are currently being evaluated by attendance at all required course activities, completion of clinical skills exercises, writing assignments, and eventual participation in collaborative quality improvement projects.

KEY LESSONS LEARNED: 1) Enthusiastic support from senior administrative leadership was essential to ensure rapid development and initiation of the curriculum; 2) It was crucial for the course directors to identify and begin to build collaborative relationships with faculty already teaching about safety and quality to unify the curriculum; 3) It was important to designate specific course directors and establish a distinct identity for this integrated course.

DEVELOPING THE NEIGHBORHOOD BREATHE PROGRAM: EMPOWERING INTERNAL MEDICINE RESIDENTS AND THEIR PATIENTS TO IMPROVE ASTHMA CARE IN CHICAGO J. Kleczek[1]; A.T. Pincavage[1]; F. Hoyte[1] D. Baker[1]; A. Pappalardo[1]; W. Conwell[1]; O. Estrada[1]; M. Johnson[2]; M. Vela[1]; V. Arora[1]; V. Press[1]. [1]University of Chicago, Chicago, IL; [2]Corazon Community Clinic, Chicago, IL. *(Tracking ID # 204114)*

STATEMENT OF PROBLEM OR QUESTION: Asthma affects a disproportionate share of minority citizens in Chicago. Patients are at increased risk with policy changes to replace the familiar Metered Dose Inhalers (MDIs) with environmentally friendly but harder to use hydrofluroalkane (HFA) inhalers. It is imperative that internal medicine (IM) residents and community members are prepared for this transition. The Neighborhood Breathe Program, a resident led collaborative aims to provide educational workshops to address this need.

DESCRIPTION OF PROGRAM/INTERVENTION: A needs assessment to assess resident knowledge was conducted by surveying a convenience sample of IM residents at the 2008 Illinois American College of Physicians (ACP) meeting in October 2008. IM resident leaders led community focus groups in partnership with Booker Access Health, serving African-Americans in the South Side of Chicago. Spanish speaking IM residents led a focus group in partnership with Corazon Community Services for Latino patients with asthma. Based on this data, a two-hour interactive case-based workshop that addresses inhaler technique and the use of HFAs was developed and piloted with IM residents at a single academic medical center. During the workshop, residents' inhaler technique was graded on a 12 point checklist. After the workshop, residents completed an evaluation and were given the opportunity to lead educational sessions for community members at the Corazon and Booker Clinics.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. To conduct a needs assessment of resident physicians and community members regarding inhaler use and the change to HFA inhalers 2. To develop and pilot an educational workshop to prepare IM residents to counsel patients on correct inhaler technique and the change to HFA inhalers

FINDINGS TO DATE: Of the 94% (134/143) resident surveys received at the regional ACP conference, 15 Illinois residency programs were represented. Half of residents (49%) could correctly identify the steps in using an inhaler. While 26% stated understanding the difference between an HFA and an MDI-CFC inhaler, only 5% correctly described the difference. Only 3% were aware of the upcoming switch to HFA inhalers. To date, focus group participants (n=5 Booker; n=20 Corazon) highlight that patients are experiencing difficulty with HFA use: "they don't work the same" and "tastes funny." Patients also wondered why they could not get their old medication, and why the new inhalers cost so much. Specific barriers for Spanish-speaking patients included access to Spanish-speaking clinicians to ask questions about their medications. Of the 5 residents in the pilot workshop, only 2 had heard of HFAs, 1 had prescribed an HFA, and none could name any differences. While 4 out of 5 disagreed or strongly disagreed that they had had sufficient training prior to the workshop, after participating all 5 agreed or strongly agreed that they were sufficiently trained in how to use an inhaler. Further, all 5 could highlight differences between HFAs and MDIs, and correctly identified steps for inhaler use.

KEY LESSONS LEARNED: Patients and IM residents are not prepared for the switch to HFA inhalers. An education intervention can improve resident skills and knowledge in this area. To address patient needs, trained resident volunteers will lead monthly workshops with our community partners. We have also partnered with 5 other IM residency programs in Chicago to deliver similar workshops in the coming year.

DEVELOPMENT OF A NOVEL "ELECTIVE WITHIN A REQUIRED BLOCK" RESIDENT AMBULATORY CURRICULUM L. Ward[1]; B. Meyer[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 203977)*

STATEMENT OF PROBLEM OR QUESTION: The classic 1 month Ambulatory block utilized by many internal medicine residency programs is often poorly received by the participating residents, as well as time consuming for the faculty involved and may act to dissuade residents from entering into a career in primary care medicine.

DESCRIPTION OF PROGRAM/INTERVENTION: An innovative ambulatory block design was developed where each 4-week rotation block consisted of two separate 2-week experiences, chosen by the participating resident, in such nontraditional ambulatory-based subjects as Palliative Medicine, Acute Care, Rehabilitation Medicine, Care of the Underserved, Healthcare Finance, Correctional Healthcare and Nutrition. By utilizing this in-depth exposure, rather than the traditional format of half-day sessions, and with a panel of many sites to choose from, we hoped to increase satisfaction, as well as the motivation to learn, for the participating resident. Likewise, by having multiple teaching sites, each run by their own on-location directors, we looked to minimize the faculty time committment required to organize the rotation.
OBJECTIVES OF PROGRAM/INTERVENTION: Assess the impact of a multidisciplinary ambulatory medicine rotation utilizing an "elective within a required rotations structure" on residents' overall satisfaction and on their views towards ambulatory medicine.
FINDINGS TO DATE: Thirty three residents participated in the rotation over the first year. 85% agreed that the educational goals for the rotation were met and 79% agreed that the rotation was educationally valuable. 85% agreed that they learned something during the rotation which would significantly impact their future career. 73% agreed that the rotation positively impacted on their impression towards ambulatory medicine and 76% would repeat the rotation. Of the site directors surveyed, 100% were satisfied with the block and believed that the involved residents were motivated and interested in learning. Most (75%) preferred the 2 week long blocks to the traditional half-day exposures and none reported that their time committment to the block significantly impacted upon their other job duties.
KEY LESSONS LEARNED: Through implementation of this novel ambulatory block curriculum, we have given residents the opportunity to choose their in-depth block experience, which led to high overall satisfaction with the rotation. Likewise, participating faculty were not required to spend large amounts of their time running the block, believed the participating residents to be highly motivated to learn and were overall satisfied with their role in the rotation. Overall, this block structure improved the view towards ambulatory medicine among internal medicine residents and should be considered as a possible model for increasing overall interest in primary care.

EFFECT OF WOMEN'S COMPREHENSIVE CLINIC AND CURRICULUM ON RESIDENT KNOWLEDGE AND ATTITUDES RELATED TO WOMEN'S HEALTH. Y.M. Diaz[1]; E.N. Marcus[1]; J. Garcia[1]; M. Pereyra[1]; M. Mayhew[2]; N. Chakhtoura[1]; P. Stauffer[1]; H. Thomas[1]. [1]University of Miami Miller School of Medicine, Miami, FL; [2]Duke University, Durham, NC. *(Tracking ID # 204386)*

STATEMENT OF PROBLEM OR QUESTION: Many general internal medicine physicians report they do not receive adequate training in the comprehensive care of women during their residency. We developed a women's health curriculum incorporating a comprehensive, multidisciplinary clinic to address this educational need.
DESCRIPTION OF PROGRAM/INTERVENTION: In September 2007, we established an interdisciplinary Women's Comprehensive Clinic (WCC). WCC occurs once weekly and is staffed by a gynecologist and two general internal medicine faculty. PGY1 residents on their ambulatory block rotate through the clinic for four weeks, evaluating women 18 years of age or older who are new to the health system and who have not received routine gynecologic care. Core faculty deliver a series of six 1 to 1.5 hour conferences addressing core competencies in women's health. Residents completed a brief 30 minute questionnaire to assess their knowledge and attitudes prior to their participation in the WCC and immediately following the rotation. Twenty-eight knowledge questions were developed and reviewed by both general internal medicine and gynecology faculty for appropriateness of content and clarity. The attitudes items were developed based on instruments used in related studies and modified. We developed four scales to address attitude, sense of responsibility, comfort and confidence. Internal consistency of the scales was assessed using Cronbach's alpha (alpha ranged from 0.75 to 0.90). Differences in knowledge and attitudes over time were assessed univariately using paired t-tests.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To prospectively evaluate the effectiveness of a multidisciplinary women's health curriculum on internal medicine residents' skills, knowledge and attitudes related to core competencies in women's health and 2) To explore potential etiologies for differences in knowledge or attitudes towards women's health.
FINDINGS TO DATE: 35 PGY1 residents participated in the research study (19 women, 16 men). 11 were foreign medical graduates (FMG); 24 US graduates (USG). 10 were in a preliminary track while 25 were categorical. On the pretest, there were no significant differences in the knowledge or attitudes based on gender, track, location of medical school(i.e. USG vs FMG), or presence of women's health rotation in medical school ($p>0.05$). Overall, residents showed improvement in knowledge, comfort, and confidence in women's health issues ($p<0.05$) after the rotation. However, residents' sense of responsibility for the primary care provider to address women's health issues remained the same ($p>0.05$) and they scored more poorly on the attitudes scale ($p<0.05$). FMGs scored higher on the responsibility, comfort and confidence scales than USGs at the end of the rotation ($p<0.05$). Previous participation in women's health rotations in medical school was not associated with greater knowledge or more positive attitudes towards issues in women's health.
KEY LESSONS LEARNED: Initial knowledge and attitudes towards women's health appears to be independent of sex, previous exposure to women's health rotations, training track or location of medical education. A one-month rotation in a multidisciplinary women's comprehensive clinic was effective in improving resident knowledge, comfort, and confidence in addressing women's health issues. However, this intervention was not effective in changing residents' attitudes about their responsibility in addressing women's health issues as internists.

FACILITATING INTERNS' ACQUISITION OF MEDICAL KNOWLEDGE AND CORE SKILLS THROUGH EXPERIENTIAL LEARNING. R. Shaaban[1]; R.K. Belforti[1]; M. Stefan[1]; P. Mcardle[1]. [1]Baystate Medical Center, Springfield, MA. *(Tracking ID # 205722)*

STATEMENT OF PROBLEM OR QUESTION: "Intern Boot Camp", as it is known at our hospital, is an innovative program which provides necessary knowledge and skills for interns in internal medicine as part of their July orientation month. The initial months of internship are a time of angst and uncertainly for most interns as they assume their responsibilities for patient care, in particular the management of acute care situations. Often intern orientations are used to provide incoming residents with hospital policies, therefore leaving interns to practice medicine by the 'see one, do one, teach one' method. For the incoming July 2008 class.
DESCRIPTION OF PROGRAM/INTERVENTION: Twenty-two interns in a large community hospital training program participated in an intensive orientation program. The curriculum consisted of eight, 90 minute sessions over a two week period. Simulation based training as a method of experiential learning was central in our curriculum. Each session began with a 30 minutes case scenario in the simulation center. The cases were: chest pain (NSTEMI and STEMI), shortness of breath (pulmonary embolism and CHF), change in mental status (narcotic induced and hypercapnia), and hypotension (sepsis and gastrointestinal bleeding). During each simulation session a team of 2–3 interns performed the patient assessment and management and were evaluated using a checklist for: diagnostic and therapeutic actions, differential diagnosis, communication, teamwork and leaderships skills. A one-hour didactic session followed, comprised of group debriefing with emphasis on self reflection, teaching on the case experienced in the simulation lab, and the development skills in common daily tasks such as writing history and physicals, progress notes, handovers and discharge summaries. Medical knowledge was assessed using a 15 question multiple choice exam. The questions and the simulation sessions addressed similar themes. The same questions were completed pre- and post- training and will be re-administered six months into the internship year.
OBJECTIVES OF PROGRAM/INTERVENTION: We developed a curriculum that provided interns with an opportunity to learn and practice core skills in medical knowledge and patient care, particularly in acute care situations in a controlled, observed setting. The orientation curriculum was also used to "diagnose" the learners, giving the opportunity to assess the incoming interns' strengths and weaknesses.
FINDINGS TO DATE: All interns participated in the eight boot camp sessions. We present the data from the medical knowledge assessment using the multiple choice test pre- and post-boot camp. The average

percentage of correct answers on the exam prior to the orientation curriculum was 64% compared to 78% post orientation (p=<0.001). The data from the evaluation on competence in assessment, management, communication, and leadership is not yet processed. The interns who were found to struggle during the orientation were also those who had difficulty during the first 4 months of residency and are already provided with educational plans.

KEY LESSONS LEARNED: A two-week, simulation-based educational curriculum provides a realistic introduction to the basic knowledge and skills needed for beginning a medical residency. The improvement in medical knowledge was shown to be statistically significant. This experientially based curriculum was found to be valuable for program leadership in diagnosing the learners' performance, and providing programs with the opportunity to intervene and remediate areas of weakness early in the internship year.

FEASIBILITY OF INCORPORATING BUPRENORPHINE TEACHING INTO AN INTERNAL MEDICINE RESIDENCY PROGRAM

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STATEMENT OF PROBLEM OR QUESTION: The approval of buprenorphine in 2002 to treat opioid-dependent patients in primary care provides an opportunity to improve patients' access to substance abuse treatment. Yet, uptake of buprenorphine by physicians has been slow. Barriers to adopting buprenorphine include lack of familiarity with the medication, and limited access to substance abuse experts. To improve patient access to buprenorphine, we designed a buprenorphine education program for our primary care residents to address these barriers.

DESCRIPTION OF PROGRAM/INTERVENTION: We established our buprenorphine education program at a community health center (CHC), which serves as the ambulatory site for primary care internal medicine residents exclusively. In addition to 30 primary care residents, 13 attending physicians have continuity panels at the CHC; six attendings are certified to treat opioid-dependent patients with buprenorphine. Our program included didactic and case-based curricula, and patient management with precepting supervision. We enhanced a previously existing substance abuse curriculum that addressed opioid dependence, stimulant abuse, neurobiology of addiction, and alcohol use disorders. We added a didactic session on buprenorphine, and an interactive session on motivational interviewing. A monthly substance abuse case conference was also initiated, in which all residents on ambulatory rotations participated. A buprenorphine care manager was available to assist with patient follow-up and phone coverage. Residents chose to accept referred patients for buprenorphine treatment. The six certified attendings were available to residents during precepting sessions, during their own patient care sessions, and by beeper, phone and email.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. To train residents to identify patients appropriate for buprenorphine treatment. 2. To teach residents the pharmacology and use of buprenorphine. 3. To give residents opportunities to provide buprenorphine treatment.

FINDINGS TO DATE: Since 2005, we provided buprenorphine training to 59 primary care residents. Of these, 30 are currently in training. Resident feedback has been overwhelming positive, with the buprenorphine and motivational interviewing sessions receiving highest possible scores (median score 1/4). Of the 29 graduates, 3 obtained waivers and are prescribing buprenorphine in their practices. Of the 111 patients treated with buprenorphine, residents treated 22 (20%). Fourteen of the 59 residents (24%) treated at least one patient. Attending and resident patients were similar in terms of gender (female: 28% vs 27%, p=0.90), race/ethnicity (African American or Latino: 91% vs 89%, p=0.78), and having a medical or psychiatric co-morbidity (51% vs 67%, p=0.13). Similar proportions of patients receiving care from residents and from attendings were retained in care at 30 (82% vs 78%, p=0.67) and 90 days (71% vs 58%, p=0.26).

KEY LESSONS LEARNED: We established and currently maintain a successful buprenorphine program in our CHC-based resident and attending internal medicine practice. After receiving an enhanced substance abuse curriculum, nearly one quarter of residents sought out further experiential learning in treating opioid-dependent patients with buprenorphine. Such experience did not adversely affect patient retention in care. Teaching internal medicine residents about buprenorphine treatment using didactic, case-based, and experiential strategies is feasible, and may have the potential to ultimately improve access to buprenorphine treatment for opioid-dependent patients.

GENERAL INTERNAL MEDICINE INJECTION CLINIC: BUILDING RESIDENTS' CONFIDENCE AND SKILLS IN ARTHROCENTESIS AND JOINT INJECTIONS

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STATEMENT OF PROBLEM OR QUESTION: Musculoskeletal disorders account for approximately 10% of all physician visits in the United States and proficiency in the assessment, diagnosis, and management of musculoskeletal complaints is clearly important. Although corticosteroid injections are beneficial in the management of many arthritic conditions, physicians report low rates of procedure performance and consequently, high rates of referrals to subspecialists. This low procedure rate appears to be multifactorial: general internists report inadequate training and lack of skill as the primary reasons, but also frequently cite time and equipment constraints. ABIM continues to require competency in many aspects of arthrocentesis including knowing, understanding, and explaining the indications and the ability to obtain informed consent. To improve residents' confidence and training, meet ABIM requirements, and provide patients with better access to these procedures, we created an injection clinic in the primary care center of Grady Memorial Hospital, the Emory University Internal Medicine Residency Program ambulatory site.

DESCRIPTION OF PROGRAM/INTERVENTION: One half day per week, General Medicine Faculty interested in teaching medical procedures staff an injection and arthrocentesis clinic. Patients are referred by residents, faculty, and mid-level providers. Residents who request the training rotate through the clinic during an ambulatory care month (two to four sessions). After a one hour didactic and practical using joint injection models, residents perform all aspects of the procedures in the clinic under direct supervision, including assessment of the patient, physical exam, informed consent, medication preparation, and technical performance. After the last session, residents are surveyed regarding number of procedures and confidence level prior to and after their experience in the clinic using a five-point Likert scale.

OBJECTIVES OF PROGRAM/INTERVENTION: Our primary goal was to create a model teaching program for Internal Medicine Residents to gain confidence and skills in musculoskeletal procedures. This framework allows teaching and evaluation of residents through direct observation in a focused setting, permits assessment of change in knowledge, confidence, and skills, and meets ABIM goals. Secondary objectives included ensuring competency and creating teaching and scholarship opportunities for faculty; developing a resident competency-based curriculum including didactics and use of simulators followed by supervised care of patients; teaching the practical and economic aspects of implementation such as securing space, medical support, and equipment, quality control, and patient follow-up; improving the care of patients with faster access to pain-relieving procedures.

FINDINGS TO DATE: A General Medicine Faculty-supervised teaching clinic on musculoskeletal procedures can successfully be created, leading to improvements in residents' knowledge, confidence, and skills that can be evaluated and measured, increased opportunities for faculty, improved patient care, and opportunities for revenue. Specifically, we recorded improvement in resident comfort, positive learner and patient feedback about the clinic, as well as increased accuracy and amount of billing for patient procedures.

KEY LESSONS LEARNED: Internal medicine training programs can create new opportunities for experiential learning that increase residents' proficiency in procedural medicine, while providing for residents' and faculty's professional enrichment.

IMPACT OF A STUDENT-DIRECTED FALL RISK MODULE IN AMBULATORY GERIATRICS

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STATEMENT OF PROBLEM OR QUESTION: We sought to assess the impact of a medical student (MS) directed fall risk assessment module on awareness and identification of risk factors among older patients in an academic ambulatory geriatrics practice.
DESCRIPTION OF PROGRAM/INTERVENTION: Falls are common in the elderly and increase morbidity and health care costs. While risk factors for falling have been identified, MSs are frequently not instructed on fall risk assessment and management. The recent AAMC/Hartford Foundation Minimum Geriatrics Competencies for MSs recommended that all graduating students ask about falls and conduct a brief falls risk assessment on patients >65. In their first year of medical school, groups of three MSs were paired with an older adult as part of a "Seniors-as-Mentors" program and, over time, developed a longitudinal relationship with this senior mentor. During their third year of medical school on their Internal Medicine-Geriatrics Clerkship, a special "falls risk assessment" visit was scheduled in the outpatient geriatrics practice for the student and their senior mentor. Students read a comprehensive fall assessment and management article, obtained relevant information from the patient's medical record (documented fall risks, medication review) and then conducted a falls risk assessment (including questions about fall risk factors, orthostatic vital signs, observed gait & balance, 3 chair rise and timed up and go test) on their mentor. Findings were then reviewed with the patient's doctor and recommendations were offered to the mentor. A program coordinator completed post-assessment questions with the senior mentor.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To improve MSs' understanding of the impact of falls on the lives of older adults, fall risk factors, and evidence based interventions to reduce fall risk, by performing a Falls Risk Assessment. 2. To improve patient awareness of fall risk factors through a student led Fall Risk Assessment.
FINDINGS TO DATE: 19 of 27 (70%) eligible senior mentors had the fall risk assessment. 79% of the mentors had previous falls, but most (61%), did not think they were at risk of having another fall at the outset of the assessment visit. All mentors had at least one risk factor for falling in addition to age. 36% of senior mentors said they were "almost never" asked about falls by their doctor while only 29% noted that their physician "almost always" asked them about falls. The most common class of medications identified that could contribute to falls in these patients were antihypertensives (15 of 19 mentors or 79%), followed by antidepressants (26%) and proton pump inhibitors (21%). 74% of mentors had problems with their vision and 26% were found to be orthostatic. The mean number of fall risk reduction strategies recommended was 3.3 (range 0–8). 73% of mentors found the assessment to be helpful in identifying their fall risk factors.
KEY LESSONS LEARNED: Falls are common even among highly functional community dwelling older adults. A student-directed fall risk assessment module identified multiple risk factors and students were able to make important recommendations to reduce their senior mentors' risk of future falls. Older adults found the intervention to be helpful in recognizing their own fall risks.

IMPACT OF ADDING VIDEOTAPE REVIEW OF STANDARDIZED PATIENT ENCOUNTERS ON STUDENTS' ATTITUDES AND SKILLS
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STATEMENT OF PROBLEM OR QUESTION: Little has been published about the impact of videotape review (VTR) of patient encounters on students' interviewing skills. We examined students' attitudes and interviewing skills after group VTR.
DESCRIPTION OF PROGRAM/INTERVENTION: Standardized patient (SP) interviews are commonly used to teach the medical interview. A single encounter offers a rich opportunity to analyze and enhance interviewing skills but time for feedback and reflection during these exercises is very limited. We incorporated group videotape review (VTR) of a 10-minute SP interview into the first-year medical students' doctoring course. Prior to VTR, students viewed their video individually and completed a structured written analysis in which they identified areas of strength and weakness and formulated a plan for improvement. Each chose a 2–3 minute segment to review with their small group and instructor. We evaluated the impact of the VTR with an online attitudes survey and by comparing the 3-station OSCE communication performance of those students who participated in VTR with those who had not (controlling for baseline, pre-VTR performance).
OBJECTIVES OF PROGRAM/INTERVENTION: To provide the students with the opportunity to: · Analyze, critique and their interviews and those of their peers. · observe different effective ways of handling a clinical situation. · identify a concrete plan to improve their interviewing.
FINDINGS TO DATE: 100/164 (61%) students completed the survey 6–9 months after the VTR. The majority 76/100 (76%) agreed that the VTR gave them new insights into their interviewing, 60 (60%) thought they learned something they wouldn't have elsewhere, 70 (70%) wanted to see more tapes and 74 (74%) planned to make changes based on what they saw. Students commented primarily on new insights into their body language and tone of voice ("instructive to see how I actually appeared to the patient", "good to see myself-certain mannerisms that I didn't even realize I had"). Many appreciated being able to calibrate their skills ("afforded me a chance to see how someone else would have handled") while others found it very stressful ("I don't think it added anything but anxiety to have to review [the video] in a group setting"). Unfortunately, students did not often delineate concrete plans for improvement ("I think I will improve as I become more comfortable"). Some students also reported problems with the quality of the VTR, citing technological problems, the quality of feedback, and contextual factors (VTR on same day as major exam). And while we did not find a significant overall effect of VTR, it did appear to have a significant impact on OSCE performance among those students who thought it would make a difference in their skills as evidenced by greater gains in their relationship development and non-verbal scores compared with controls.
KEY LESSONS LEARNED: The impact of small group VTR may vary because of differences in the quality and timing of its implementation, because of variations in what students put into it and how they best learn (i.e, some learners may benefit from individual review). Next steps include: re-structuring the student's written reflective analysis and plan for improvement; providing two samples to review; and incorporating more faculty development for guiding small groups in providing feedback

IMPROVING ATTENDING FEEDBACK TO WARD RESIDENTS: COULD A POCKET CARD BE THE TICKET?
L.A. Peccoralo[1]; R. Karani[1]; L.D. Coplit[2]; D. Korenstein[1]. [1]Mount Sinai School of Medicine, New York, NY; [2]Mount Sinai School of Medicine, 10029, NY. *(Tracking ID # 205375)*

STATEMENT OF PROBLEM OR QUESTION: Feedback is essential in medical training. Residents are often dissatisfied with the quality and quantity of feedback they receive from faculty and frequently receive only positive feedback. Attendings are often uncomfortable and unskilled at giving feedback.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a pocket feedback card incorporating skill assessments within each ACGME competency domain, to assist inpatient ward attendings in providing feedback to residents. Each skill is evaluated on a 5-point Likert scale (1=very poor, 3=at expected level, 5=superior). In this randomized study, we measured the impact of the card on the attitudes of residents and their supervising attendings toward feedback. At the beginning of each 4-week general internal medicine rotation, following the standard orientation, attendings in the intervention group were trained in the use of the feedback card for mid-rotation feedback. Intervention attendings were asked to meet individually with each of the 3 residents on their team midway through the rotation to provide feedback on skills in each domain. The control group received only the usual reminder during the orientation to give mid-rotation feedback as per ACGME requirements. If a resident scored less than 3 on a skill set, the intervention attending was asked to give examples of skills within that domain needing improvement and offer suggestions for improvement. At the end of the rotation, residents and attendings in both groups completed a survey assessing their attitudes toward and satisfaction with feedback encounters during the rotation.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine the impact of a feedback pocket card on a) attending comfort giving feedback and 2) residents' perceptions of attending feedback, specifically constructive feedback related to skills needing improvement.
FINDINGS TO DATE: Survey response rates for the surveys were 79% in the resident intervention group, 86% in the resident control group, 100% in the attending intervention group and 90% in the attending control group. Of the attendings in the intervention group (N=13), 69% felt that the pocket card helped to give specific constructive feedback, 77% would use the pocket card to guide feedback session in future rotations and 77% would recommend the card to others. Residents in

the intervention group were more likely to receive feedback regarding skills that need improvement than those in the control group (68.2% vs 38.9% p=0.030). There was also a trend toward residents in the intervention group receiving more feedback regarding skills they did well (93.5% vs 79.1% p=0.084) and useful information about how to improve their skills (72.7% vs 48% p=0.076).
KEY LESSONS LEARNED: A pocket feedback card distributed to ward attendings with minimal instruction was acceptable to attendings and positively impacted feedback delivered to residents, with more feedback given regarding skills that need improvement. This simple intervention could be easily disseminated and may improve the quality and quantity of feedback given to resident trainees during inpatient rotations.

IMPROVING DIVERSITY IN THE MEDICAL PROFESSIONS THROUGH AN INNOVATIVE MEDICAL STUDENT-RUN PIPELINE EDUCATION PROGRAM N. Nair[1]; A. Marciscano[1]; K. Vivar[1]; E. Lamont[1]; S. Schaeffer[1]; F. Francois[2]. [1]New York University School of Medicine, New York, NY; [2]New York University, New York, NY. *(Tracking ID # 205253)*

STATEMENT OF PROBLEM OR QUESTION: Underrepresented minorities (URMs) continue to make up a disproportionately small percentage of medical school applicants, matriculants, and physicians relative to the general U.S. population. Although pre-medical students are enrolling and participating in more advanced mathematics and science curricula, URMs continue to lag behind their Asian/Pacific Islander and White counterparts. Pre-professional pipeline programs may help introduce URMs to the sciences. Our program aimed to assess whether early exposure to applicable medical concepts will increase the knowledge of medical concepts and interest in pursuing a career in medicine among students from under-served backgrounds.
DESCRIPTION OF PROGRAM/INTERVENTION: "MiniMeds" was developed as a paracurricular enrichment program targeting students from under-served backgrounds. Through educational sessions designed and led by medical students, the program sought to increase students' knowledge of medical concepts and exposure to individuals in medical professions so as to further develop interest in pursuing a career in medicine. This program was a partnership between New York University School of Medicine (NYU SoM) Office of Diversity Affairs and Hudson Guild, a community-based organization that aims to empower individuals and families to achieve their highest potential, while maintaining a focus on those in economic need. The curriculum was developed by first and second year medical students at NYU SoM with activities adapted from the NIH Office of Science Education's Resources for Science Educators. This program consisted of six activity-based learning modules that incorporated basic medical concepts, discussion of socially and medically relevant issues, and the application of acquired information to real-life situations.
OBJECTIVES OF PROGRAM/INTERVENTION: The objective of MiniMeds was to engage and teach 6th-7th graders from public schools in the New York City area who were all participants in the after-school program at Hudson Guild. Each session was led by five medical students and consisted of a 4:1 student-teacher ratio. Each participant completed pre-intervention and post-intervention assessments.
FINDINGS TO DATE: A total of 32 students (80% girls) participated in the program, mean age 11±1 years. Among the cohort 38% self-described as Asian, 21% as Hispanic, 21% as African-American, and 20% were of mixed race/ethnicity. Attendance at the sessions was strongly correlated with baseline knowledge about the health professions (r=0.47, p=0.013). This correlation was higher among African-American and Hispanic students (r=0.55, p=0.023). Post-intervention improvement in knowledge of health professions was strongly correlated with male gender (r=0.73, p=0.017). Not surprisingly improvement in knowledge of medical topics (as assessed by the percent change in scores) was significantly correlated with the number of program sessions attended (r=0.64, p=0.026).
KEY LESSONS LEARNED: In this pilot study of a medical student-run community-based pre-professional pipeline program targeting underrepresented minorities, it was possible to engage students with an interest in the health professions early in their educational careers. Importantly, participation in the program was correlated with improved knowledge about the health professions and health topics. Innovative pre-professional pipeline programs are important components in the effort to improve diversity in the medical professions and should be further developed.

IN OR OUT? THIRD-YEAR MEDICAL STUDENTS' SELF-ASSESSMENT OF PREPAREDNESS FOR MEDICINE SUBINTERNSHIP AFTER AN INPATIENT OR OUTPATIENT THIRD YEAR L.A. Haber[1]; B. Obrien[1]; K.E. Hauer[1]; C.J. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204892)*

STATEMENT OF PROBLEM OR QUESTION: Ambulatory-based longitudinal integrated clerkships (LIC) are a novel alternative to traditional inpatient-based clerkships for 3rd-year medical students. LIC and traditional clerkships provide substantially different educational experiences for students which may influence their level of preparation for 4th-year internal medicine (IM) subinternships. No data exist on LIC and traditional students' self-assessment of preparedness for the subinternship after completion of 3rd-year.
DESCRIPTION OF PROGRAM/INTERVENTION: The Parnassus Integrated Student Clinical Experiences (PISCES) program is a year-long, ambulatory LIC at an urban academic medical center; students meet the established 3rd-year core competencies by following a cohort of patients in multispecialty clinics. In the IM discipline, PISCES students complete 30 clinics with a faculty preceptor and 2 weeks of inpatient medicine, while traditional students spend 8 weeks on inpatient medicine. To evaluate LIC and traditional students' self-assessed preparedness for subinternship, we developed a 22-item, 5-point Likert scaled survey (1= least prepared, 5=most prepared) based on a published needs assessment defining IM subinternship learning objectives, and distributed the survey after completion of the 3rd year. The items focused on confidence with subinternship objectives, categorized into the 3 domains of the "workplace learning" framework: 1) tasks/procedures (cognitive/reasoning skills, procedural tasks); 2) relationships/interpersonal communication; and 3) work practices (coordinating care, data tracking, task prioritization). Two open-ended questions asked students what they were most looking forward to and anxious about in the subinternship.
OBJECTIVES OF PROGRAM/INTERVENTION: (1) To describe a novel ambulatory-based IM curriculum that spans the 3rd year. (2) To evaluate LIC students' self-assessed preparedness for the IM subinternship compared to students in a traditional, inpatient-based 3rd year.
FINDINGS TO DATE: All 8 PISCES students and a convenience sample of 21 traditional students completed the survey prior to the subinternship. The two groups were similar in reporting that they felt well prepared for most items related to subintern tasks, communication/relationships, and work practices (mean score >4.0). There was no statistically significant difference between PISCES and traditional students' self-assessed preparedness for tracking inpatient data, coordinating care, or integrating into the team. PISCES students felt less prepared for overnight call compared to traditional students (3.5 vs. 4.4, p=0.04); only 50% of PISCES students compared to 90% of traditional students felt prepared to work overnight. Relative to other survey items, both student groups felt less prepared to initiate goals of care discussions and to arrange hospital discharge plans (grouped mean 3.8 and 3.9 respectively). In the qualitative analysis, PISCES and traditional students were both looking forward to and most anxious about 3 issues: inpatient management skills (efficiency, work-tasks, system navigation, assessment/plan generation), increased responsibility, and overnight call.
KEY LESSONS LEARNED: Though based on a small sample, our findings suggest that regardless of 3rd-year program, students felt well prepared for the IM subinternship. PISCES and traditional students were similar in their assessment of preparedness for all aspects of the subinternship except overnight call. A study is underway to evaluate whether students' self-assessment correlates with demonstrated performance in the subinternship.

INTEGRATING BLOGS INTO MEDICAL EDUCATION: A NOVEL APPROACH TO JOURNAL CLUB E. Garcia-Sayan[1]; W. Astorne[1]; Z. Habib[1]; J. Han[1]; W. Morse[1]; S.S. Kaatz[1]. [1]Henry Ford Hospital, Detroit, MI. *(Tracking ID # 205310)*

STATEMENT OF PROBLEM OR QUESTION: Blogs (contraction of the term "web logs") have become a popular way of sharing information online. Journal Club is an integral part of medical education but attendance and participation is often limited by schedules and patient care duties. We created a Virtual Journal Club (VJC) within our intranet, as part of our evidence-based medicine (EBM) curriculum. We believe that using this technology can maximize interaction by

allowing participants to post their comments at a convenient time and place. Based on a Pubmed search we found no previous published research in this area.
DESCRIPTION OF PROGRAM/INTERVENTION: An online discussion group was developed as a blog in July 2008. A second year resident with the mentorship of a faculty member critically appraised a recently published article and developed a structured abstract based on EBM principles. This was uploaded, along with the original article, to the blog intranet server on a monthly basis. An email notification was sent to 124 residents and 66 faculty encouraging them to post comments on how they will apply the results of the study. Automatic counters were used to determine the number of downloads for each structured abstract and full article, as well as the number of comments posted. An anonymous survey was emailed at the end of the 6 month pilot. The project was approved by the institutional review board.
OBJECTIVES OF PROGRAM/INTERVENTION: To evaluate the frequency of use and perceived educational value of a Virtual Journal Club presented as a blog, in a large Internal Medicine residency program.
FINDINGS TO DATE: During the study period 6 articles were reviewed and critically appraised for our VJC. The website was visited a total of 1369 times. Each critical appraisal was viewed an average of 57 times (18–85) and the full article was downloaded an average of 35 times (19–63) by the 190 recipients of the email notification. Comments were posted an average of 4.8 times per article (2–7), 24% by Internal Medicine faculty, 14% by subspecialty faculty and 62% by residents (mostly as a result of a clinic group discussion). The anonymous survey was answered by 36 participants. 86% strongly agreed or agreed that the VJC website is useful in residency training. 66.7% mentioned that they access the website 1–3 times per month, but only 22.2% had actually posted replies 1–3 times per month. Compared to the traditional Journal Club format, 47.2% found the VJC to be more useful, and 30.6% found it equally as useful.
KEY LESSONS LEARNED: We implemented a Virtual Journal Club in the form of a blog, to complement the traditional "live" Journal Club done monthly during our noon conference. The VJC was focused on newer articles which hadn't been critically appraised by other reviewers, whereas the traditional Journal Club focused on articles already reviewed by other publications (such as ACP Journal Club). Increasing interest and participation was noted, and based on the survey results participants seem to find this format useful as a complement to the traditional Journal Club. Most of the posts by residents were done collectively after a group discussion with the preceptors in their ambulatory continuity clinics. This encouraged us to formally incorporate VJC in our ambulatory curriculum at the end of the study period, and focus the discussion on articles relevant to that setting. This is a simple, easy, inexpensive and well received model to expand our EBM curriculum and is an ideal medium for discussions on how to apply a critically appraised study through a convenient interactive exchange.

INTERNAL MEDICINE RESIDENT PERFORMANCE ON GERIATRIC FUNCTIONAL ASSESSMENT J.K. Newman[1]; M.A. Supiano[1]; D. Brooks[1]; C.R. Weir[1]; C.K. Milne[2]. [1]University of Utah, Salt Lake City, UT; [2]VAMC Salt Lake City, Salt Lake City, UT. *(Tracking ID # 204602)*

STATEMENT OF PROBLEM OR QUESTION: Given the shortage of geriatricians, most care provided to older patients will be by primary care physicians such as general internists. Although geriatrics is a required component of Internal Medicine residency training, the objective performance of residents during their training to conduct comprehensive geriatric assessments has not been determined.
DESCRIPTION OF PROGRAM/INTERVENTION: We conducted an objective assessment of the internal medicine residents' encounters with a geriatric "standardized patient". Residents were directly observed by a faculty member while performing a comprehensive assessment of a geriatric standardized patient and scored with a checklist developed by geriatricians. Residents were assessed in several areas integral to geriatric patient care including activities of daily living (ADLs), instrumental ADLs (IADLs), gait, cognition, and affect.
OBJECTIVES OF PROGRAM/INTERVENTION: The study goal was to determine how well internal medicine physicians are prepared during residency to assess geriatric patients. Improved understanding about internists' strengths and weaknesses in assessing geriatric patients will determine interventions necessary to address identified gaps in training.
FINDINGS TO DATE: In spring 2007, we assessed 120 Internal Medicine residents at all levels of training including incoming PGY1 (n=30), those completing their PGY1 (n=35), PGY2 (n=28) and PGY3 (n=27). A total score of 30 was possible if each item on the checklist was completed correctly. Scores for each item ranged from 0 to 2. Means for the total score were significantly different between the incoming PGY1s (14±5; means±standard deviation) and those who had already completed at least one year of residency training (end of PGY1=19±4; PGY2=20±4; PGY3=19±4) with an increase between the first and second year and then remaining stable ($F_{3,116}=12.62$; $p=0.00$). The main improvements were seen in the ability to assess ADLs and IADLs with a 63% ($F_{3,116}=7.15$; $p=0.00$) and 66% difference ($F_{3,116}=15.82$; $p=0.00$) respectively. Most residents were able to assess gait (M=1.54 with 58% receiving a full score). There was also a significant difference between years in the ability to assess cognitive status with the incoming PGY1s having the highest scores (M=1.41) and the PGY3s receiving the lowest scores (M=1.0). This difference was statistically significant ($F_{3,116}=3.05$; $p=0.03$). Assessment of affect was overall poor. Only 26% were able to fully assess affect (M=0.55) and 67% did not address it at all. The assessment of gait and affect did not change across years.
KEY LESSONS LEARNED: It appears that internal medicine training generally improves physician's ability to assess geriatric patients. The main gains appear to be in the first year of training, which is when residents at our institution have a formal geriatrics rotation supervised by faculty geriatricians. Didactic teaching on geriatric topics continues throughout residency, but this does not seem to have as large of an impact as the actual practice of geriatrics that occurs during the first year of training. Overall, residents do fairly well assessing ADLs, IADLs, and gait, but do not do as well assessing cognition and affect. Additional educational interventions are needed during residency training to improve internists' abilities to assess cognition and affect in geriatric patients.

INTERNAL MEDICINE RESIDENTS' SELF-ASSESSMENT OF THEIR CLINIC PRACTICE: AN AMBULATORY PATIENT-BASED QUALITY IMPROVEMENT WORKSHOP O.J. Blackstock[1]; D. Lefrancois[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205218)*

STATEMENT OF PROBLEM OR QUESTION: In keeping with the increasing recognition of the importance of quality improvement (QI) exposure in resident professional development, the ACGME is requiring that each Internal Medicine (IM) resident's ambulatory experience include the evaluation of performance data for their own panel of patients.
DESCRIPTION OF PROGRAM/INTERVENTION: A two-session QI workshop led by the chief resident was designed to complement a standard QI lecture given during the second-year resident (PGY2) ambulatory care rotation (ACR). The workshop's framework was based on a website resource by Duke University's Department of Community and Family Medicine. In the first session, the PGY2s (n=13) learned how to conduct a chart review, specifically focusing on QI measures in three content areas: cervical and breast cancer screening, and influenza vaccination. After being assigned one of these three QI measures, residents used a novel software program called Clinical Looking Glass to identify, among their own ambulatory clinic panel, patients who had not met the specified QI measure. Chart reviews for these patients were performed to identify the reason(s) why the QI measure had not been met. Based on their individual findings, each resident proposed a clinic-based QI intervention to correct identified lapses. At the second QI teaching session, each resident shared her findings and proposal. Following the second QI teaching session, we surveyed the PGY2s about their experiences with the workshop. Third-year residents (n=32), who had only received the standard QI lecture during their PGY2 ACR, were surveyed about their residency experiences with QI.
OBJECTIVES OF PROGRAM/INTERVENTION: For a given QI measure, (1) To teach categorical IM residents how to perform a patient chart review of their continuity panel, 2) To foster resident self-evaluation regarding their performance, and 3) To have residents propose a clinic-based QI intervention based on their chart review findings.
FINDINGS TO DATE: Survey responses were measured on a Likert scale of 1 to 5 with "1" indicating "strongly disagree" and "5", "strongly agree". We compared mean scores between PGY2s who participated in the workshop and PGY3s who did not. Mean scores for assessing

comfort with performing a QI-oriented chart review and with proposing clinic-based QI interventions were greater among PGY2s compared to PGY3s (3.9±0.3 vs 2.1±1.2, p=0.004, and 3.9±0.6 vs 3.0±1.0, p=0.003 respectively). The PGY2s agreed that they now had a better idea of their own clinical performance (4.1±0.9). Compared to PGY3s, the PGY2s expressed that their exposure to QI during residency was more likely to influence their future clinical practice (4.1±0.8 vs 3.4±1.0, p=0.02). Reasons identified for failing to meet the specified QI measures included resident lack of knowledge about screening guidelines, a difficult to navigate clinic referrals process for patients, and resident challenges in balancing preventive health needs in clinically complex patients. Proposed clinic-based QI interventions included sending automated reminders to patients via mail and computerized prompts for residents when preventive or screening measures are due.

KEY LESSONS LEARNED: Residents found multiple reasons for and potential solutions to identified lapses in care. Our findings suggest that an applied approach to teaching QI based on residents' ambulatory performance data successfully increased their exposure to and interest in QI, and informed them about their own clinical performance. We intend to obtain further data from three additional PGY2 QI workshops.

LEARNING TO INDIVIDUALIZE CARE: AN EDUCATIONAL INTERVENTION TO REDUCE CONTEXTUAL ERRORS IN MEDICAL DECISION MAKING S.J. Weiner[1]; A. Schwartz[1]; I.B. Harris[1]. [1]University of Illinois at Chicago, Chicago, IL. *(Tracking ID # 204843)*

STATEMENT OF PROBLEM OR QUESTION: A "contextual error" is a medical error that occurs when a physician fails to take into account information that is expressed outside of a patient's physical boundaries – i.e. their context – that is essential to planning appropriate care. In prior research employing incognito standardized patients presenting as real patients with narratives that include contextual information essential to planning their care, we found that fully trained internal medicine specialists often disregarded the information, resulting in contextual errors in about 50% of cases. In a cost analysis, inattention to contextual information – such as patients' transportation, economic situation, or caretaker responsibilities – proved even more costly than inattention to laboratory values, medication dosages, and patient identifiers when delivering care. These findings suggest the need for a systematic approach to incorporating patient context into the process of medical decision making so as to effectively individualize care.

DESCRIPTION OF PROGRAM/INTERVENTION: The intervention consists of 4 one hour sessions taught by two faculty, one a physician and the other a professor of medical education, to a small group of 4–6 4th year medical students during their medicine sub-internship. The seminar alternates monthly between two hospital training sites with the alternate site serving as a control. The curriculum begins with a discussion of the components of medical decision making, which requires integrating clinical information, research evidence, patient preferences, and patient context. We review 10 domains of patient context to consider when planning a patient's care: cognitive abilities, cultural beliefs, spiritual beliefs, access to care, social support, patient caretaker responsibilities, attitude to illness, relationship with health care providers, and economic situation. We introduce a 7 step process for identifying and incorporating the domains when relevant into each patient's plan of care. During the last two sessions students apply these skills to planning their patients' care. At the end of the month, all students – both those in the seminar and those in the control – complete 4 standardized patient encounters based on cases specifically designed to assess skills at identifying essential patient context when planning patient care. Coding of the students' performance is conducted by a research assistant who is blind to whether the students were in the intervention or control.

OBJECTIVES OF PROGRAM/INTERVENTION: The objective of this intervention is to provide a systematic approach that measurably improves the performance of soon-to-be physicians at individualizing care.

FINDINGS TO DATE: In an interim analysis of 50 students who have participated to date, there has been a positive effect of the intervention. Students in the intervention group have been 2.96 times more likely to attempt to elicit contextual factors from standardized patients than students in the control group ($F(1,46)=8.34$, $p=0.006$).

KEY LESSONS LEARNED: Medical education emphasizes applying research evidence to clinical decision making, but lacks a systematic approach that trains physicians to adapt that evidence to each patient's distinct context, so as to effectively individualize care. An intensive practicum, integrated into a clinical sub-internship can successfully introduce those skills.

MEDICAL CONDITIONS IN PREGNANCY ELECTIVE: SELF-DIRECTED LEARNING ALLOWS SCHEDULE FLEXIBILITY G. Beck[1]; H.L. Osborn[1]; J. Rowat[1]. [1]University of Iowa, Iowa City, IA. *(Tracking ID # 205300)*

STATEMENT OF PROBLEM OR QUESTION: A general internist must be competent in management of medical conditions common in pregnant and lactating women. Residency programs often have limited educational opportunities addressing pregnancy-related topics and managing patients whose pregnancy is complicated by medical illness. In addition, our residency program had need for an elective with flexible scheduling for individuals whose residency is complicated by personal or medical issues.

DESCRIPTION OF PROGRAM/INTERVENTION: We created a one-month elective, Medical Conditions in Pregnancy, in 2003. Self-directed learning is the cornerstone of the elective. Residents are provided resources including selected articles with learning objectives to guide reading. A pre-test helps residents identify areas of knowledge deficiency and the post-test measures growth in major topic areas. Residents meet with the course director throughout the elective to discuss cases on topics including management of hypertension and asthma in pregnancy. As a requirement, residents develop a lecture on a pregnancy-related topic and present to peers. Clinically, residents have opportunities to work with Ob/Gyn faculty specializing in Maternal and Fetal Medicine in the High-Risk Obstetric Clinic while maintaining their continuity clinics. Educational Objectives for the Elective: 1. Describe physiologic changes associated with pregnancy: Hemodynamic, respiratory, endocrine, hematologic, & gastrointestinal. 2. Counsel patient on preconception care and identify patients at increased risk of complications of pregnancy. 3. Safely prescribe medications in pregnancy. 4. Safely utilize diagnostic imaging in pregnancy and counsel patients on the risks of different imaging modalities 5. Diagnose and manage a pregnancy complicated by: a. Chronic hypertension & preeclampsia. b. Diabetes Mellitus c. Thyroid disease d. Depression e. Asthma f. Valvular heart disease g. Thromboembolic disease h. Urinary tract infection Methods of evaluation: The resident's medical knowledge is assessed using the two written examinations. Evaluation and formative feedback is provided for the resident's oral presentation and clinical skills are assessed by Ob/Gyn faculty using a web-based evaluation. Residents complete a rotation evaluation following the elective.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Create an elective that improves resident knowledge and skills in pregnancy-associated medical illness. 2. Develop an educationally rigorous elective that provides schedule flexibility.

FINDINGS TO DATE: Twenty-nine residents have completed the elective since 2003 with thirteen going on to complete fellowship training. Overall resident satisfaction was high; 95% of responses were 5.00 on a 5-point Likert scale. We are completing a survey of past participants and will present data including: demographic information on current clinical practice, usefulness of this elective and individual content area in preparing for clinical practice, and overall satisfaction with the elective.

KEY LESSONS LEARNED: The Medical Conditions in Pregnancy elective allows residents to become competent in the diagnosis and management of common and serious pregnancy-associated medical illnesses. The innovative structure of this elective with self-directed curriculum and guided discussions as well as opportunities for clinical experiences in the High-Risk Obstetric Clinic allows for much needed flexibility in resident training. Residents completing this elective view it as a valuable experience.

MEDICAL ERROR AND SELF-REFLECTION: AN ANALYTIC TOOL FOR EVALUATION OF INTERNAL MEDICINE AND MEDICINE-PEDIATRIC RESIDENTS' ADVERSE EVENT SELF-REFLECTIVE EXERCISES M.P. Lukela[1]; S.J. Hamstra[1]; V.I. Parekh[1]; J. Del Valle[1]; R.S. Mangrulkar[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205340)*

STATEMENT OF PROBLEM OR QUESTION: The Institute of Medicine (IOM) report released in 1999 estimated between 44,000–98,000 inpatient hospital deaths resulted from medical errors within the United States annually. Although institutions have implemented innovations to reduce adverse events, an area that continues to lag is the education of physicians in training in this domain. In order to understand the impact of a multi-faceted patient safety educational program on the analytic and reflective skills of Internal Medicine and Medicine-Pediatric residents, we present descriptive and psychometric results of a novel assessment tool designed to capture these competencies in our trainees.
DESCRIPTION OF PROGRAM/INTERVENTION: Since 2006, we have implemented an educational program for our residents that (1) introduces a unified conceptual framework to improve their understanding and analysis of medical error through a seminar series, (2) provides opportunity for guided self-reflection of real-time adverse events; and (3) gives them hands-on experience working on a team-based patient safety improvement project. The conceptual model presents four discrete categories of contributing factors to adverse events: Patient, Organizational, Experience, and Team (POET). Trainees are required to analyze an adverse event in which they were involved, entering their analysis in a structured tool that consisted of six sections: (1) free text description of the adverse event; (2) description of the ultimate patient outcome, ranging from near miss to death; (3) trainee's initial hypothesis regarding the cause(s) of the adverse event; (4) guided analysis using our conceptual model; (5) trainee's final hypothesis regarding the cause(s) of the adverse event; and (6) assignment of the adverse event's preventability.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine reliability and feasibility of the analytic tool, two reviewers familiar with the conceptual framework and blinded to the residents' identity, independently evaluated fifteen paired sets of self-reflective exercises. Paired sets consisted of two cases analyzed by each trainee: one upon entry into the training program, and one following the seminars. Using an abstraction tool, one point was assigned for every discrete theme according to the appropriate POET domain within the initial hypothesis, guided analysis, and final hypothesis. Inter-rater reliability was determined using Spearman correlations.
FINDINGS TO DATE: Adverse event outcomes of reported cases were evenly distributed: No/Minor Harm (30%); Moderate Harm (43.3%); Severe Harm/Death (26.7%). Eighty percent of the described adverse events concerned medication safety (28.3%), diagnostic errors (20%), incorrect identification (18.4%), and communication (16.7%); consistent with previous literature. 96.7% of adverse events described by trainees were felt to be preventable. Our abstraction tool demonstrated good inter-rater reliability, ranging from 0.58 (initial hypothesis) to 0.93 (POET factors) and 1.0 (adverse event preventability).
KEY LESSONS LEARNED: Our findings show that this tool can effectively capture residents' analysis of important and common adverse events encountered while caring for patients. Inter-rater reliability using our abstraction tool was high and consistent across this heterogeneous case mix. In addition to providing an effective reporting mechanism for adverse events, use of this tool may provide a better mechanism to evaluate our trainees' understanding of the causes of medical error and further enhance their learning in this domain.

MINI-RESIDENCIES ON WOMEN'S HEALTH CARE FOR VHA PRIMARY CARE PROVIDERS L. Baier Manwell[1]; C. Staropoli[2]; S. Schrager[3]; M.A. Mcneil[4]; S. Iqbal[5]; S. Nordstrom[6]; N. Garovoy[7]; E.F. Yee[8]; R. Bonnema[9]; P.M. Hayes[10]; C. Larosa[11]; A. Al-Niaimi[3]; H. Certain[3]; M. Krauthamer[12]; M.L. Carnes[3]. [1]University of Wisconsin-Madison & Women Veterans Health Strategic Health Care Group, Dept of Veterans Affairs, Madison, WI; [2]University of Maryland School of Medicine, Baltimore, MD; [3]University of Wisconsin-Madison, Madison, WI; [4]University of Pittsburgh, Pittsburgh, PA; [5]VA Palo Alto Health Care System, Palo Alto, CA; [6]University of Illinois at Chicago, Chicago, IL; [7]Stanford University, Palo Alto, CA; [8]University of New Mexico, Albuquerque, Albuquerque, NM; [9]University of Nebraska Medical Center, Omaha, NE; [10]Women Veterans Health Strategic Health Care Group Department of Veterans Affairs, Washington, DC; [11]Women Veterans Health Strategic Health Care Group, Department of Veterans Affairs, Ann Arbor, MI; [12]Women Veterans Health Strategic Health Care Group, Department of Veterans Affairs, Washington, DC. *(Tracking ID # 204136)*

STATEMENT OF PROBLEM OR QUESTION: The number of women serving in the military has grown dramatically since the first Persian Gulf War. The population of women veterans utilizing Veterans Health Administration (VHA) services is estimated to double in the next three years from 255,324 to 533,208, with women comprising 15% of new enrollees. The majority of new female veterans – from Operations Enduring Freedom and Iraqi Freedom – are of childbearing age, a new cohort for the VHA. Primary care providers at many sites, particularly those in rural areas, could benefit from an opportunity to update their women's health clinical experience.
DESCRIPTION OF PROGRAM/INTERVENTION: Our basic skills training program utilizes case-based learning to teach five topics identified from a national needs assessment of VHA primary care physicians: contraception, Pap smears and STDs, abnormal uterine bleeding, chronic pelvic pain, and post-deployment and readjustment issues specific to women veterans. The training team is comprised of national women's health experts who developed lecture slides and accompanying case studies. Local women's health champions facilitate small-group case study discussions after each lecture. Principles of adult learning such as self-reflection and deliberate practice are incorporated throughout the curriculum to accelerate transfer of knowledge. A sixth module on institutional change introduces and engages participants in process improvement (plan-do-study-act cycles). A hands-on session with professional gynecological instructors occurs on the third day. The standardized training manual includes slides, lecture notes, case studies, and supplemental materials (reprints, formularies). Participant knowledge regarding the training topics are evaluated prior to and immediately after each program; a similar evaluation is administered 6 months later.
OBJECTIVES OF PROGRAM/INTERVENTION: To develop, implement, and evaluate a training program to enhance the gender-specific health care knowledge and skills of VHA primary care clinicians.
FINDINGS TO DATE: To date, this evolving 2.5-day training program has been offered in four regions: Madison, WI; Palo Alto; Baltimore; and Nashville. A total of 132 participants have attended from 62 VA medical centers and 15 community-based outpatient clinics. Participants represent 70 physicians, 46 nurse practitioners, 8 physician assistants, and 8 RNs and therapists. Based on participant requests, a seventh module on workup of a breast mass is now included. The training team helps participants develop facility-specific action plans to improve care for women veterans. Early results indicate significant improvements in pre-post evaluation scores (all $p<.0.001$) in 12 areas including initiating oral contraception, triaging atypical Pap smears, managing abnormal uterine bleeding, initiating workups for chronic pelvic pain, performing pelvic exams, identifying post-deployment readjustment issues, and teaching colleagues about women's health care.
KEY LESSONS LEARNED: This unique training program utilizes multiple training methodologies including lectures by national experts in women's health, small group case-based discussions facilitated by local women's health champions, and a hands-on session for breast and pelvic exams with live models. Early results support achieving our goal of increasing competencies in women's health care across the VA health care system. Given the VA's interest in linking educational endeavors to patient outcomes, the logical next step will be to assess patient outcomes in the participating institutions.

NOT TOO SWEET: INVESTIGATING THE QUALITY OF DIABETES CARE ACROSS A RESIDENCY PATIENT PANEL A. Vanka[1]; H.S. Kim[1]; G. Kriegel[1]; C. Bates[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205343)*

STATEMENT OF PROBLEM OR QUESTION: Can successive groups of residents evaluate, measure, analyze, and improve the quality of care of their diabetic patients?
DESCRIPTION OF PROGRAM/INTERVENTION: The project was conducted in a large, urban academic primary care practice in Boston, MA. Residents participated in three-week blocks during their ambulatory rotations. Four separate groups of residents (Seventy-nine junior and senior residents in total) participated over four consecutive blocks. Each block of residents was led by resident "champions," who led the group in data collection, analysis, and intervention planning. During the first week of each block, residents received didactics addressing national guidelines for diabetes management and discussed block-specific tasks and prior block analysis. Residents completed these tasks by the third

week, at the end of which they presented and discussed the results and set specific tasks for the next group of residents to complete. The first group of residents analyzed their own patient panels and developed a chart review tool to assess several diabetic quality parameters, including hemoglobin A1C, LDL, blood pressure, co-management with nurse practitioners and endocrinologists, foot exam rates, eye exam rates, number of cancelled appointments, and pneumococcal vaccination rates. This chart review tool was passed on to the second and third groups of residents, who collected data on 80 resident panels for a total of 343 diabetic patients. Aggregate data were analyzed and presented to the third group of residents for further discussion.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Analyze the quality of diabetes care provided resident patients using established guidelines as a standard. 2. Have successive groups of residents lead and complete a quality improvement project over a short period of time using standard quality improvement methods.

FINDINGS TO DATE: Notable findings included an average hemoglobin A1C of 7.9%, an average LDL of 100.2 mg/dL, and an average systolic blood pressure of 128 mmHg. However, 45% of the diabetic patients had not had a hemoglobin A1C in the last six months and 39% had not had an LDL in the last one year. The rates of foot exams and eye exams over the last one year were 50% and 55%, respectively; pneumococcal vaccination rate was 42%. Less than one-third of the diabetic patients were found to be co-managed by nurse-practitioners. The majority of poorly-controlled diabetics (hemoglobin A1C>9) were co-managed by endocrinologists. After considering the data and possible interventions, the last group of residents decided a provider-patient goals-setting handout should be developed. This intervention was designed and implemented by the last group of residents in order to improve physician-patient communication, increase patients' understanding of their illness, and educate patients regarding diabetic care measures.

KEY LESSONS LEARNED: 1. Resident-led quality improvement projects are feasible over a short period of time by utilizing serial groups of residents and passing specific tasks from one group to the next. 2. Measures of diabetes control were better than expected; however, regular follow-up and testing were less frequent than desired. 3. The co-management rate with nurse practitioners in our sample was much lower than expected. Nurse practitioners can help provide continuity of care for resident patients, especially given the difficulty of resident clinic schedules.

ONE YEAR LATER: PRELIMINARY RESULTS FROM PISCES-A LONGITUDINAL, INTEGRATED THIRD-YEAR CLERKSHIP AT UCSF

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STATEMENT OF PROBLEM OR QUESTION: What are student perceptions and learning outcomes from participants in a pilot longitudinal integrated third-year clerkship at an urban, academic medical center and how do they compare to students from traditional clerkships?

DESCRIPTION OF PROGRAM/INTERVENTION: The Parnassus Integrated Student Clinical ExperienceS (PISCES) is a one-year integrated clerkship pilot which launched in April 2007 with 8 students and has now expanded to 16. The clerkship includes longitudinal preceptor sessions with a faculty member from each core discipline, a patient panel (averaging 50 patients) that the students follow into various settings over the year, acute care sessions, mini inpatient immersions in Medicine and OBGYN and an integrated longitudinal curriculum (PISCES School).

OBJECTIVES OF PROGRAM/INTERVENTION: To develop and implement a third-year curriculum that meets all discipline-specific clerkship learning objectives and emphasizes: · Longitudinal relationships between patients, students, teachers and healthcare systems. · The course of chronic illness and the patient's experience of disease. · Clinical reasoning skills through evaluating undiagnosed patients in the ER. · Skills and knowledge needed for effective patient-centered care.

FINDINGS TO DATE: Student Perceptions End-of-year mean composite clerkship evaluations showed a higher rating for faculty and resident teaching in PISCES (4.84 and 4.60, respectively on scale from 1 to 5) than in traditional rotations (4.29 and 4.15, respectively). The adequacy of direct observation of clinical skills and feedback scores were significantly higher from PISCES students (4.51 vs 3.81 and 4.49 vs 3.98, respectively). Key elements of the program such as the patient panel, longitudinal preceptorships, acute care sessions, advising and PISCES school were also very highly rated. Among individual clerkships there were no significant differences between the perceptions of overall effectiveness in the Internal Medicine, OBGYN, and Surgery Clerkships amongst PISCES students and non-PISCES students at Parnassus. In contrast, Family & Community Medicine, Neurology, Pediatrics and Psychiatry Clerkships were rated significantly higher by the PISCES students. Learning Outcomes There were no significant differences between final exam scores for any clerkship with the exception of Psychiatry, where post hoc tests revealed that traditional students received significantly higher exam scores than PISCES students. The PISCES students passed all of their exams. Overall score on clinical performance exam (CPX) did not differ significantly between PISCES and traditional students.

KEY LESSONS LEARNED: Overall, the student evaluation of the PISCES program was outstanding. Elements that raised concerns by students at the midpoint such as meeting clerkship objectives, the inpatient experience, and following cohort patients attained scores at 4.0 or higher by the end of the year, perhaps reflecting the importance of a year for these elements to come to fruition. The students performed equivalently to their non-PISCES peers in clinical and written evaluations with the exception of psychiatry. Evaluation of other aspects of performance such as physician identity formation, patient-centeredness, patient satisfaction/outcomes, wellbeing, preceptor experience, effective learning processes and career choices are underway. The results are limited by the small sample set and will need to be validated in the future.

PAY-FOR-PERFORMANCE: PROFITS AND COSTS AS PERCEIVED BY RESIDENTS IN A QUALITY IMPROVEMENT CURRICULUM

S. Augustine[1]; R. Lawrence[1]; B. Watts[2]. [1]Louis Stokes Cleveland Department of Veterans Affairs Medical Center, Cleveland, OH; [2]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205065)*

STATEMENT OF PROBLEM OR QUESTION: Curricula for addressing the Accreditation Council of Graduate Medical Education (ACGME)'s required core competency of practice-based learning and improvement (PBLI) have evolved, but few directly address preparing physicians for the new model of performance-driven reimbursement and its interface with quality care. As such, trainees may be ill-prepared for addressing and resolving potential conflicts between quality improvement initiatives and pay for performance (P4P) demands.

DESCRIPTION OF PROGRAM/INTERVENTION: Our foundation curriculum integrates articles and discussions of the context and potential ramifications of P4P initiatives. To better understand residents' perceptions about P4P and quality, we undertook a qualitative study designed to capture residents' thoughts and perspectives of the plusses and minuses of P4P. The questionnaire was given on the first day of the curriculum prior to an introductory overview of quality improvement.

OBJECTIVES OF PROGRAM/INTERVENTION: The immediate objective is to collect, analyze and refine themes that emerge from resident participation in a curriculum designed to enhance practice reflection. The long-term objective is to apply this information to develop residency educational curricula which directly address issues that impact on providing, assessing and improving delivery of quality care.

FINDINGS TO DATE: Grounded-theory approaches to thematic coding of responses from 9 teams of residents were used to identify emergent conceptual themes related to plusses and minuses of P4P. Themes related to advantages included three main aspects of improving care: ensuring standardization (e.g., "improved care across practices"), enabling thoroughness (e.g., "encourages [providers] to provide better care"), and encouraging prevention (e.g., "important screening measures not missed"). Themes related to disadvantages included two main aspects of compromising care: creating blinders (e.g., "treating numbers"), and fostering gaming (e.g., "cherry picking"); and two main aspects of creating challenges: increasing costs/needed resources (e.g., "increased cost of implementing"), and ignoring relevant patient related factors (e.g., "punishing physicians for [patient] non-compliance").

KEY LESSONS LEARNED: From our data, it is clear that while residents value the concept of P4P, they remain conflicted as to whether P4P in its current format achieves the ultimate goal of improving patient care across a spectrum. Residents felt that providers should be held to a minimum standard of care, but at the same time they highlighted the lack of patient responsibility in any P4P measures that currently exist, i.

e. measures pertaining to patient adherence, patient comprehension or patient preference. Residents also noted that current schema seem to maximize care for those patients already receiving standard of care while continuing to marginalize the population of already at-risk patients by fostering out-of-practice referrals for the most difficult to treat patients. By engaging residents in understanding how and why current performance measures are developed, we additionally hope to stimulate their ongoing participation in the dilemma of how to achieve and measure quality care. Our data underscore the value of giving due diligence to the voices of our trainees who will ultimately be the end users of such a system and hopefully will help shape programs to achieve a P4P that maximizes health care delivery.

PEER HANDOFF ORIENTATION PROGRAM: INTRODUCTION TO SELF-DIRECTED SMALL GROUP LEARNING ON DAY ONE OF MEDICAL SCHOOL C.J. King[1]; M. Richards[1]; K.K. Papp[1]; T. Wolpaw[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205372)*

STATEMENT OF PROBLEM OR QUESTION: LCME expects medical schools to provide instructional opportunities for active learning and independent study. Case Western Reserve University School of Medicine initiated a new curriculum that focuses on these skills. The incoming student orientation covering procedures and policies has traditionally been run by faculty. This kind of orientation is 1) mostly forgotten by students, and 2) does not help them transition to learning strategies they need immediately to navigate a curriculum that predominantly uses self-directed small-group learning (PBL). Will a medical school orientation planned and led by 2nd year students increase 1st year students' knowledge about and comfort with self-directed small group learning?
DESCRIPTION OF PROGRAM/INTERVENTION: Second year student co-directors worked with education leadership to plan and run a 3 part orientation that began on the first day and extended over the first 6 weeks of medical school. Eighteen 2nd year students were recruited as peer leaders. Day 1: Entering 1st year students were divided into groups of 9 students. Peer leaders guided groups through a case-based exercise requiring group problem-solving and self-directed use of electronic resources. Peer leaders then facilitated panel discussions in the school's four learning communities about self-directed learning, their personal insights about transitioning to it, and how they came to use it effectively. Day 1 finished with a lecture hall session about giving useful feedback to small group members and faculty facilitators. 1st Week: Peer leaders facilitated a practice PBL session that included a shortened case, identification of group learning objectives, and end of session feedback. Peer leaders offered insights about ways to achieve an effective group process. First 6 weeks: Peer leaders and their small groups met three times at two-week intervals to provide just-in-time guidance about self directed learning, PBL, and information finding.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Familiarize 1st year students with the concept of self-directed learning and strategies for using it; 2) Support students' use of self-directed learning strategies in a small group learning environment; and 3) Facilitate the acquisition of information finding skills.
FINDINGS TO DATE: Pre-intervention, one week, two month, and one year post-intervention surveys were administered to first year students to assess if program objectives were achieved. There was a significant ($p<0.001$) increase between pre-intervention and one week post-intervention surveys for 1) defining self-directed learning (Effect Size (ES) 0.64), 2) familiarity with PBL procedures (ES 0.59), and 3) confidence in information finding skills (ES 0.96). The two month post-intervention survey did not differ significantly from the one week survey. After one year, students continued to increase their confidence in information finding skills (ES 1.25). Their ability to define self-directed learning returned to pre-intervention levels (ES -0.02).
KEY LESSONS LEARNED: A medical school orientation can be effectively designed and run by 2nd year students, providing incoming students with an effective grasp of self-directed learning concepts and with strategies for PBL and information finding. Advantages of a peer orientation include: 1) providing personal insights and directly addressing student concerns about self-directed small group learning, and 2) facilitating channels of communication between classes. One year data suggests that concepts such as self-directed learning may need continuous reinforcement.

PEER-TO-PEER TEACHING OF MEDICARE PART D: A NOVEL APPROACH TO INTERDISCIPLINARY HEALTH POLICY EDUCATION FOR MEDICAL STUDENTS AND INTERNAL MEDICINE RESIDENTS C.J. Lai[1]; M.R. Stebbins[1]; T. Cutler[1]; A.R. Smith[1]; H.L. Lipton[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 203814)*

STATEMENT OF PROBLEM OR QUESTION: National organizations for undergraduate and graduate medical education have called for the development of curricula on health policy and interdisciplinary collaboration. We developed a novel peer-to-peer teaching program with pharmacy students teaching health professional peers about the Medicare Part D prescription drug benefit, the most significant policy change to Medicare since its inception in 1965.
DESCRIPTION OF PROGRAM/INTERVENTION: This peer-to-peer teaching innovation was part of a pharmacy student-led outreach and research program that helped underserved seniors maximize their Part D benefit. Medicine and Pharmacy faculty trained 9 pharmacy students to be Part D experts, in order to present a 1–2 hour lecture on Part D structure, scope of coverage, and perspectives of 3 key stakeholders (patients, providers, insurers). Through case-based learning, pharmacy students taught internal medicine residents, medical students, and nurse practitioner students how Part D policy and prescriber drug choices influence patient access to drug plans, out-of-pocket costs, and compliance with drug regimens. Examples of interdisciplinary collaboration were used to illustrate how providers, working collaboratively, could ensure patients enroll in cost-effective plans and enhance the likelihood of improved therapeutic outcomes.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To teach interdisciplinary students and medicine residents about Part D and methods to optimize patient plans; 2) to promote interdisciplinary awareness and collaboration.
FINDINGS TO DATE: Pharmacy student peer educators gave 12 presentations to 470 health professional students and medicine residents from 4 academic institutions. On a 4-point Likert-scaled survey, learners somewhat or strongly agreed that: they would recommend the lecture to others (100%); the peer-to-peer format was an effective way to provide Part D education (99%); and peer-to-peer teaching promoted interdisciplinary collaboration (100%). Learners also somewhat or strongly agreed that as a result of the lecture, they intended to collaborate more with pharmacists about drug selection (95%), costs (97%), formularies (97%), Part D (96%), and insurance plans (96%). Qualitative analysis of comments generated 3 themes: the lecture's high clinical relevance; the value of the peer-to-peer teaching format and learners' intent to collaborate more with pharmacists; and the need for wider dissemination of the lecture. The lecture was integrated successfully into multiple venues, including a medical grand rounds, a residency's chronic care conference, and a health policy course for third-year medical students. This program recently expanded statewide to 6 additional Schools of Pharmacy that will, in turn, deliver the presentation to their health professional schools and residencies.
KEY LESSONS LEARNED: This teaching model appears to be an effective way to disseminate contemporary health policy information to large groups of students and residents while fostering interdisciplinary collaboration. Initially giving the lecture successfully to small groups was an effective way of establishing "proof of concept" and subsequently receiving invitations to present in larger forums. It also was critical to have a physician advocate who championed the interdisciplinary program and helped incorporate it into existing curricula. If pharmacy students can add value to the curriculum of other disciplines through peer-to-peer teaching, it is equally likely that medical students and residents can become peer educators for their interdisciplinary colleagues.

PERCEIVED COMPETENCE OF MEDICAL STUDENTS BEFORE AND AFTER COMPLETION OF A SUB-INTERNSHIP: A COMPARISON OF INTERNAL MEDICINE WITH OTHER SPECIALTIES A. Trosterman[1]; E.M. Aagaard[2]. [1]University of Colorado at Denver, Denver, CO; [2]University of Colorado at Denver, Aurora, CO. *(Tracking ID # 204795)*

STATEMENT OF PROBLEM OR QUESTION: Recent studies show that program directors of many specialties would like to see incoming interns arrive better prepared in the ACGME competencies of patient care, interpersonal communication and systems-based practice. The ability to remain organized when clinical workload increases, function

autonomously, communicate with challenging patients/families and identify and dissect medical errors have been identified as areas of frequent deficit in incoming interns.(1–4)

DESCRIPTION OF PROGRAM/INTERVENTION: A new IM Sub-internship Curriculum was implemented at the University of Colorado School of Medicine in 2008 to address these deficits. The objectives of these changes were to increase ability (1) to handle patient volume similar to an intern and provide cross-coverage, (2) to communicate effectively in a challenging situation, and (3) to identify and evaluate a medical error that occured secondary to failures of communication or systems.

OBJECTIVES OF PROGRAM/INTERVENTION: 1) Direct patient care: Students were responsible for a patient load comparable to 65% that of an IM intern (eight daily patients and four new patients on call). They were expected to develop a level of independence near that of an intern by taking responsibility for writing orders, calling consults and PCPs, interacting with ancillary staff, taking cross coverage while on call and taking and receiving handoffs during sign-out. 2) Observation of communication skills: Students were directly observed by an attending physician performing advanced communication skills in the form of breaking bad news, negotiating end-of-life care, or managing challenging patient/family discussions. An attending physician provided direct feedback on student performance. 3) Independent/small group work: Students worked in groups to identify a patient hospitalization that incurred one or more medical errors; An emphasis was placed on systems-based errors. Using a variation on the Vanderbilt QI healthcare matrix, they analyzed the individual and system factors that contributed to the error and identified potential system-based solutions that could prevent future similar errors. Their projects were presented to residents and faculty at a one-hour conference at the end of their rotation.

FINDINGS TO DATE: Evaluation involved comparison of students' self-rated competencies in the areas targeted before and after participating in an IM Sub-internship. A paired t-test indicates that students' mean score change in competency ratings was significant ($p<.0001$) with means increasing from 73.19 to 80.15—an increase that represents a moderate effect size ($d=.42$). Students showed significant gains ($p<.05$) in their ability to: display professional behavior toward colleagues in times of stress, assume responsibility for decision-making about patient care, complete all patient tasks in a timely manner, communicate complicated or difficult information to patients, respond to the patient and family concerns regarding the patient's condition, break bad news to a patient, communicate information about the patient effectively to consults, communicate with other health care providers, admit a number of patients equivalent to an intern in the specialty, on a daily basis round on the number of patients equivalent to an intern in the specialty.

KEY LESSONS LEARNED: 1) Competency based curriculum can improve students' perception of competence. 2)Internal Medicine Sub-internships may better prepare students for internship. 3) Fourth year medical students can handle complicated communication scenarios with proper supervision.

PHARMWEB: CATCHING STUDENT INTEREST WITH INTERACTIVE ONLINE MODULES

P.Y. Kim[1]; D.W. Allbritton[2]; R.A. Keri[1]; J.J. Mieyal[1]; C.L. Gosen[1]; A.L. Wilson-Delfosse[1]. [1]Case Western Reserve University, Cleveland, OH; [2]DePaul University, Chicago, IL. *(Tracking ID # 205976)*

STATEMENT OF PROBLEM OR QUESTION: Problem Based Learning (PBL) curricula pose unique challenges for the teaching and learning of pharmacology at medical schools internationally; the Western Reserve2 (WR2) curriculum has been no exception. Students encounter pharmacology interspersed throughout the first-year curriculum, presented in diverse formats. Based on feedback, students have either failed to recognize pharmacology learning opportunities or have not prioritized pharmacology in their learning.

DESCRIPTION OF PROGRAM/INTERVENTION: Eight optional web-based modules ("PharmWeb") were designed for first-year medical students as a complement to the basic science and clinical concepts encountered during the 11-week "Block 2" of the curriculum. Modules were written collaboratively by pharmacology faculty and students and generally included: 1) a topic introduction; 2) a brief reading assignment; and 3) a self-assessment quiz. Outcomes will be assessed as follows: 1) pharmacology knowledge acquisition via Block 2 pre- and post-tests; 2) engagement via number of times the PharmWeb modules are accessed, number of quiz completions, and through self-reported survey questions. Retrospective survey data on engagement was also collected from the preceding class as a comparison group.

OBJECTIVES OF PROGRAM/INTERVENTION: An online, supplemental pharmacology curriculum was developed for first-year medical students to: 1) Increase student knowledge by providing online, self-paced modules that align with topics presented during primary modes of learning (e.g., PBL, weekly essay questions, lectures); and 2) Increase student engagement via self-directed learning modules, online practice problems, and links to online resources.

FINDINGS TO DATE: During the first block that the modules were available to students, 84% visited the site at least once (mean: 17 visits, SD=17.9), and 20% (33 students) used the system regularly and completed the pre- and post-tests. These 33 students were highly engaged, completing at least 6 of the 7 weekly quizzes (mean: 6.8, SD=.42) and visiting the modules an average of 29.2 times (SD=15.2). They also showed significant ($t\ [32]=6.12$, $p<.0001$) learning gains from pre-test (mean: 4.0, SD=.77) to post-test (mean: 5.8, SD=1.3). In addition to the 8 questions repeated from the pre-test, the post-test also contained 5 new items to measure learning transfer. Students did very well on the transfer items, with a mean of 4.0 (SD=.77) or 80% correct. Fifty-three students completed the end-of-block survey, and the comparison group (Class of 2011) includes 83 survey responses, completed retrospectively. Student feedback suggests a high level of satisfaction with the modules.

KEY LESSONS LEARNED: Early student feedback suggests that the inclusion of brief, introductory modules in pharmacology that complement the primary educational content of the block can lead to an improved culture of pharmacology learning in the WR2 curriculum. However, the labor involved in creating each module, obtaining organizational approval, and securing buy-in from stakeholders was considerably greater than anticipated. We were pleasantly surprised by a higher level of student participation and receptiveness than expected. We now have the ability to introduce pharmacology very early in the curriculum. Despite multiple efforts to inform the students about PharmWeb, some students reported that they were unaware of its existence until late in the block. We hope to inform students earlier next year, perhaps through more "official" channels and during orientation week.

"POCKET PRECEPTOR": RESIDENT-LED DEVELOPMENT OF AN OUTPATIENT MEDICINE HANDBOOK FOR INTERNAL MEDICINE RESIDENTS

K.N. Durand[1]; J. Chiovaro[1]; P.P. Kneeland[1]; C.J. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205019)*

STATEMENT OF PROBLEM OR QUESTION: The fast pace of general medicine continuity clinics can be overwhelming for internal medicine residents who are learning a variety of skills, including how to efficiently access information and apply it to patient care in real-time. At our large urban academic institution, internal medicine residents voiced a need for a "home-grown" outpatient medicine handbook that they could use during busy clinics for diagnosis and management of conditions commonly encountered in general medicine clinic.

DESCRIPTION OF PROGRAM/INTERVENTION: A group of motivated residents formed a committee to respond to the demand for an evidence-based pocket handbook for outpatient medicine that would help residents make clinical care decisions in real-time. Our concept was for the book to serve as a "Pocket Preceptor," which became the title of the book. The resident committee developed a process to rigorously design and sustain the handbook, as follows. (1) We wrote a successful internal grant to secure funding for the publication of the handbook and its distribution to residents for several years. (2) Based on a needs assessment, we created a list of high-yield, clinically relevant general medicine topics. (3) We developed a novel template for chapter structure to ensure ease of use and meet the needs of the target audience as they care for general medicine outpatients. Each chapter included a sidebar box with "Bottom Line" clinical pearls, a "When to Refer" section, and references to recent evidenced-based articles. (4) We recruited 2nd- and 3rd-year medicine resident authors, as well as faculty members to mentor each resident. (5) The resident committee then edited and formatted the chapters into a cohesive pocket book of approximately 250 pages. (6) Finally, we established a standing committee of resident editors to sustain the handbook in years to come.

OBJECTIVES OF PROGRAM/INTERVENTION: The primary goal of the project was to develop a comprehensive, evidence-based pocket handbook on outpatient internal medicine for resident physicians. An additional goal was to provide an opportunity for residents to author a textbook chapter with faculty mentorship.
FINDINGS TO DATE: The book was completed in the beginning of 2009 after a yearlong development process, and is currently in press. Despite this being a voluntary activity, a relatively high proportion of residents (36%; 38 of 105 residents) chose to author a chapter. A total of 93 chapters were written, and residents were mentored by 28 faculty members. Initial qualitative feedback from residents on the experience of authoring a chapter with a faculty mentor was overwhelmingly positive. We are currently surveying all resident authors to assess the educational benefit of writing medical textbook chapters, and to evaluate their plans to incorporate medical writing into their future careers. In addition, we will administer a survey to residents after they have used the book for several months to assess its ease of use, its comprehensiveness, and how residents feel it impacted their training experience.
KEY LESSONS LEARNED: A need exists among internal medicine residents for a user-friendly pocket guide that will help them better manage their time and deliver quality care in busy outpatient clinics. Based on initial feedback, residents valued the experience of authoring a textbook chapter with close faculty mentorship, and this may represent an important educational opportunity. Ongoing assessment of the book will allow for future improvements and additional authorship opportunities for future residency classes.

PREPARING FACULTY TO CONDUCT CLINICAL SKILLS REMEDIATION: BUILDING INSTITUTIONAL CAPACITY A.L. Kalet[1]; L.R. Tewksbury[1]; J. Hyland Bruno[1]; L. Taffel[1]; S. Zabar[1]. [1]New York University, New York, NY. *(Tracking ID # 205737)*

STATEMENT OF PROBLEM OR QUESTION: Medical educators are increasingly involved in remediating trainees with a range of clinical skills difficulties. And yet few feel prepared to diagnose the problems or address them effectively. We report on a faculty development course to prepare educators to evaluate and remediate students who failed our annual Comprehensive Clinical Skills Exam (CCSE) a high stakes, 10-station Objective Structured Clinical Exam (OSCE).
DESCRIPTION OF PROGRAM/INTERVENTION: We recruited UME and GME program leaders to participate. The course consisted of 10 seminars with readings and a practicum in which participants were supervised working with at least 2 students. Weekly 1-hour group sessions alternated between an expert talk and case discussions. Seminar Topics included: Interpreting OSCE data, standard setting, cognitive theory of clinical reasoning and expertise development, theory and measurement of moral reasoning and the four component model of ethical behavior, theories of adult development, verbal and nonverbal learning disabilities, adult ADHD and Asperger's, character development and dysfunctions, stereotype threat and other culturally determined causes of academic failure. Participants spent an average of 2 hours with each student.
OBJECTIVES OF PROGRAM/INTERVENTION: The goal of the course was to expand our institutional capacity to conduct effective remediation by equipping physicians to: define clinical competence in a behaviorally specific, measurable manner; articulate general categories of trainee incompetence and explore root causes; make judgments regarding clinical competence and remediation strategies; conduct a remediation process that students experience as growth-promoting; address legal and regulatory requirements; explore personal attitudes and beliefs which inhibit effective remediation.
FINDINGS TO DATE: Nine faculty members participated in the remediation of 16 medical students for a total of 40 hours. We concluded that the initial student assessment should include a faculty-facilitated data-driven self-assessment, an educational history and screening for common learning disabilities, consideration of stereotype threats, screening for professionalism issues (e.g. inappropriate attitudes toward assessment, lack of accountability), common psychiatric diagnoses (e.g. depression, anxiety) and performance related psychological issues. Remediation needs to be tailored to the identified problems and requires a respectful and trustworthy student-teacher relationship. Strategies should include directly observed skills practice with feedback, self reflection and clinical reasoning exercises, and opportunities for corrective experiences. Most students demonstrate improvement and are deeply appreciative of faculty effort.
KEY LESSONS LEARNED: Only longitudinal faculty development will build institutional capacity to conduct effective remediation since it requires a broad knowledge and skills base. Trainees who fall in the lowest deciles on performance based clinical skills exams present educators with a heterogeneous set of issues. Models and frameworks, not yet defined, are needed to understand prognosis and formulate effective plans. As leaders from diverse programs, with the input of local experts from a broad range of academic disciplines (psychology, psychometrics, sociology, learning disabilities, and psychiatry) we created a core group with shared needs. The practicum reinforced and allowed for shared experiential learning and expertise development. Many unanswered research questions have been raised in this work.

RECERTIFICATION AIDS: COMPLETION OF AMERICAN BOARD OF INTERNAL MEDICINE, MAINTENANCE OF CERTIFICATION MODULES AS A GROUP A.K. Ghosh[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205468)*

STATEMENT OF PROBLEM OR QUESTION: Maintenance of certification(MOC) in medicine requires completion of several knowledge content modules. These are time consuming processes often requiring lengthy review of literature. These modules are often completed during weekends or not at all. We hypothesized that completion of MOC modules as a group would decrease the time required and given the diverse expertise of the group would enhance the quality, satisfaction and overall educational experience of physician participants.
DESCRIPTION OF PROGRAM/INTERVENTION: We sought to utilize our institution resources and create a group learning experience by completing MOC modules as a group. An eight step process was adopted that included; 1) Identification of appropriate MOC module relevant to most faculty within a specialty. 2) Contacting ABIM to use specific module. Each module could be used for several sessions with ABIM's permission. 3) Identify stellar faculty who are adept in literature search and critical appraisal; 4) Identify evidence-based resources to discuss questions (PubMed, UpToDate, etc.); 5) identify institutional educational resources, get buy -in from Department Chair, advertise MOC sessions using institutional websites (internal sessions) and CME and ABIM website(for external session); 6) Create learning atmosphere that is non threatening and discuss the module as a group with online support to complete modules real time; 8) Create survey instrument to assess effectiveness of session;) Evaluate long term outcome studies to evaluate retention of information by physicians, patient outcomes.
OBJECTIVES OF PROGRAM/INTERVENTION:) To determine whether group completion of MOC modules enhance physician satisfaction 2) To determine the ease of completion of MOC modules 3) To determine if the level of satisfaction was different among physicians who were attending DOM – MOC sessions, versus physicians who were attending MOC through Mayo School of CME
FINDINGS TO DATE: Since December 2006 , Mayo Clinic Department of Medicine (DOM) and Mayo School of CME has held six MOC sessions for internal (Mayo faculty) and five sessions for external physicians (physicians not employed by Mayo) respectively. Till date 8 modules(7 Internal Medicine, 1 Cardiology) have been completed as a group. There were 2 external sessions were multiple modules were covered (2 modules- 30 points, 4 modules- 60 points), the latter over 2 days. Till date, we have had 339 physicians attend internal courses and 351 physicians attend external courses. The range of attendees for these sessions have been 21–82.Participants ranked these sessions as among the best they have attended with strong educational appeal and knowledge retention using a 5 point Likert's scale (mean=4.82). Participants rated these sessions were also seen as opportunities for group learning and increasing staff collegiality and satisfaction. Random posttest review of 5 questions covered in the module revealed strong retention of information. Several sessions have been planned for the 2009 sessions
KEY LESSONS LEARNED: Every institution has potential resources that can be used to enhance group leaning and completion of MOC modules. Real time discussion of questions and interactive deliberations of possible options enhance education and staff satisfaction. Internal sessions for physicians could also be cost-effective.

SAFE TRANSITIONS FROM HOSPITAL TO HOME: THIRD-YEAR MEDICAL STUDENT REFLECTIONS ON A POST-DISCHARGE VISIT CURRICULUM A.A. Wulfstat[1]; C.J. Lai[1]; M. Schneidermann[1]; J. Abrams[1]; H. Nye[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205413)*

STATEMENT OF PROBLEM OR QUESTION: The period of transition from hospital to home is a time when patient safety is at particular risk. It is critical that medical students be trained to recognize and reflect on how to minimize that risk. Student reflection on their clinical experiences is increasingly being recognized as an important part of professional development.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a required post-discharge visit curriculum to address the need for student education on safe hospital-to-home transitions. The participants were all third-year medical students on their inpatient internal medicine clerkship at one of three sites: a tertiary care center, Veterans Affairs hospital, or a county-based hospital serving an indigent population. The 3-phase curriculum consisted of a workshop on transitional care, a post-discharge home visit to a patient known to the student from the rotation, and a group debriefing session including a written reflection exercise. Students selected their own patient to visit after discharge. Students also completed a written reflection exercise after the home visit, which allowed them to integrate and consolidate the diverse aspects of the curriculum. In the reflection exercise students described their visit experiences (including surprising aspects), findings with medication reconciliation and impact of the program on their future discharge planning process. Using an iterative consensus building process, we examined these reflections to generate themes of surprising elements and "lessons learned" by clerkship students.
OBJECTIVES OF PROGRAM/INTERVENTION: The post-discharge visit curriculum was designed to: 1) increase students' awareness of the risks associated with the transition from hospital to home, and 2) increase students' awareness of the importance of provider-patient communication, system barriers, and availability of community resources around discharge planning.
FINDINGS TO DATE: Eighty-four students completed the post-discharge visit curriculum and reflection exercise at the three medicine clerkship sites. The following themes emerged in the qualitative analysis of the reflections: 1) surprise about medication adherence (both positive and negative) found during medication reconciliation, 2) importance of clear communication of a concrete discharge plan to both patient and primary care provider, 3) importance of tailoring a discharge plan to the particular social situation and capabilities of the patient, 4) satisfaction in getting to know the patient as a "whole person" during the home visit, and 5) surprise about patients' level of independence and their vitality (both positive and negative).
KEY LESSONS LEARNED: A structured transitional care curriculum with a post-discharge visit and reflection exercise can increase student awareness of the need for careful discharge planning. Additionally, although the three hospitals had different patient populations and health care systems, the general themes were similar at the three sites. This suggests that implementation of a post-discharge visit program can be generalized to any site.

SIMULATION ENHANCED OUTPATIENT PROCEDURES CURRICULUM R.M. Preisner[1]; M.A. Mcneil[2]; P. Bulova[2]. [1]University of Pittsburgh, Veterans Administration Hospital, Pittsburgh, PA; [2]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205064)*

STATEMENT OF PROBLEM OR QUESTION: Published studies have documented low performance and provider comfort level with intra-articular and dermatologic procedures by primary care physicians because of inadequate training. Due to concern for patient safety, resident work hour restrictions, and the shrinking length of office visits, residents learn and perform fewer office procedures. We have used simulation and a procedure clinic to implement a comprehensive curriculum to ensure our medical residents learn and perform basic outpatient orthopedic and dermatologic procedures
DESCRIPTION OF PROGRAM/INTERVENTION: We have created a simulation-based knee and shoulder joint aspiration and injection course and incorporated it into the intern ambulatory block. The course employs multiple learning strategies. Didactic material covers joint anatomy, physical exam, differential diagnosis, joint fluid analysis, evidence favoring intra-articular steroid injection, informed consent, and complications of procedure. Ample time is devoted to deliberate practice on the limb models. Each resident's procedure skill is evaluated and each is allowed an unlimited number of attempts to achieve competence. Likewise, each resident must achieve 80% on a multiple-choice test to pass. The outpatient procedure clinic is an elective rotation. A half day per week, residents perform procedures at a high frequency and are exposed to the breadth of procedures available to general internists. Potential procedures are referred from the resident and attending general medicine clinics
OBJECTIVES OF PROGRAM/INTERVENTION: The simulation course objective is to increase resident confidence and competence in performing subacromial bursa and knee aspirations and injections. The procedure clinic objective is to acquaint residents with simple dermatologic and increase opportunities for joint procedures.
FINDINGS TO DATE: The simulation course has met its objectives. Prior to the course, 16% of residents felt "fully confident" (7 or greater on a 9-point Likert scale) that they could perform a knee aspiration, after the course 89% felt "fully confident". Prior to the course, 24%, and after, 91% of the residents felt fully confident to locate the subacromial bursa. All residents achieved competence based on performing all key items on a detailed evaluation checklist. If necessary, residents were retested till they achieved competence. 96% of the residents gave the course an overall rating of 7 or greater (1=worst, 9=best). In the procedure clinic, the most frequent procedures are cryosurgical removal of skin lesions and joint injections.
KEY LESSONS LEARNED: The success of the simulation course rests on several factors. Residents receive continuous formative feedback during practice sessions and immediately following testing. Practice on limb models is repeated till mastery is achieved. The models are highly realistic. The course is fully integrated into the existing first year ambulatory rotation. It employs multiple learning strategies: cognitive, psychomotor, and affective. Simulation promotes active learning. Course learning objectives are clearly stated at the beginning including the existence of testing at the course's conclusion. The success of the procedure clinic rests with the 1:1 precepting and consistent meeting time. It serves as an essential link to translate simulation-based competence into real patient competence.

SKILLS REVIEW: USE OF VIDEO RECORDINGS AND SMALL GROUP LEARNING TO IMPROVE PHYSICAL EXAM, DIFFERENTIAL DIAGNOSIS AND PROBLEM SOLVING SKILLS AT A COMMUNITY HOSPITAL -WORK IN PROGRESS C. Schaeffer-Pettigrew[1]; S.R. Potts[1]; V.G. Tsang[1]. [1]Mercy Hospital and Medical Center, Chicago, IL. *(Tracking ID # 204890)*

STATEMENT OF PROBLEM OR QUESTION: Medical graduates enter residency with varied exposure and clinical skills resulting in different levels of knowledge. Because our community hospital residency has limited access to skills labs often used to improve resident deficiencies in physical exam, differential diagnosis, and problem solving, we sought alternative learning opportunities to address these needs for our learners.
DESCRIPTION OF PROGRAM/INTERVENTION: The project was conducted in a large, urban, community teaching hospital with international medical graduates. An anonymous survey of residents and faculty identified a need to improve resident autonomy, self-directed learning and increase resident-faculty interactions. Residents were given a physical exam checklist of a 140 basic maneuvers validated by an affiliate skills lab. One continuity clinic session for each resident was scheduled for a new patient video exam, where consent was obtained and exam was recorded. Faculty preceptors reviewed the video and gave residents performance feedback. A blinded rater collected video data. The video and a self-rated questionnaire served as the pretest. All residents then participated in an hour-long daily skills review for 8 weeks covering a head to toe physical exam divided by organ system. The sessions included review of correct physical exam techniques, evidence behind abnormal exam findings, small group practice of exam with faculty feedback, and small group case-based discussion of common medical conditions by organ system. Case discussions included 8–10 residents and a faculty facilitator. Cases required demonstration of a problem focused physical exam, development of differential diagnosis, group generation of clinical questions to be answered by literature evidence, determining best evidence diagnostics and management strategies. Skills sessions are ongoing for one week a month to reinforce the

learning objectives. A complete post intervention patient video, knowledge assessment and self-evaluation are scheduled for June 2009.
OBJECTIVES OF PROGRAM/INTERVENTION: 1)Assess resident perception of physical exam, differential diagnosis and problem solving skills. 2)Evaluate resident physical exam skills through video recordings of real patient exam. 3)Improve resident confidence, problem solving and exam skills through case-based small group learning.
FINDINGS TO DATE: Objective assessment included 24 residents who completed the pretest video exam and 20 residents who completed the subjective self-evaluation. Resident Performance: In the pretest video examination, residents completed 52%(+/-5%) of the 140 exam maneuvers correctly, 12%(+/-2%) incorrectly and 36%(+/-6%) were omitted. The range of correct exam maneuvers was 10–76%. Resident Perceptions: Resident self perceptions of physical exam and diagnostic skills were rated on a 5 point Likert scale where 5 was superior. Residents perceived exam skills had a mean of 3.4(SD 0.6). Resident perception of ability to make a diagnosis on an unknown patient from physical exam had a mean of 3.8(SD 0.5).
KEY LESSONS LEARNED: Real-time video is a realistic, accessible, cost effective medium for evaluation of physical exam skills. A surprising variation between subjective perception an objective performance of exam was identified. Video review can be used to give insight into actual ability and addresses overconfidence. Challenges include patient recruitment, limited scope of video camera, and variability in real patient's exam. Patients are also an asset as they increase resident "buy-in" and enrich review and feedback.

STANDARDIZED TRAINING OF INVASIVE BEDSIDE PROCEDURES AND USE OF ULTRASOUND IMPROVES TRAINEE CONFIDENCE AND COMPETENCE AND DECREASES COMPLICATION RATES V. Kalidindi[1]; J. Lenchus[1]; D. Murphy[2]; R. Everett[1]; J. Sanko[1]. [1]University of Miami, Miami, FL; [2]Jackson Memorial Hospital, Miami, FL. *(Tracking ID # 206007)*

STATEMENT OF PROBLEM OR QUESTION: The performance of invasive bedside procedures is an integral part of inpatient medicine. Commonly performed include central venous catheter placement, paracentesis, thoracentesis and lumbar puncture. Trainees often shy away from performing these due to a lack of confidence and competence and complications associated with these procedures. We created a standardized curriculum for teaching bedside procedures, including the use of ultrasound as pertinent.
DESCRIPTION OF PROGRAM/INTERVENTION: Competence and confidence in procedures were assessed by a survey of 138 internal medicine residents. Second and third year residents participated in a dedicated rotation, during which they learned four invasive bedside procedures using a mannequin: lumbar puncture, thoracentesis, paracentesis, central venous catheter insertion and training in the use of ultrasound guidance. They were then assigned to the hospital's dedicated procedure service. All procedures performed on patients were supervised and complications were documented by the attending physician. Forty-four residents documented self-assessed competence and confidence at the end of the rotation. Pre and post competence and confidence scores were compared; complication rates were calculated and compared to those in the published literature. Complications assessed included pneumothorax, incorrect placement of a central venous catheter, traumatic lumbar puncture (greater than 400 RBCs), arterial puncture during central line placement, and other organ injury. A total of 955 procedures were evaluated over an eighteen month period.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Improve the confidence and competence of trainees performing bedside procedures 2) Formal instruction and use of ultrasound for invasive bedside procedures 3) Decrease the complication rates of invasive bedside procedures
FINDINGS TO DATE: The number of procedures attempted follows: paracentesis, 278; thoracentesis, 161; lumbar puncture, 184; and central line, 332 (79% placed in the IJ or SC location). Overall success rate was 90%. We compared our complication rates, post-intervention, to those of other institutions without such training. Post-thoracentesis pneumothorax was reported as 5.4% v 1.9% in our program ($p<0.05$). Traumatic lumbar puncture was reported to be 18.4% v 9.8% in our group ($p<0.05$). Complications from central line attempts yielded the following when compared to our group: pneumothorax rates were 1.3% v 1.2%; arterial puncture 4.7% v 3.6%; improper placement 3.6% v 2.7%; and failure to place 22% v 9.3% ($p<0.05$). Trainees rated self-assessed confidence and competence according to a five point Likert scale (0 – not at all, 5 – completely). A five was reported by 90% and 93% of participants, respectively; the remaining 10% and 7% reported a level of four. On our initial survey of trainees, 12% -30% and 13% - 22% reported confidence and competence respectively in these procedures. Only 20% reported confidence and competent in use of ultrasound.
KEY LESSONS LEARNED: Traditionally, procedure skills have been learned by the "see one, do one, teach one" method as part of anatomical landmark identification. Our study demonstrates an improvement in self-reported confidence and competence rates after having participated in a standardized curriculum. It is likely that the use of ultrasound guidance contributed to a low incidence of our complication rates, except lumbar puncture. We recommend that physicians who perform bedside procedures should undergo formal instruction and perform them with ultrasound guidance where applicable.

STUDENTS AND PROFESSIONALISM: DOES TALKING HELP? S. Schwab[1]; L. Forman[2]; M. Grayson[1]. [1]Office of UME and Primary Care, New York Medical College, Valhalla, NY; [2]Department of Medicine, New York Medical College, Valhalla, NY. *(Tracking ID # 204592)*

STATEMENT OF PROBLEM OR QUESTION: Patients want doctors to be competent and professional. Literature shows public trust in physicians has eroded despite increased attention in medical schools to professionalism. Students on clinical rotations continue to report that they are uncomfortable dealing with unprofessional behavior they encounter. We hypothesized that providing a forum for discussion and guidance of selected clinical professionalism conflicts in clerkships, would increase student comfort in addressing these issues
DESCRIPTION OF PROGRAM/INTERVENTION: The third year medical student class at New York Medical College (NYMC) (190 students) was randomized to participate in an intervention program consisting of a one hour small group exercise. The intervention group observed brief videotape encounters depicting professionalism challenges, and then discussed these with a trained faculty member not involved in their evaluations. Students discussed how they might react in these situations. Feelings of discomfort were addressed and strategies to manage these issues. The non-intervention group attended a lecture addressing a non-related medical topic. By randomizing the groups we hoped to distinguish if the intervention had an impact on the students' level of comfort or if the comfort level changed solely by going through the clerkship. To determine which professionalism issues were most relevant to 3rd year students, a review of the literature was conducted by three faculty members who chose ten commonly encountered scenarios. These scenarios were developed into role-plays with medical residents and videotaped. These videotaped scenarios were piloted with 8 fourth year students completing their medical sub- internship, who determined which 5 were most relevant to the clerkship experience. The five scenarios chosen for the intervention were: 1) defining appropriate social boundaries between a medical student and housestaff/attendings; 2) expressing concern when exposed to inappropriate humor directed at patients; 3) handling a request to perform a task one is not trained for; 4) determining student role if exposed to impaired colleagues; and 5) managing a request from a resident to copy a student note instead of examining the patient themselves
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Recognize unprofessional behaviors within the clinical setting. 2. Develop strategies for handling professionalism conflicts. 3. Increase student's comfort/confidence managing specific professionalism issues.
FINDINGS TO DATE: The program is being evaluated on several levels: a 4 point Lickert scale assessment of student rated confidence and comfort in handling unprofessional issues is being given at the beginning and end of the clerkship to the intervention and control groups. Students participating in the intervention immediately rate the session on content, perceived enhancement of skills, and comfort discussing these issues. Initial reviews of the student evaluations of the sessions were very positive. Data comparing student responses for both the intervention and control group will be available at the conference, as well as an analysis of the intervention
KEY LESSONS LEARNED: Preliminary data demonstrate that third year medical students welcome the opportunity to discuss complex professionalism issues in a safe environment. Students commented that these discussions "contextualized" issues that they had been exposed to and had been thinking about on their clerkship, but had not been openly discussed.

SUBINTERNSHIP IN HOSPITAL MEDICINE: A 1:2 TEACHING MODEL. J.A. Drice[1]; G. Kannan[2]; L. Luly-Rivera[1]. [1]University of Miami, miami, FL; [2]University of Mami, miami, FL. *(Tracking ID # 204620)*

STATEMENT OF PROBLEM OR QUESTION: Hospital Medicine is rapidly gaining recognition as a site defined specialty. It is also becoming a popular subinternship rotation amongst fourth year medical students. There is a need to develop curricula for training. Educators recognize that experience based teaching is no longer an alternative. There is a growing need for a more formalized approach to preparing students for their medical internship.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a structured curriculum that was based on CDIM's subinternship curriculum and the Society of Hospital Medicine's hospitalist core competencies. Two subinterns worked under the close supervision of a hospitalist attending. In addition, we promoted evidence based medicine by encouraging students to conduct a litterature search for current guidelines.The subinterns also attended workshops on key clinical topics.
OBJECTIVES OF PROGRAM/INTERVENTION: The primary objective is to promote the development of and be able to master core clinical competencies, to review common ward emergency scenarios and to objectively measure acquisition of knowledge, skills and attitudes. The subintern is an integral part of the hospitalist team and assumes primary responsibility for patients under close supervision provided by an assigned hospitalist attending. The subintern is afforded the unique opportunity of collaborative management with other specialties, cares for critically ill patients in the intensive care unit and participates in perioperative evaluation and co-management. The subintern completes a survey at the beginning and at the end of the rotation to appraise his/her level of performance. The subintern is given a written examination before and after participating in a series of workshops, specialty conferences, grand rounds and daily clinical activities; the purpose of this test is to objectively measure the acquisition of competencies.
FINDINGS TO DATE: Nine subinterns have participated since August 2008. Each completed a level of performance survey and took a written examination before and at the end of the rotation. Level of performance and test scores were then compared and consistently showed significant improvement in knowledge, skills and attitudes acquired by the end of the rotation.
KEY LESSONS LEARNED: We propose a structured curriculum based on a set of core competencies, and with an emphasis on evidence based medicine. Our goal is to test a 1:2 teaching model with a hospitalist which, if validated, can serve as a framework for the development of similar subinternships in other specialties.

SUPPORTING RESIDENTS' SELF-DIRECTED LEARNING GOALS M. E. Thorndike[1]; G.T. Mcmahon[1]. [1]Harvard Medical School, Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205644)*

STATEMENT OF PROBLEM OR QUESTION: Adult learning theory endorses the idea of self-directed learning, with learners optimally involved in choosing learning goals which are closely related to the daily tasks and problems they face. Adult learning theory also emphasizes that learners should be given opportunities to practice skills related to their learning goals, with both self-assessment and feedback from others, and should be given opportunities for reflection about their learning. Ideally, residency training should incorporate these methods explicitly.
DESCRIPTION OF PROGRAM/INTERVENTION: In order to assess the effect of structured support for self-directed learning, we compared the experiences of house officers rotating through a specialized teaching unit with those on a standard medical service. House officers rotating through the Integrated Teaching Unit (ITU) and those rotating through the General Medical Service (GMS), both at Faulkner Hospital, were invited to choose a personal learning objective for the month. House officers on the ITU also took part in a structured program of support including team discussion of learning objectives, attending encouragement, and an end-of-the-month discussion of each team member's objective.
OBJECTIVES OF PROGRAM/INTERVENTION: Objectives were for each house officer rotating on the ITU or GMS services to choose a personal learning objective for the month, and to develop a personalized program to meet that learning objective.
FINDINGS TO DATE: Team members were surveyed after completion of their rotations about their experiences. The response rate from 58 ITU house officers, 36 GMS house officers and 39 attendings over a 6-month period were 76%, 72% and 72%. House officers rotating on the ITU were significantly more likely to have chosen a learning objective for themselves (72% vs. 31%, p=0.001), significantly more likely to discuss a learning objective with the team (60% vs. 19%, p=0.001), and significantly more likely to report that an attending helped them meet a learning objective (45% vs. 15%, p=0.019). There was a trend toward house officers on the ITU being more likely to report having learned all they wanted to about their learning objective (34% vs. 15%, p=0.11). When asked to report their specific learning objectives, the most common category chosen in both groups was physical diagnosis (30%), followed by test interpretation (27%) with focus most often on EKGS (17% of total). House officers on both ITU and GMS employed similar strategies to meet learning objectives, including reading from an online medical database (77%), preparation of teaching for others (61%), reading primary literature (53%), discussion with an expert (44%), and direct practice of a skill (44%).
KEY LESSONS LEARNED: We found that providing explicit structure and support for self-directed learning increases the number of house officers who choose and attain specific learning goals, and who discuss those goals with attendings and other team members. It was especially notable that residents most often identified physical exam as a targeted area for self-directed learning.

SUSTAINABILITY OF A QUALITY IMPROVEMENT INITIATIVE TO IMPROVE OBESITY MANAGEMENT IN THE OUTPATIENT SETTING: LESSONS LEARNED FROM THE BMI COLLABORATIVE N. Laiteerapong[1]; K. Naylor[2]; L.M. Vinci[2]; J.L. Oyler[2]; V. Arora[2]. [1]MacNeal Hospital, Berwyn, IL; [2]University of Chicago, Chicago, IL. *(Tracking ID # 205041)*

STATEMENT OF PROBLEM OR QUESTION: Obesity is epidemic and accounts for $100 billion annually due to obesity-related diseases. Body mass index (BMI) is the obesity-screening tool recommended by the United States Preventative Services Task Force. We report on the short and long-term success of a quality improvement (QI) initiative in an internal medicine residency clinic to increase rates of BMI documentation.
DESCRIPTION OF PROGRAM/INTERVENTION: The initial QI initiative in January 2007 entailed BMI education for residents and nurses, distribution of patient and resident education materials, and accessibility to height/weight charts that simplified BMI determination (BMI charts). A process map of clinic workflow was created to assess the current process of BMI documentation. Clinical nurses were instructed to document patient weight and height on modified data intake forms. Plan-do-study-act cycles of QI were used for sustainability. At 6-months post-intervention, educational handouts were provided to residents and patients on the availability of local exercise and nutrition programs. At 9-months post-intervention, the most cited barrier to documenting BMI was missing BMI charts, which were replaced. A retrospective review of the University of Chicago dictation system (EMDAT, Inc.) was performed on PGY-2 dictations based on appointment date for 2 weeks of encounters at 2-weeks pre-intervention, and 2-weeks, 2-months, and 6-months post-intervention. Also data was collected on all resident dictations for a 2-week period 12-months post-intervention. For each period, all encounters with a dictation were included. Documentation of height, weight, diagnosis of weight status, BMI, weight loss counseling, and referral to dietician was recorded.
OBJECTIVES OF PROGRAM/INTERVENTION: To increase the percentage of patient visit dictations with body mass index dictated in the internal medicine residency clinic.
FINDINGS TO DATE: For PGY-2 residents, 206, 162, 175, 119 and 188 patient encounters were audited in the 2-week pre-intervention and 2-week, 2-month, 6-month, and 1-year post-intervention periods, respectively. The percentage of patient encounters with height dictated significantly increased from 11% to 88% post-intervention with sustained results at 2-months (87%), 6-months (84%) and 12-months (75%). The percentage of encounters with weight documented increased significantly from pre-intervention, 90%, to 2-weeks post-intervention, 97%, and also remained high at 95%, 94%, and 93% at 2, 6, and 12-months post-intervention. The percentage of encounters with BMI dictated increased significantly from 4% to 79% 2-weeks post-intervention. The percentage of charts with BMI dictated decreased to 69% and

41% at 2 and 6-months post-intervention, respectively, remaining at 43% at 12-months post-intervention. Interestingly, at 12-months post, PGY-1 residents were least likely to document BMI compared to PGY-2 and PGY-3 residents (19% vs. 39% and 43%). BMI documentation was significantly associated with a higher likelihood of counseling obese patients ($p<0.01$) but not referral to a dietician ($p=0.61$).

KEY LESSONS LEARNED: Sustaining a QI intervention in a resident primary care clinic to document BMI is challenging, especially due incoming PGY-1 housestaff who may not be familiar with current QI initiatives. Documenting BMI, however, is an important proxy for counseling obese patients. Further cycles of change should include educating nursing staff and residents on the importance of obesity and BMI and evaluating barriers to documentation.

TEACHING AND EVALUATING RESIDENTS' SKILLS IN ADDRESSSING CRACK COCAINE ABUSE WITH OBJECTIVE STRUCTURED CLINICAL EXAMS S.J. Parish[1]; M.R. Stein[1]; S.R. Hahn[1]; U. Goldberg[1]; J.H. Arnsten[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205761)*

STATEMENT OF PROBLEM OR QUESTION: Crack cocaine abuse presents a significant clinical challenge. Medical residents are generally comfortable with the diagnosis and explanation of cocaine-associated medical complications, but are less comfortable with behavioral assessments of and interventions with crack cocaine-using patients.

DESCRIPTION OF PROGRAM/INTERVENTION: In a five station OSCE, trained actors portrayed standardized patients (SPs) with substance abuse disorders and different re=adiness to change stages. The cocaine-using patient was a 19-year-old precontemplative binger with episodes of chest pain and shortness of breath. Tasks were to identify and assess the impact of crack use in a young adult, recognize panic attacks as a cocaine-associated psychiatric co-morbidity, and perform a brief intervention connecting crack use with symptoms. Faculty observers completed a 17-item instrument assessing three specific domains (using six communication, six assessment, and three management items) and two global skills (using one general organization and one overall performance item). SPs provided a single global satisfaction rating. All items were rated on a four-point Likert scale (1=needs much improvement, 4=done excellently). Faculty and SPs p= rovided feedback, and faculty delivered standardized teaching points.

OBJECTIVES OF PROGRAM/INTERVENTION: 1) Teach about crack cocaine in an Objective Structured Clinical Exam (OSCE) station. 2) Evaluate residents' communciation, assessment, and management skills. 3) Deliver immediate feedback.

FINDINGS TO DATE: From 2003–2007, 222 residents in an urban university hospital participated during PGY-3 ambulatory rotations. Although faculty and SP global scores were higher in the cocaine station than in three of the other four stations ($p<0.01$), faculty assessment scores in this station were signicantly lower ($p<0.01$) than in all other stations. Within the cocaine station, residents performed better ($p< 0.001$ for both comparisons) in communication (3.17 ± 0.55) than either assessment (2.49 ± 0.61) or management (2.81 ± 0.74), and performed worse ($p<0.001$) in assessment than management. Though residents performed well or excellently in assessing current patterns of use (71%), the majority of residents needed improvement in assessing both psychosocial sequelae of cocaine use (68%) and high risk behaviors (72%); and residents' scores for these two specific assessment tasks (2.08 ± 1.19, 2.04 ± 1.11) were lower than their overall assessment scores (2.56 ± 0.59, $p<0.0001$ for both comparisons). The majority of residents (61%) also needed improvement in providing advice appropriate to the specific stage of change, and performed lower in this management skill than their overall management scores (2.40 ± 0.85 vs. 2.89 ± 0.71, $p<0.001$).

KEY LESSONS LEARNED: Our crack cocaine abuse OSCE station provided unique information about resident performance in this competence. Although this station was not the most difficult overall, we identified specific skill areas needing improvement. Assessment and management of crack cocaine abuse were more challenging for residents than general communication skills, and residents had particular difficulty with assessing psychosocial consequences and high risk behavior, as well as with offering stage appropriate interventions. These deficits identify areas for targeted curricular enhancement.

TEACHING INTERDISCIPLINARY COMMUNICATION AND TEAMWORK: A STANDARDIZED PATIENT SIMULATION B. Liston[1]; J.A. Wagner[2]; J. Miller[2]; J. Boyer[1]. [1]Ohio State University, Columbus, OH; [2]Columbus State Community College, Columbus, OH. *(Tracking ID # 205168)*

STATEMENT OF PROBLEM OR QUESTION: Interdisciplinary teamwork has long been identified as a key component in quality medical education. There is a growing body of literature suggesting that interdisciplinary teams can improve the management of chronic illnesses, decrease in-hospital length of stay and hospital costs, and help to avoid medical errors resulting from poor communication. Researchers have concluded that education on interdisciplinary teamwork should begin prior to residency training. However, this is not a widespread educational practice in medical schools. Clearly this is a difficult task in real-time clinical practice. Standardized patient simulations have had a growing role in medical education and may be a useful educational modality to teach these skills. Therefore, we developed an educational pilot utilizing a standardized patient simulation to teach interdisciplinary communication and teamwork between medical students and nursing students.

DESCRIPTION OF PROGRAM/INTERVENTION: In this educational program, 10 teams consisting of a fourth year medical student, a senior nursing student and a patient family member (portrayed by standardized patient actress) were established to approach a standardized clinical scenario. Team members were each given different patient information, reflective of real-life practices in an inpatient setting. The scenario represented a critically ill patient, in whom end-of-life decisions were required. The medical student, nursing student and family member worked together to develop a plan of care. At the end of a pre-determined length of time, a patient 'code blue' was called and a plan of action was required from both student team members. Interdisciplinary communication and teamwork was essential in order to effectively determine appropriate next steps. At the end of the scenario all students participated in a feedback session including the patient family member to discuss this experience and evaluate their communication. Students were given a questionnaire on which to comment and rate the educational program.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Teach effective interdisciplinary communication in an acute care setting 2. Prepare students to function on a multidisciplinary team

FINDINGS TO DATE: All teams collaboratively developed a plan of care for this critically ill patient. Medical students and nursing students responded positively to this program. On a five point Likert scale, students indicated that the simulation was a valuable learning exercise (mean 4.6, std dev 0.49), the feedback session was a valuable learning exercise (mean 4.5, std dev 0.50) and that they would be better able to work on a multidisciplinary team as a result of this session (mean 4.3, std dev 0.60).

KEY LESSONS LEARNED: Interdisciplinary communication can be effectively fostered in medical and nursing education. Standardized patient simulations involving students from different medical disciplines provide valuable learning opportunities and can promote multidisciplinary teamwork in patient care.

TEACHING INTERNAL MEDICINE RESIDENTS TO SUSTAIN THEIR IMPROVEMENTS THROUGH THE QUALITY ASSESSMENT AND IMPROVEMENT CURRICULUM J.L. Oyler[1]; L.M. Vinci[1]; V. Arora[1]. [1]University of Chicago, Chicago, IL. *(Tracking ID # 205541)*

STATEMENT OF PROBLEM OR QUESTION: Sustainability is often overlooked when developing and implementing quality improvement (QI) projects in residency training.

DESCRIPTION OF PROGRAM/INTERVENTION: We have incorporated a quality assessment and improvement curriculum (QAIC) into the four one-month ambulatory rotations during the PGY2/3 years. During the first ambulatory block of the PGY2 year, the residents perform chart reviews, patient surveys, and a system survey using the ABIM's Clinical Preventative Services Practice Improvement Modules. Using the data from this practice assessment, they complete the first PDSA cycle to develop and implement group QI projects in block 2 of the PGY2 year. The PGY3 residents complete 3 more PDSA cycles on their group projects. This experience challenges residents to evaluate the sustainability of their QI projects 6 months after implementation. Residents are provided lectures on barriers and facilitators to sustainability and spread, with focus on diffusion of innovation, physician champions, and social networking theory. The residents then design changes to their

initial projects to integrate their intervention into the standard systems of their continuity clinic so that it sustains after they graduate.
OBJECTIVES OF PROGRAM/INTERVENTION: Our goal is to coach internal medicine residents to use Plan-Do-Study-Act (PDSA) cycles to assess the sustainability of their previously implemented QI projects.
FINDINGS TO DATE: From in July 2006 to December 2008, 64 residents participated in the sustainability portion of the QAIC. The residents completed 5 group projects which they evaluated with both early (2 to 6 weeks) and late (2 to 6 month) post-intervention data Four of the five group projects showed a sustainable improvement in the resident continuity clinic. The first, the body mass index (BMI) project significantly improved the documentation of height from 11% (pre) to 88%(2 wk post) to 85% (6 mo post) ($p<0.05$) and documentation of BMI improved from 4%(pre) to 79%(2 wk post) to 41%(6 mo post) ($p<0.05$). The tobacco cessation project improved resident documentation of smoking status from 41% (pre) to 67%(4 wk post) and 82%(6 month post) ($p<0.05$). The aspirin project resulted in significant improvements in aspirin documentation in patients with diabetes, acute myocardial infarction, or cerebrovascular accidents [55% (pre) to 67% (4 wk post) to 75% (4 month post) ($p<0.05$)]. Finally, the medication bottle project showed an improvement in patients who brought in their pill bottles from 17% (pre) to 18%(2 wk post) to 40% (9 mo post) ($p<0.05$).The medication refill project identified dictations at high risk for medication refill errors in 25% of chart initially and then saw a decrease in high risk dictations to 9% 4 weeks after an educational intervention ($p<0.001$). Unfortunately, this number increased back to baseline of 25% 4 months later. The residents made significant changes to each project to ensure that there was a plan to update material and reminder systems that would self perpetuate even after they graduated.
KEY LESSONS LEARNED: Sustainability is a key learning objective when teaching internal medicine residents about quality improvement. Sustainability must be addressed during the initial design of the project as well as during subsequent PDSA cycles. Through the sustainability portion of the QAIC, residents are able to maintain or accelerate their success in their initial projects.

TEACHING RESIDENTS THE VALUE OF CARING FOR PATIENTS AWAITING PLACEMENT E. Davis[1]; L. Alpers[1]; K. Duffy[2]; E. Harleman[1]; N. Gleason[1]; A.E. Miranda Maldonado[1]; P. Jagannathan[1]; V. Komisarjevsky[1]; H.K. Seligman[1]; E. Newbold[2]; D. Tayo-Samoni[2]; L. Winston[1]; N. Ratanawongsa[1]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco General Hospital, San Francisco, CA. *(Tracking ID # 206101)*

STATEMENT OF PROBLEM OR QUESTION: Hospitalized patients "awaiting placement" to post-discharge facilities often have complex, chronic medical and social problems requiring complicated dispositions. Many residents view caring for these patients as lacking in educational value. In fact, high quality care of such patients requires a set of skills and competencies that are often not taught in residency education. Even with adequate formal education, residents busy with acutely ill patients often feel ill equipped to implement "best practices" for these lower acuity patients.
DESCRIPTION OF PROGRAM/INTERVENTION: The Transitions Team, which began January 4, 2009, teaches residents to care for low-acuity hospitalized patients at San Francisco General Hospital, a large urban public hospital. About 25% of the inpatient medical service is "awaiting placement" to sub-acute facilities. To enhance the educational value of caring for these patients, we created a novel multidisciplinary team with a medicine attending, resident, intern, nurse practitioner, social worker, and a discharge planner. This team rounds daily with each patient's nurse as well as weekly with wound care, pharmacy, and rehabilitation services. Curriculum is delivered informally on rounds and through a daily lecture or site visit. The team visits supportive housing, medical respite for the homeless, skilled nursing facilities, and community organizations. To engage in practice-based improvement, the residents develop a quality improvement tool tracking adherence to quality measures for later adoption by all of the inpatient medicine teams. Program evaluation includes pre-and post-rotation surveys about attitudes, knowledge, skills, and behaviors related to program objectives. Using 360 degree evaluations, all members of the multidisciplinary team will evaluate the residents and report how the program affected their quality of care. We are also measuring adherence to quality measures.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) To collaborate effectively with multidisciplinary teams. 2) To utilize community resources for vulnerable, chronically ill patients in order to facilitate quality transitions in care after hospital discharge. 3) To employ best practices in preventing complications of prolonged hospitalization.
FINDINGS TO DATE: Survey data indicate that pre-rotation, residents feel they have inadequate skills and knowledge regarding multiple topics, including effective communication with nursing, legal aspects of placement, and avoidance of polypharmacy. All members of the multidisciplinary team believe the quality of care for the Transition Team patients is improved. By consolidating these patients on a single service, residents have time to apply "best practices" of which they are aware but seldom have time to implement on a service with acutely ill patients. All team members are motivated by this positive change and have become substantially more engaged in the care of these patients. Some patients in the program have had significant gains in functional status such that their disposition has changed from skilled nursing facility to a lower level of care. By the time of the SGIM meeting, 10 residents and interns will have participated in the program.
KEY LESSONS LEARNED: Using a multidisciplinary team to care for patients "awaiting placement" may be a feasible way to educate residents in practice-based improvement to provide quality care to socially complex, medically ill patients.

TEACHING RESIDENTS TO HELP PATIENTS MAKE A CHANGE: AN AMBULATORY CURRICULUM ON ACTION PLANNING TO IMPROVE PATIENT SELF MANAGEMENT OF CHRONIC DISEASES L.E. Acinapura[1]. [1]Mount Sinai School of Medicine, New York, NY. *(Tracking ID # 205303)*

STATEMENT OF PROBLEM OR QUESTION: Patient self-management (SM) and self-management support (SMS) have become popular concepts in the treatment of chronic disease. Residents receive little formal training in SMS concepts, including the performance of a central component, action planning (AP).
DESCRIPTION OF PROGRAM/INTERVENTION: An ambulatory curriculum for PGY 1 & 2 Internal Medicine (IM) residents was developed based on the Kolb learning model, consisting of two 1-hour small group sessions. Session One includes: 1) an introduction to the concepts of, and evidence for self-management support 2) teaching the steps of action planning, which include: creating a patient driven plan, assessing patient confidence, revising plan if patient confidence is low, addressing potential barriers, and setting follow up 3) scenario review highlighting ideal AP examples and common difficulties 4) role playing: residents break into pairs to practice action planning by setting their own personal action plans (APs) to enact before Session 2. During the two week period between sessions, residents also attempt AP with 3 patients. In Session Two, residents 1) share the APs they created with patients and how it differed from their usual practice 2) meet with their Session One partners for a "follow-up visit" to discuss the results of their personal APs 3) as a group, discuss their experiences on both sides of action planning, and address any problems encountered. Residents complete a pre and post-curriculum survey to assess their experience, knowledge, and attitudes toward SMS and AP. The survey includes control items that are not expected to change, such as assessing smoking status.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Familiarize IM residents with the concepts of patient self-management support, focusing on action planning. 2) Teach residents how to develop action plans to improve patient SM of chronic diseases.
FINDINGS TO DATE: Over seven months, 87 PGY1 (54%) and PGY2 (46%) IM residents participated in the curriculum with a 91% completion rate. At baseline, resident familiarity with self-management, self-management support and action planning was 31%, 19% and 33% respectively. Residents identified practicing the steps of AP, learning from each other's experiences, and creating their own personal action plan as the most helpful aspects of the curriculum. Residents enacted part or all of their personal APs 80% of the time. Residents reported AP with patients taking 5–10 minutes on average, and identified time and patient interest as the top barriers. After the curriculum, 92% of residents felt more comfortable creating action plans, 97% reported they would probably continue AP with some patients, and 99% felt that IM residents should be trained in AP. Two week follow up shows a significant increase in the frequency of performing each step in action planning ($p<.02$). There was no significant change in frequency of

control actions. Representative comments from residents about AP with patients included the following: "Reminded me to get more input from my patient," "Made me ask patients how confident they were in making the change, I never did that before,"and "What I took from AP was assessing barriers, I was able to help her come up with a better plan by asking 'what are your barriers?' and 'do you really think you can do it?'"
KEY LESSONS LEARNED: This brief educational intervention was well received by residents and increased their comfort level with AP at two weeks. Collection and analysis of long-term data will help determine if the curriculum is effective in changing long-term practices.

TEAMS-S: TRAINING AND EDUCATION ABOUT ALLIED MEDICAL STAFF USING SHADOWING L.L. Sessums[1]; P.G. O'Malley[2]. [1]Walter Reed Army Medical Center, Washington, DC; [2]Uniformed Services University of the Health Sciences, Chevy Chase, MD. *(Tracking ID # 204128)*

STATEMENT OF PROBLEM OR QUESTION: What is the impact of an experiential educational intervention to improve interns' knowledge and attitudes about allied medical services in clinic?
DESCRIPTION OF PROGRAM/INTERVENTION: Pre-post survey study involving a 6-month shadowing intervention which required new interns at a single medical center to shadow the practice of multiple Allied Medical Staff (AMS) integrated in the Internal Medicine clinic. All seventeen interns completed a pre-post baseline questionnaire to assess changes in their knowledge and attitudes about AMS (dieticians, clinical pharmacists, social workers, psychologists, exercise therapists, diabetes nurses and geriatric case managers). The survey tool included semi-quantitative measures of knowledge, and qualitative questions about attitudes. Ten tests were double graded in a blinded fashion to assess inter-rater reliability. All tests were graded after the intervention, and blinded to their pre-post status.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. Assess new interns' baseline knowledge about the roles of and referral processes for AMS. 2. Assess the effect of intern exposure to AMS via an experiential method on their knowledge about AMS roles and referral processes. 3. Assess interns' knowledge of basic clinic processes and attitudes about clinic at the beginning and midpoint of internship.
FINDINGS TO DATE: All interns completed the pre-test, shadowing and post-test. The reliability of our grading method was high (ICC=0.96). Overall scores on the knowledge test (possible range 0–60) increased from 38.1 (SD 10.8) to 46.9 (SD 4.5), with a mean change of 8.8 pts (p= 0.002). The largest change in scores occurred among those with a low baseline score of <40 (10 out of 17 learners), supported by the moderate paired sample correlation (r=0.45, P=0.07). Overall scores improved within each domain tested as well as for most interns individually. The positive attitudes of incoming interns about the continuous patient relationships they form in clinic and the medical education they receive there persist over time. Their frustration with the electronic medical record, limited visit times and post-visit paperwork increased over time.
KEY LESSONS LEARNED: 1. Gains occurred in both the domains that involved shadowing with the AMS but also in the categories that did not involve shadowing (clinic processes). Query whether just asking relevant questions (with the intern taking the pre-test and recognizing what they do not know but should) can create gains over time. 2. Unclear if shadowing (in addition to usual clinic experience) can explain gains. A larger study with intern controls would answer this question. Inclusion of patterns of referrals to AMS could provide helpful outcome data. Further testing over time would provide data on the persistence of effect. 3. Attitudinal outcomes may be dominated by clinic structure and process issues which may be site-specific or common to general internal medicine clinics. A multi-site study would help answer this question. 4. In=limited resource settings, targeting intervention to lower baseline learners would provide the greatest benefit.

THE FEASIBILITY OF USING VOLUNTEER OUTPATIENTS IN MEDICAL STUDENTS' COMMUNICATION SKILLS TRAINING S.L. Clever[1]; R. Dudas[1]; D.M. Levine[1]; B. Solomon[1]; A. Bertram[1]; J. Cofrancesco[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205302)*

STATEMENT OF PROBLEM OR QUESTION: Simulated patients (SPs) and inpatients are frequently used to teach communication skills in medical education. Students may view SP encounters as artificial and students may feign empathic responses. Inpatients may be overwhelmingly complex for beginning students, are often interrupted by practitioners or procedures and misrepresent that the majority of health care occurs in the outpatient setting.
DESCRIPTION OF PROGRAM/INTERVENTION: For our institution's Clinical Skills (CS) course, we developed a registry of volunteer outpatients (VOs) willing to share their histories. We recruited patients whom their primary care physician judged to be affable by mailing a program brochure and letter from that physician. Patients attended a 2-hour training session in the month prior to their interactions with students, and received parking vouchers and a $5 Subway gift certificate each time they participated. One of the CS patient coordinators managed patient assignments. The student interactions occurred on 4 different afternoons, 60 on each afternoon, in a simulation center with 12 clinic room, 8 with a VO and 4 with SPs. (SPs shared their own histories, not scripts.) In groups with 5 students and 1 faculty, one student took a PMH and FH or SH, received feedback, then the groups rotated to the next room for the next student to took a history. We collected faculty, students' and patients' perceptions of the activity through questionnaires immediately after the interviews, and focus groups. We collected data on the program's cost and staff time, as well as the cost of the SP program.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine the feasibility, cost and educational value of using VOs as a means of providing preclinical medical students with communication skills training.
FINDINGS TO DATE: We recruited 19 VOs, of whom 10 participated once, 5 participated 2 times, and 3 participated 3 or 4 times. The costs of the program are detailed below.
Brochure development and printing (1000 copies): 10 h, $1000
VO recruitment (staff compensation @$17/h, mailings): 15 h, $375
VO training (faculty time and patient handouts and food): 8 h, $30
SP recruitment (from pre-existing program): 6 h
VO coordination (staff compensation @$17/h): 15 h, $255
SP compensation (4 SPs×4 h/d @$18/h×4d): $1152
VO compensation (8 VOs×4d, including $5 parking and $5 food vouchers): $320
TOTAL VO PROGRAM COST: $1980
In the post-interview questionnaire, students gave higher ratings to VOs in terms of relationship-building and educational value. Faculty did not perceive SP and VO interviews to differ in educational value. In the focus group, students consistently indicated that they preferred the VOs to SPs because of their complexity, variety, and verisimilitude. Students also appreciated being "truly in the physician's role". VOs' comments were consistently positive and indicated they felt their involvement was helpful to the students, found it interesting to be involved in the process of medical education, and would participate again.
KEY LESSONS LEARNED: A volunteer outpatient registry appears to be a feasible and well-received method for teaching communication skills and exposing students to real outpatients early in their careers. It is less expensive in terms of patient compensation than use of SPs, especially when start-up costs are excluded, and was enjoyable and meaningful for all participants. Further study of the educational impact of this novel approach, and to compare the dynamics of encounters with real patients versus SPs, is underway.

THE ART OF MEDICINE: BECOMING A DOCTOR IN EAST AFRICA H. Englander[1]. [1]Oregon Health & Science University, Portland, OR. *(Tracking ID # 205325)*

STATEMENT OF PROBLEM OR QUESTION: In recent decades, US medical schools have paid increased attention to students' personal experience of doctoring, and the process by which one becomes a healer. Yet globally, where medical students face overwhelming disease burden and limited resources, little attention is paid to the personal aspects of doctoring.
DESCRIPTION OF PROGRAM/INTERVENTION: The Art of Medicine (AoM) in East Africa is a facilitated, case-based discussion series that focuses on the personal challenges of doctoring in a poor region with high rates of death from HIV. The impetus for the AoM came from Kenyan medical students who, after hearing of a similar series at Oregon Health & Science University, requested the AoM. The first

conferences took place in Kenya in the spring of 2007 with 25 students, and continued in Uganda with Kenyan and Ugandan students in spring, 2008. Cases are written in collaboration with African students and a visiting US faculty. One case, for example, explores students' feelings about caring for a dying patient. Questions prompt reflection about students' sense of loss, coping mechanisms, and feelings towards others' reactions to death (peers, residents, attendings, foreign students and doctors). Another case describes a medical student who is asked to perform a spinal tap on an agitated patient with HIV. Accompanying questions explore the medical community's perceptions of HIV and students' own fears of being tested for HIV.

OBJECTIVES OF PROGRAM/INTERVENTION: The goal of the AoM in East Africa is to create a supportive space for African students to discuss the process of becoming a doctor, and to identify themes affecting students' well-being and professional development through qualitative research methods.

FINDINGS TO DATE: Findings represent a qualitative summary from field notes and transcribed recordings of student reflections, insights, and feedback regarding AoM sessions. When discussing early experiences with death, students described feelings of shock, anger, anxiety and sadness. Experienced students described that over time, they became more detached and their care became depersonalized to cope with recurrent losses. Across years of training, students struggled with a balance between empathy, attachment, boundaries, and professional standards. In discussion about HIV, many students shared stories of family members living with HIV and of personal occupational exposure to HIV. Despite this, they described intense stigma towards HIV within the medical community and low rates of voluntary testing or post-exposure prophylaxis.

KEY LESSONS LEARNED: Kenyan and Ugandan students found the AoM discussions useful and reported a positive impact on their sense of personal and professional well-being, noting that the AoM normalized their experiences. In feedback, students identified peer support as a way of coping with the stresses of becoming a doctor in East Africa. Emergent themes included feelings of grief (including shock, anger, sadness, and acceptance), fear of occupational contact with HIV, and questions of professionalism and boundaries when providing patient care. In addition, the AoM identified need for future programmatic innovations such as improved education about HIV transmission and timing of post-exposure prophylaxis. Though further work is needed to evaluate the effects and efficacy of the Art of Medicine, early discussions suggest that case-based peer discussions can provide a culturally relevant, inexpensive, and easily transferable means of addressing important issues for medical students training in the developing world.

THE HEALTH POLICY SEMINAR FOR RESIDENTS: AN INNOVATIVE CURRICULUM TO INCREASE RESIDENT UNDERSTANDING OF THE U.S. HEALTHCARE SYSTEM R.W. Thompson[1]; M.B. Krauthamer[2]; L.I. Iezzoni[3]. [1]Department of Medicine, Massachusetts General Hospital, Boston, MA; [2]Women Veterans Health Strategic Health Care Group, Department of Veterans Affairs, Washington, DC; [3]Institute for Health Policy, Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205953)*

STATEMENT OF PROBLEM OR QUESTION: An understanding of the policies that govern the U.S. healthcare system and its many complexities is an important component of the ACGME's "Systems-Based Practice" core competency. Issues in health policy, including financing, quality, and disparities are often underemphasized in Graduate Medical Education. Physicians of all disciplines could better serve their patients and advocate for their profession if they had an increased foundational understanding of the U.S. healthcare system.

DESCRIPTION OF PROGRAM/INTERVENTION: In order to improve training of our residents in health policy, we designed and initiated the Health Policy Seminar for Residents. This resident-designed seminar focused on ten core themes in health policy, including payment reform, Medicare and Medicaid, quality and patient safety, and disparities. Thirteen senior residents from the Department of Medicine at the Massachusetts General Hospital (MGH) participated in the two-week seminar. Seminar content was delivered via a series of ninety-minute small group sessions led by leaders and experts in various health policy fields, with strong emphasis placed on group discussion. Seminar participants prepared for each session using a newly-developed syllabus containing published work related to the seminar's ten core themes. The seminar also supported one Grand Rounds on the topic of malpractice reform, and two larger resident conferences on Massachusetts healthcare reform and Medicare reform. The seminar culminated in a three-day trip to Washington D.C., which included a visit to the Department of Health and Human Services and visits with several members of Congress on Capitol Hill. Funding for the seminar was obtained through the MGH administration and the MGH Department of Medicine.

OBJECTIVES OF PROGRAM/INTERVENTION: Goals of the seminar were to 1) Provide residents with a working knowledge of core topics in health policy through literature review and presentations from leaders in the field; 2) Engage residents in ongoing debates about current issues in health policy, and 3) Foster career development in health policy through networking and mentorship.

FINDINGS TO DATE: One-hundred percent of residents "agreed" or "strongly agreed" that gaining an in-depth understanding of the U.S. healthcare system is an important part of their preparation to practice medicine. All residents felt that their residency training had placed inadequate emphasis on understanding the U.S. healthcare system prior to attending the seminar. Seminar participation led to clear improvement in resident understanding of health policy issues. For example, only one resident "agreed" or "strongly agreed" that he or she had a strong understanding of the role of risk adjustment in Medicare billing and reimbursement prior to the seminar, compared to 12 of 13 residents after the seminar. Large increases in knowledge self-assessment were also seen in issues related to options for healthcare payment reform, Medicare, health information technology, and pay-for-performance. One-hundred percent of resident participants gave the seminar an overall "excellent" rating.

KEY LESSONS LEARNED: Pre- and post-seminar surveys demonstrated that residents highly value education in health policy, and feel that issues in health policy are underemphasized in residency training. Innovative curriculum designs such as this seminar can be used to increase resident understanding of the policies that govern the U.S. healthcare system. Such emphasis will enhance resident competency in Systems-Based Practice as part of comprehensive medical training.

THE HIERARCHY UPSIDE DOWN: THE PEDAGOGICAL POWER OF INSTRUCTORS SHOWING THEIR OWN PATIENT VISITS D.M. Swiderski[1]; L. Dyche[2]; R. Stark[2]. [1]Montefiore Medical Center, Yonkers, NY; [2]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 205616)*

STATEMENT OF PROBLEM OR QUESTION: Medical educators need reliable methods to teach "the art of medicine". This qualitative aspect of doctoring involves areas such as feelings, intuition, and uncertainty. It is important not only to create defined learning opportunities but also to help learners articulate their needs in these areas.

DESCRIPTION OF PROGRAM/INTERVENTION: Video review of patient visits has been a regularly utilized teaching method in the psychosocial curriculum in our primary care residency program, and has focused on the physician-patient relationship rather than building communication skills. In order to establish this focus, and to lessen resident anxiety, core psychosocial faculty have always begun the academic year with video reviews of their own patient encounters, often asking for help with difficult cases. Over the years anecdotal feedback has grown about the importance and subtle power of this strategy. Residents report that it allows them to see how one faculty member builds relationships with patients, deals with uncertainty, and with the pressures of competing demands. Interested in more generally exploring the effect on learners of observing their instructors in actual clinical encounters, we asked faculty colleagues to participate in video review sessions with residents, contributing tapes of their own patient visits. Sessions were led with a core psychosocial faculty member. Each session was followed by a debriefing session in which a research assistant asked the resident group focus questions about the impact of the session. Debriefing discussions were audio-taped. Tapes were reviewed and themes extracted.

OBJECTIVES OF PROGRAM/INTERVENTION: Goals of this unique strategy, which we hoped to document in our interviews, were: 1. To activate residents' voices to articulate unusual and important questions in such domains as physician role and relationship, and the impact of uncertainty on medical decision-making. 2. To allow residents to learn these qualitative aspects of doctoring by observing seasoned clinicians in actual practice. 3. To promote a patient-centered approach to doctoring by modeling a learner-centered approach to teaching.

FINDINGS TO DATE: Residents have enthusiastically participated in video reviews of faculty-patient encounters. Early review of themes included in debriefing sessions includes discussion of such topics as role formation, struggle with imperfection and uncertainty, recognition of learners' own expertise, and the power of seeing "real" faculty-patient encounters. Faculty demonstrated varying degrees of anxiety about showing their work to residents, but expressed appreciation for the exercise at its completion.
KEY LESSONS LEARNED: These early results confirm our hypothesis that this is a useful method to promote awareness of and discussion about the more qualitative aspects of doctoring, and to model the power of hierarchy inversion. Preparation of faculty to help them become "learners" rather than "teachers" when reviewing their tapes with residents has emerged as an issue for consideration. We conclude that this method is worthy of study.

THE LEHIGH VALLEY 4:1:4:1 TASK-AT-HAND SCHEDULE - A NOVEL SCHEDULING TEMPLATE FOR RESIDENCIES THAT PROMOTES CONTINUITY AND ELIMINATES CONFLICTING RESPONSIBILITIES
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(Tracking ID # 204436)

STATEMENT OF PROBLEM OR QUESTION: It is widely recognized that there is a substantial need for redesign of internal medicine training. Groups such as the Institute for Healthcare Improvement (IHI) and the Association for Program Directors in Internal Medicine (APDIM) have advocated for curricular redesign. Work-hour restrictions, patient safety issues, and a growing shortage of primary care physicians are only some of the issues that fuel the need for redesign. The current model of residency training emphasizes inpatient and subspecialty training and largely relies on continuity clinics to teach the bulk of ambulatory medicine. Because these clinic sessions occur during and conflict with "core" rotations, residents feel pulled in different directions thus setting the stage for a negative ambulatory experience. This negativism is amplified by a continuity clinic that fails to provide patient continuity. Most residencies utilize thirteen four-week rotations with continuity clinic one half-day per week. This model creates a disjointed experience and inhibits provider continuity, focused practice, and patient ownership. Additionally, given the demands of clinical rotations, many residencies find it difficult to attain the minimum required number of clinic sessions.
DESCRIPTION OF PROGRAM/INTERVENTION: Instead of thirteen four-week blocks, we have implemented a 4:1:4:1 scheduling template that alternates traditional four-week rotations with week-long blocks of ambulatory education. During these ambulatory weeks, residents attend six 1/2-day continuity clinic sessions plus four other ambulatory sessions. This provides ten blocks of traditional rotations and ten weeks of ambulatory education. Residents on the traditional rotations have no continuity clinic sessions. Those on the ambulatory block have no inpatient responsibilities. In order to insure residents are constantly present on the traditional rotations and in the clinic, the residents are split into five groups. Each of these groups schedules are staggered by one week. This overlap provides a consistent resident presence in all arenas.
OBJECTIVES OF PROGRAM/INTERVENTION: The RRC-IM mandates that programs "develop models and schedules for ambulatory training that minimize conflicting inpatient and outpatient responsibilities." Luckily, the RRC-IM regulations provide the opportunity for innovation and experimentation that allows residency programs to build better training models. As such, we were granted permission from the RRC-IM to develop a novel scheduling template whose main objectives were to eliminate conflict between inpatient and outpatient care, emphasize the importance of ambulatory internal medicine, create better patient continuity, improve faculty and resident satisfaction, and provide for 180 continuity clinic sessions over three years.
FINDINGS TO DATE: The data demonstrate an improvement in faculty satisfaction and an improved perception of ambulatory training. Residents also feel that the 4:1:4:1 scheduling model is superior to the traditional model. Patient continuity has also been enhanced with the new scheduling template
KEY LESSONS LEARNED: The need to separate inpatient and outpatient education is necessary and recognized; in addition, it models the clinical practice of internists in the workforce. We have developed a model that allows for improved satisfaction and continuity of care, an abundance of continuity clinic sessions, and an appropriate emphasis on the importance of ambulatory medicine training.

THE SYSTEMS AUDIT: A NOVEL ADDITION TO THE MORBIDITY AND MORTALITY CONFERENCE
J.H. Szostek[1]; L.L. Loertscher[1]; M.L. Wieland[1]; D.R. Duncan[1]; F.S. Mcdonald[1]; J.C. Kolars[1]; D.A. Reed[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN.
(Tracking ID # 205726)

STATEMENT OF PROBLEM OR QUESTION: Pressure from both in and outside the profession has pushed patient safety and recognition of medical errors to the forefront of healthcare priorities in the United States. The morbidity and mortality conference (M&MC) has been recognized as an important platform from which to explore, disseminate, and address systems issues that contribute to error in real-time. However, most internal medicine M&MCs do not examine medical error or adverse events, and there is little literature examining a formal assessment of error at M&MCs with a systems focus.
DESCRIPTION OF PROGRAM/INTERVENTION: We introduced the Systems Audit to the weekly M&MC in the Mayo Clinic Internal Medicine Residency Program as a forum for transparent analysis and discussion of systems-based errors and solutions. The clinical cases presented at M&MC are selected for exemplification of error or preventable adverse events. During a dedicated week, a PGY-2 resident works with a chief resident to conduct the Systems Audit of the clinical case to be presented at a subsequent M&MC. The systems auditor reviews the clinical case, identifies problems, talks with stakeholders, and performs a root cause analysis to determine specific systems issues that contributed to the adverse events. During M&MC the systems auditor presents a 10 minute discussion of their findings and suggests potential solutions to address the specific systems issues encountered.
OBJECTIVES OF PROGRAM/INTERVENTION: The primary objectives of the Systems Audit are to (1) provide a new curriculum to apply and evaluate the ACGME core competency of systems-based practice (SBP), (2) create a formal process by which errors are discussed from a systems perspective and (3) contribute to the broader institutional quality improvement process.
FINDINGS TO DATE: Since its inception in July 2006, approximately 120 Systems Audits have been performed by residents. Multiple audits have resulted in significant changes in policy and procedure at our institution. Specific systems-based interventions have included development of a palliative care order set for hospitalized patients, contributions to a multi-disciplinary medication reconciliation process, a telephone notification system for positive C. difficile results, a new system for responding to in-hospital ST-segment elevation myocardial infarctions, and an automated alert system for test results pending at patient discharge. Many of these resident-led quality improvement interventions have resulted in peer-reviewed publications. Additionally, since the implemented change, M&MC has remained our best-attended conference while fostering a climate for open discussion of error.
KEY LESSONS LEARNED: Our experience demonstrates that the structured Systems Audit in the weekly M&MC has enhanced the residency program's SBP curriculum, shifted the conference focus to the examination of systems issues that contribute to medical error and adverse outcomes, and resulted in meaningful improvements to patient care throughout the institution. Implementation and maintenance of the Systems Audit demands a significant time commitment from participating faculty and residents as well as dedicated curricular time.

TRUST AND DOUBT IN THE PHYSICAL EXAM: AN EVIDENCE-BASED PHYSICAL DIAGNOSIS CURRICULUM FOR FIRST-YEAR MEDICAL STUDENTS
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(Tracking ID # 204544)

STATEMENT OF PROBLEM OR QUESTION: Clinician-educators often note poor physical exam skills among medical students and residents. One factor contributing to these deficiencies may be that clinical skills courses usually present little data to support the physical exam.
DESCRIPTION OF PROGRAM/INTERVENTION: First-year students at the Feinberg School of Medicine take a 14-week course on physical exam technique centered on small group practice. Students meeting on Tuesdays (42 of 177 students) received information during four

interactive lectures about the sensitivity and specificity of 7 exam components—jugular venous pressure, apical impulse, liver, spleen, knee, thyroid and lymph nodes—for detecting specific abnormalities. We presented some evidence supporting the utility of the exam for all systems except the liver, and some evidence of lack of benefit for all systems except the lymph nodes. Students were surveyed before and after the course using a 29-item questionnaire regarding their confidence in performing the physical exam and their perception of its utility. Items were rated on a 5-point Likert scale.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. To understand the attitudes of first-year medical students about the utility of the physical exam before and after an introductory physical exam course. 2. To determine the effect of introducing first-year medical students to evidence-based physical diagnosis on their perception of the utility of the physical exam.

FINDINGS TO DATE: Twenty-one students in the intervention group (50%) and 100 students in the control group (74%) responded to both pre- and post-course surveys. Both groups felt the physical exam was very important when the course started (4.6/5), and their regard for the exam remained high after the course, (4.4 in the intervention group and 4.5 in the controls, not significant). Intervention students had significant declines in their perception of the sensitivity of the physical exam as a whole and in their belief in the utility of examining the liver, heart, and neck veins compared with controls. For every organ system on the survey, the intervention group showed trends towards larger decreases or smaller gains in perceived utility. Both groups increased their confidence in performing a physical, from a mean of 2.0 pre-course to 4.0 post-course. OSCE scores did not differ between groups.

KEY LESSONS LEARNED: Students started our course with strong trust in the physical exam and its component organ systems. Presenting evidence that some parts of the exam are unreliable seemed to create doubt which extended to multiple components of the exam. Some declines, such as in students' attitude toward the liver exam, were expected given the evidence we presented. Other drops, such as in the neck vein and heart exams, were not clearly anticipated, as we showed they were specific if not sensitive. Even when evidence of strong benefit was presented (for the knee and lymph nodes), intervention students did not increase their opinion of the exam's utility compared with controls. We caution that pre-clinical evidence-based physical exam curricula need to be carefully designed and evaluated to be sure they do not decrease students' strong initial desire to use their physical exam skills.

USE OF A SCREENING COMMUNICATIONS OSCE TO ASSESS RESIDENT SKILL AND LEVEL OF SELF-AWARENESS Y.M. Diaz[1]; M. Broome[1]; B. Issenberg[1]. [1]University of Miami Miller School of Medicine, Miami, FL. *(Tracking ID # 205195)*

STATEMENT OF PROBLEM OR QUESTION: One aim of graduate medical education is to develop competent trainees in communication skills and practice-based learning. A key element to practice-based learning is the ability to accurately assess one's own skill level. Studies (1,2) suggest that the "lowest performers" tend to overestimate their skills and are less likely to correct their self-assessment when exposed to benchmarks. These were defined as "unskilled and unaware".

DESCRIPTION OF PROGRAM/INTERVENTION: In June 2007, 36 internal medicine PGY1 residents from Jackson Memorial Hospital in Miami Florida participated in a video-taped communications OSCE. Residents were given 15 minutes to communicate "bad news" to a standardized patient (SP). The SPs were faculty who also evaluated the interaction using a locally developed checklist that was based on examples in the literature. The checklist consisted of 28 individual items grouped in four categories (general skill, non-verbal behaviors, verbal behaviors, relationship skills) and 2 global items (comfort level and need for further training). Residents reviewed their videotape and rated themselves using the same tool. Checklist scores (CS) were +1 for "observed behavior", -1 for "not observed", 0 for "unsure".

OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this study is to (a) identify the skills of incoming PGY1 residents in communicating bad news to patients and their awareness level, and (b) determine if there is a difference in skill and awareness level between foreign medical graduates (FMGs) and United States graduates (USGs).

FINDINGS TO DATE: Thirty-six residents completed the exercise (14 FMGs, 22 USGs). Faculty rated 26 residents as skilled. Twenty-one of 26 residents agreed with faculty (Faculty mean CS – 20.2, Resident mean CS – 17.4 ($p>0.05$) - "skilled and aware") and 5 disagreed rating themselves as unskilled (Faculty mean CS – 21.2, Resident mean – 16.4 ($p<0.05$) - "skilled and unaware"). There were no significant areas of disagreement on the individual scoring items checklist. Faculty rated 10 residents as unskilled. Four of 10 residents agreed (Faculty mean CS – 5.5, Resident mean CS – 7.5 ($p>0.05$) - "unskilled and aware") and 6 residents disagreed (Faculty mean CS – 4.2, Resident mean CS – 14.0 ($p<0.05$) - "unskilled and unaware"). The domains of disagreement were verbal behaviors (4 items), relationship skills (3 items), and nonverbal behaviors (1 item). Faculty scored USGs higher than FMGs in the 28-item scale (18.5 vs. 10.9, $p<0.05$). There were no significant differences in global ratings between USGs and FMGs.

KEY LESSONS LEARNED: More than 25% of incoming residents were rated as unskilled and needing additional training in delivering bad news. A majority of these residents were unaware of this and may be at risk of never developing these skills. Although faculty rated USGs higher than FMGs on individual checklist items, there was no difference on global ratings and may suggest a bias of faculty. 1. Kruger J, Dunning D: Unskilled and unaware of it: how difficulties in recognizing one's own incompetence lead to inflated self-assessments. Journal of Personality and Social Psychology 1999; 77:1121–1134 2. Hodges B, Regehr G, Martin D: Difficulties in recognizing one's own incompetence: novice physicians who are unskilled and unaware of it. Academic Medicine 2001; 76(10):S87–89

USING A QUALITY IMPROVEMENT CURRICULUM TO INVOLVE RESIDENTS IN PRACTICE REDESIGN S.C. Day[1]; S. Thompson[1]; J. R. Kogan[1]; J.R. Jaeger[1]; C.J. Berlin[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 204382)*

STATEMENT OF PROBLEM OR QUESTION: Providing residents with a positive ambulatory experience is a key to reviving interest in general internal medicine careers. As academic practices work to improve patient access and patient-centered care, the impact on the educational experience of trainees must be considered. Involving residents in practice improvement processes provides an opportunity to teach quality improvement while incorporating their perspectives into practice change strategies.

DESCRIPTION OF PROGRAM/INTERVENTION: We incorporated a quality improvement project into a novel resident ambulatory block rotation. University of Pennsylvania Internal Medicine residents (PGY2 and PGY3) spend 2 weeks in a block rotation once or twice a year. During the block, they identify a project to improve the patient experience and are encouraged to perform a rapid-cycle "Plan Do Study Act" (PDSA) project. Residents can advance a project started by another resident , perform one dedicated to overall practice goals, or initiate a new project. Practice-wide projects for 2008–9 include improving pneumococcal vaccination rates and diabetic management. Residents present their projects to their fellow residents and core faculty. Projects are posted on the practice's educational website.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Promote resident reflection on their practice 2. Engage residents in improvement of care delivery extending beyond their personal experience to the overall practice. 3. Provide residents with instruction and hands-on experience with PDSA cycles. 4. Enhance resident familiarity with the concepts of chronic disease management .

FINDINGS TO DATE: 37 projects were completed in the first 6 months of the revised curriculum. We reviewed our experience to see what areas the residents identified as targets for change , the type of intervention, and the population targeted. The majority of projects addressed care management and patient self management support. Several were targeted at improving pneumococcal vaccination rates in the resident practice and diabetic care (5 and 7 respectively). Most interventions required EMR enhancements for ideal implementation and were targeted at providing tools for the provider, rather than changing office processes. Almost all specified "next steps" as part of the presentation and were appropriate for advancement by other residents.

KEY LESSONS LEARNED: A relatively brief, 2 week period was sufficient time to generate meaningful projects and introduce key concepts in QI. Use of the practice website and the EMR has helped disseminate innovative practice improvements, but further efforts are required to communicate ideas to peers and attendings, and facilitate project hand-offs. Other barriers include time required to incorporate

changes into office visits and the need to involve non-provider staff to sustain change. Involvement in QI activities promotes team-based behaviors which need to be explicitly cultivated among residents.

Innovations in Practice Management

A CLINIC-WIDE 10,000 STEPS COMPETITION: ONE STEP FORWARD FOR STAFF AND PATIENTS A.B. Wallach[1]; A. Truncali[1]. [1]New York University, New York, NY. *(Tracking ID # 205924)*

STATEMENT OF PROBLEM OR QUESTION: Most patients followed in the Adult Primary Care Clinic (APCC) at Bellevue Hospital suffer from one or more chronic diseases such as hypertension, diabetes, and obesity. Recent surveys reveal that 35% of APCC patients are overweight, 42% are obese and 11% are depressed. While the level of activity of APCC patients has not been measured, it is known that most adults in the United States do not meet even minimum exercise requirements.
DESCRIPTION OF PROGRAM/INTERVENTION: All staff members of the APCC were invited to join the competition. Participants were enrolled after measurement of baseline vital signs and completion of a brief opinion survey. The clinic was divided into two teams utilizing existing divisions (non-random assignment). All participants were issued a digital pedometer (Yamax SW-200) free of charge. Participants wore the pedometers and logged their daily steps for a one week lead-in period followed by nine weeks of competition. Each week, log sheets were submitted and cumulative team steps and distance "walked" were posted in the APCC. Upon program completion participants again had vital signs measured, were again surveyed and invited to an end-of-program awards ceremony as well as a dedicated feedback session. The program was developed and run by two physicians and two patient care associates.
OBJECTIVES OF PROGRAM/INTERVENTION: The goals were to 1) highlight the importance of physical activity as part of a healthy lifestyle and 2) provide training for all staff on the integration of pedometers into medical practice.
FINDINGS TO DATE: Eighty nine percent of eligible employees enrolled (n=76). Of the 76 enrollees, 56 (74%) reported steps during the first three weeks and 36 (47%) in the last three weeks. At baseline, participants walked an average 11,955 (sd=2856) steps/day. Among participants who reported data at both the beginning and end of the program, there was a significant increase in steps/day (+1097 steps, $p<0.01$) and a reduction in heart rate (-7.4 bpm, $p<0.05$). There was a trend toward improved systolic blood pressure (-2.4 mmHg, $p=0.1$) At baseline, staff felt that they personally got enough exercise to be healthy but that APCC patients generally did not (agreement=3.2 and 1.2, respectively on a scale of 1–4; 1=strongly disagree to 4=strongly agree). On average, staff were optimistic about being able to counsel patients about physical activity, including the correct use of a pedometer (agreement=3.2). Among the staff members who completed surveys at program start and finish (n=11), the opinion that patients have a low level of activity did not change, but staff became more optimistic about successfully counseling patients on physical activity and pedometer use (+0.5, $p=0.02$).. There was a strong sense of program satisfaction (agreement=3.5) and participants expressed strong agreement that they would participate in the program again if it were offered.
KEY LESSONS LEARNED: A 10,000 step competition is a popular and feasible initiative that can increase walking among participants. In this case, participation was associated with a 9% increase in daily steps and a significant decrease in heart rate. Program leadership crossed staff lines which helped promote participation from all levels of staff. Participant retention was a challenge and might be addressed wih a mid-competition motivational session. The program raised staff interest and confidence in counseling others about the use of pedometers to increase activity and now positions the clinic to integrate pedometers into routine patient care.

A HOSPITALIST LED MULTIDISCIPLINARY TEAM ROUNDING MODEL TO IMPROVE QUALITY OF CARE. S.S. Yadav[1]; J. Fitzgerald[1]; D. Borah[1]; D. Ling[1]; E.M. Benjamin[1]. [1]Tufts University/Baystate Medical Center, Springfield, MA. *(Tracking ID # 205394)*

STATEMENT OF PROBLEM OR QUESTION: Our goal was to improve the quality of communication and patient care through team rounding.
DESCRIPTION OF PROGRAM/INTERVENTION: With the impetus to prevent hospital acquired infections, reduce errors, improve communication and provide appropriate care; hospitalists face an immense challenge to give the best care at maximum efficiency and safety. In the ICU, multidisciplinary team rounding (MDR) is a successful model with improved communication and quality of care. Our aim was to pilot a hospitalist led MDR model of patient care. In our traditional community based hospitalist model of care, there is no geographic location of physicians to a single patient unit contributing to widespread variation in communication with staff, patients and families and lack of continuity in patient care. Our mature program comprises a team of 9 physician rounders during the day. Each physician is assigned 14–16 patients who may be spread across 9 different units. Efforts at improving the quality of care have to date been inconsistent and provider dependent. We performed a PDSA cycle whereby a pilot for geographic model of care was studied on one medical unit. The geographic model included one physician rounder assigned to the unit conducting rounds with a nurse and case manager at bedside or in a conference room. A quality of care checklist was employed and each patient was assessed once daily during rounds. We developed a survey tool in conjunction with Professional Research Corporation Inc. (PRC) to evaluate quality of care provided by hospitalists, comparing pre and post survey data for the pilot unit and the impact of MDR. We looked at the deployment of the rapid response team (RRT) for the pilot unit, postulating reduction in RRT calls indirectly indicating improved care through effective communication and use of a quality measures checklist.
OBJECTIVES OF PROGRAM/INTERVENTION: Objective 1: Establish a teamwork model of care that promotes collaboration. Objective 2: Improve communication between the care team and patients. Objective 3: Establish consistent performance of a general quality checklist for each and every patient.
FINDINGS TO DATE: In the PRC survey, our national percentile ranking and percent excellent care provided improved after initiation of the geographic MDR model. Our overall quality of care increased from 62% ranking to 92%. The quality of care provided by the doctor increased from 26% ranking to 40%. The discussion of care provided by the doctor improved from 17% ranking to 83%. During the trial period we confirmed daily completion of a quality checklist for each patient during MDR. Overall, we saw a 24% decline in the number of RRT calls on the pilot unit, from a total of 67 calls (8 months pre) to 51 calls (8 months post) without any increase in the code rate.
KEY LESSONS LEARNED: We face significant challenges in healthcare to impact patient care and improve outcomes. In our hospitalist model there are multiple transitions of care which provide environments for many errors through misuse, overuse and underuse because of ineffective or incomplete communication between providers. We provide early indication for multidisciplinary rounding as an essential format for daily patient care. Our preliminary data support change and our format for MDR provides an improved method of care through enhanced communication with team workers and patients. Incorporation of a quality checklist helped coordinate appropriate care. We saw an overall improved perception of the quality of care, and the communication of that care which was our primary aim.

A PROTOCOL FOR RENEWAL OF CONTROLLED SUBSTANCES IMPROVES SATISFACTION OF BOTH PHYSICIANS AND REGISTERED NURSES T.M. Jaeger[1]; D.A. Reed[1]; J. Adams[1]; M. Madhavan[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205816)*

STATEMENT OF PROBLEM OR QUESTION: We have previously shown that providing renewals for controlled substances is a major source of dissatisfaction for providers, including both physicians (MDs) and registered nurses (RNs). We developed and implemented a standardized protocol for renewal of controlled substances, and studied its effect on provider satisfaction.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a protocol for renewal of controlled substances in an academic Internal Medicine (IM) outpatient clinic after conducting focus interviews with MDs and RNs. The MD role was to identify appropriate patients, to document a plan of care, and to set prescribing limits with each patient.

The RN role was to confirm patient understanding of the procedure for renewal requests and to document each successive prescription. The protocol was implemented in one of three firms, with each firm consisting of approximately 10 faculty and 24 residents. We administered a post-implementation survey of satisfaction to providers using a 5-point Likert scale. We compared the proportion of providers who agreed or strongly agreed with the survey item using Fisher's exact test.
OBJECTIVES OF PROGRAM/INTERVENTION: To measure provider satisfaction in intervention and control groups after implementation of a controlled substance renewal protocol.
FINDINGS TO DATE: 25 patients were enrolled in the protocol over approximately 9–10 months. Narcotics, class-II stimulants, and benzodiazepines were included. Most patients were enrolled by faculty MDs. Post implementation surveys were completed by 10 MDs and 11 RNs in the intervention group, and 36 MDs and 8 RNs in the control arm. There was a high level of satisfaction among providers in the intervention group compared to controls, with a significant difference in overall satisfaction with renewing controlled substances ($p<0.001$ for MDs, $p=0.018$ for RNs). Among MDs, we found significant differences in satisfaction between intervention and control groups for questions regarding providing renewals for other provider's patients, for urgent renewal requests, for finding the criteria for renewal, and for documenting a management plan ($p<0.05$ for all comparisons). RNs were significantly more satisfied in the intervention group in assisting and in feeling support from MDs.
KEY LESSONS LEARNED: A protocol which provided a standardized process for providing and documenting renewals for controlled substances resulted in significant improvement in provider satisfaction.

A TELEPHONE MANAGEMENT INTERVENTION FOR DIABETES THAT WORKS C. Pedley[1]; M. Smoak[1]; D. Graves[1]; J.L. Wofford[1]. [1]Wake Forest University School of Medicine, Winston-Salem, NC. *(Tracking ID # 205731)*

STATEMENT OF PROBLEM OR QUESTION: Traditional Diabetes Education Programs (DEP) and disease management strategies typically involve interventions that take place during scheduled visits dedicated to the educational process. Unfortunately, these appointments are fraught with high no-show rates ranging from 25% to 50%. Participants of these programs indicate that barriers to attendance include transportation difficulties, forgetfulness, and a low priority of the importance of the visit. We sought to answer the question, can a telephone intervention by a Certified Diabetes Educator (CDE) replace clinic visits in the management of diabetes?
DESCRIPTION OF PROGRAM/INTERVENTION: Participants were stratified according to risk using HgbA1C>8.5% and/or high ED utilization as parameters to indicate Very High and High Risk categories. Prior to the initial telephone call, the electronic medical record was reviewed by CDEs: 1) any visits to the ED and or hospitalizations within the last 3 months; 2) the next scheduled PCP appointment; 3) missed appointments; 4) evidence of DM testing supplies; 5) a review of current medications; and 6) a review of the problem list to identify co-morbid conditions. Of significant help was the ability to access the Medicaid data for purchase of prescription medications in the previous year to evaluate medication adherence. The participant was then contacted by telephone and a needs assessment is completed.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To reduce the impact of missed clinic visits by Medicaid DM patients. 2. To meet the standards of care as defined by American Diabetes Association. 3. To decrease frequency of ED utilization and hospitalization. 4. To improve communication and coordination of care among PCPs, nursing, ancillary staff, and patients.
FINDINGS TO DATE: At the end of the 1 year intervention, 149 VHR and HR individuals of the 365 patient cohort received one or more (some up to 10–15) telephone calls. All 149 received DM testing supplies and syringes. 29% of enrolled patients showed a downward trend in A1C. In one year there was a 51% increase in the number of A1C tests, 31% increase in the number of lipid panels, and a 95% increase in the number of patients with a microalbumin screen.
KEY LESSONS LEARNED: The InForm Diabetes Care Program telephone intervention model for management of adult DM patients is a comprehensive education model. It allows the diabetes educator, patient and primary care provider to assist each other in the improvement and reduction of diabetic complications utilizing the telephone and electronic medical record. The intervention provides a savings in financial and human resources to all parties. The diabetes educator is able to assist the PCP in titration of medications to achieve glycemic control without the patient having to be seen on site in the clinic. The telephone intervention provides the client with direct access to a DM educator to assist with questions pertaining to DM management. This is a model that can be replicated especially in urban medical settings.

ACADEMIC PRIMACY CARE CLINICIAN PARTICIPATION IN THE CMS PHYSICIAN QUALITY REPORTING INITIATIVE (PQRI): TURN UP THE "VOLUME"? N. Laiteerapong[1]; V. Arora[2]; A.M. Davis[2]. [1]MacNeal Hospital, Berwyn, IL; [2]University of Chicago, Chicago, IL. *(Tracking ID # 205043)*

STATEMENT OF PROBLEM OR QUESTION: The PQRI is a pay-for-reporting program that provides clinicians with a bonus if data is reported to CMS on at least three quality indicators for at least 80% of qualified visits. We selected three indicators centered on diabetes because of its importance in our population. To minimize workflow disruption, diabetes billing codes on standard charge tickets were supplemented with CPT Category II codes for hemoglobin A1c (HbA1c), low density lipoprotein (LDL), and blood pressure (BP). Each code denotes a range within that indicator, e.g., 3044F represents HbA1c less than 7.0. The BP indicator requires systolic and diastolic blood pressures be reported. Quality codes were collected on all adult diabetics to improve sample size and provide clinicians information on their practice. Email feedback was provided and reinforced at monthly meetings.
DESCRIPTION OF PROGRAM/INTERVENTION: Data on clinicians, volume of diabetics, and quality codes was collected from 7/1/07 to 1/25/08. Primary care clinicians (PCCs) were identified as "high" or "low" volume using median number of diabetic encounters as the cut-point. Data on gender and years since training were collected from the departmental website. Correlations between reporting more than one indicator were calculated. One-sided t-tests were used to determine the association between volume and reporting for selected PQRI measures.
OBJECTIVES OF PROGRAM/INTERVENTION: To describe a systems-based intervention to implement PQRI in an academic primary care practice and explore factors associated with clinician participation.
FINDINGS TO DATE: All PCCs participated, including 2 nurse practitioners (41/41). 46.3% were male. The median years since training were 15 (4 to 41, standard deviation (SD)=8.3). The median volume was 117 (2 to 387, SD=107.2). 73.1% of clinicians qualified for bonuses. Reporting on one quality indicator was highly correlated to reporting others (HbA1c and LDL and BP, $r=0.98$ and 0.97, respectively; LDL and BP, $r=0.98$). High volume PCCs were significantly more likely to report HbA1c (79.7 vs. 90.4%, $p=0.04$) and LDL (76.5 vs. 87.6, $p=0.04$). A similar trend existed for high volume PCCs and BP (77.4 vs. 87.0%, $p=0.07$). No significant differences existed in by gender or years since training. There was a nonsignificant trend towards an increased proportion of higher volume clinicians qualifying for bonuses than lower volume clinicians (85% high volume vs. 62%,low volume $p=0.095$).
KEY LESSONS LEARNED: We found that the CMS PQRI program was feasible to implement and well accepted in an academic primary care practice with over 70% of clinicians reporting successfully. The average bonus for 2008 is anticipated to be $450 (range $50–1100) per provider. Our experience highlights the value of reaching clinician consensus on measures, e=nlisting front-line support staff, and integrating data collection into existing workflow. The workflow design likely led to high correlations in reporting of quality indicators. Higher volume clinicians were more likely to qualify for bonuses, raising questions of whether they are better providers, more engaged in patient care activities, or were motivated by higher financial incentive to participate. Further work is needed to better understand this relationship in the context of future incentive programs.

AMBULATORY SAFETY SURVEILLANCE USING AUTOMATED TELEPHONE TECHNOLOGY FOR VULNERABLE DIABETES PATIENTS U. Sarkar[1]; M. Handley[1]; C. Soria[1]; O. Lau[2]; D. Schillinger[1]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco Health Plan, San Francisco, CA. *(Tracking ID # 206094)*

STATEMENT OF PROBLEM OR QUESTION: Although patient safety is a common concern for ambulatory diabetes patients, little is known about adverse events or potential adverse events that happen between visits.
DESCRIPTION OF PROGRAM/INTERVENTION: We aimed to translate results from a prior randomized trial of ATSM into practice, by partnering with the local, nonprofit, Medicaid-managed-care plan (San Francisco Health Plan). The health plan is now offering diabetes self-management support, via automated calls with live nurse follow-up, to vulnerable patients with poorly controlled diabetes. Because we found that this population experiences safety problems, we have built in safety surveillance. We have established pre-specified triggers for medication problems (e.g., not taking a diabetes medication because of a adverse effect), symptom recognition (e.g., such as a new pain or symptom interfering with self-care), and poor self-care behaviors (e.g., inability to use a glucometer) within patient responses to automated calls, patient call-back requests, and nurse's telephone encounters. Any safety trigger leads to further, structured investigation by the study nurse care manager. We can augment the self-management support with health plan data such as real-time pharmacy claims to ensure medication availability and adherence. The intervention is integrated with each participant's primary care clinic to ensure appropriate clinical response to safety problems. We will use an established taxonomy to describe events and follow their clinical course over time.
OBJECTIVES OF PROGRAM/INTERVENTION: To detect and facilitate investigation of safety problems in real time for a diverse population with poorly controlled type 2 diabetes, by harnessing an automated telephone self-management (ATSM) program.
FINDINGS TO DATE: From our prior trial, we found that ATSM was a useful and cost-effective strategy for diabetes self-management. We learned that it is feasible to obtain safety data via ATSM: patients are willing to report safety problems both in response to automated telephone calls (e.g., entering '20' as response to query of most recent blood glucose measurement), and to care managers via telephone. We also found that this data adds value in that most safety problems were preventable and primary care providers were often unaware of problems arising between encounters. We leveraged these results to engage our local-initiative health plan. Their participation allowed us to scale up the ATSM program for self-management support and safety surveillance. Key processes included: (1) collaborative development of a standardized safety protocol for the nurse care-managers situated at the health plan; (2) a liaison between health plan nurse care-managers and primary care sites to facilitate appropriate care; and (3) investigation plan for detected problems to facilitate system-level changes to improve patient safety.
KEY LESSONS LEARNED: Partnering with a health plan is a powerful mechanism to translate research into practice. Not only we were able to apply our findings to the target population and scale up the program, the health plan collaboration enhanced our ability to access importance adherence information via claims data for medications and visits with self-management support. Working with payors and primary care sites may provide a useful and sustainable model for integrated patient safety and self-management support, across diabetes and other chronic diseases.

AN EDUCATIONAL INTERVENTION TO PROMOTE BONE HEALTH IN HIGH-RISK PATIENTS M.J. Simone[1]; Z.S. Tan[1]; R.H. David[2]; I.T. Julie[3]. [1]Division of Gerontology, Beth Israel Deaconess Medical Center, Boston, MA; [2]Division of Pulmonary, Critical Care and Sleep Medicine, Beth Israel Deaconess Medical Center, Boston, MA; [3]Office of Educational Research, Carl J. Shapiro Institute for Education and Research, Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205452)*

STATEMENT OF PROBLEM OR QUESTION: Older age is a well-known risk factor for osteoporosis. The use of oral steroids, even in low doses and of relatively short duration, is an independent risk factor for secondary osteoporosis. High-dose inhaled steroids have also been implicated in bone loss and increased fracture risk. These additive risks make older patients taking chronic steroids a particularly high-risk population that benefit from osteoporosis screening and prevention measures.
DESCRIPTION OF PROGRAM/INTERVENTION: To assess baseline compliance with osteoporosis screening and prevention guidelines at an academic outpatient pulmonary practice, we audited the online medical records (OMR) of 190 randomly-selected patients who were 50 years or older with a diagnosis of COPD or asthma during a 6-month pre-intervention period. A needs assessment/attitude survey was administered. These results guided the development of an educational intervention that consisted of 1.) a case-based virtual patient (VP) module, 2.) a focused didactic session led by an expert endocrinologist, and 3.) posters in the clinic rooms and pocket management cards. Knowledge transfer and changes in attitude were measured with 9-item pre- and post-intervention multiple choice test and satisfaction surveys.
OBJECTIVES OF PROGRAM/INTERVENTION: 1.) To design and implement an educational intervention on osteoporosis screening and management in older patients taking chronic oral or high-dose inhaled steroids; 2.) To assess the effectiveness of this intervention in improving academic pulmonologists' (learners) compliance with established clinical guidelines.
FINDINGS TO DATE: Older patients with COPD receiving prolonged oral or high-dose inhaled steroids had low rates of bone health assessment (53% and 38%, respectively). The results were similar for patients with asthma (50% for both oral or inhaled steroids). 18 of 20 (90%) pulmonologists completed the needs assessment/attitude survey, and 72% indicated that they were either uncomfortable or very uncomfortable with their baseline knowledge of osteoporosis screening guidelines. 89% felt that it was the responsibility of the pulmonologist to address bone health issues when starting oral or inhaled steroids. During the intervention phase, 17 of 20 learners (85%) completed the VP module and 17 (85%) attended the didactic session or reviewed a recording of it. 16 of 20 learners (80%) completed the entire intervention including a post-test/survey. The post-intervention survey showed that 88% of those who completed the entire training felt comfortable or very comfortable with their knowledge of screening guidelines. Learners showed knowledge improvement from a pre-intervention mean test score of 59.3% to a post-intervention mean score of 82.7%. Of the test items, the greatest gains in knowledge were noted in questions pertaining to risk factors (60% pre-test, 88% post-test), oral prednisone risk (20% pre-test, 81% post-test), calcium supplementation (47% pre-test, 81% post-test), and vitamin D supplementation (33% pre-test, 69% post-test).
KEY LESSONS LEARNED: Osteoporosis screening and management rates are low for an older population on chronic steroids seen in an academic pulmonary practice. An educational intervention increased physician knowledge and comfort of osteoporosis screening and management guidelines. Further assessment is underway to evaluate the effect of this educational intervention in changing physician behavior by measuring post-intervention compliance with clinical guidelines.

AN OUTPATIENT ADVERSE DRUG EVENT TRIGGER SURVEILLANCE SYSTEM: PRELIMINARY FINDINGS AND FRAMEWORK J. Rozwadowski[1]; P. Lanius[1]; K. Mccullen[1]; C. Avante-Swartwood[1]; S. E. Karen[1]; J. Sanchez[1]; L.W. Loomis[1]; T.D. Mackenzie[1]; A. Davidson[1]. [1]Denver Health and Hospital Authority, Denver, CO. *(Tracking ID # 205094)*

STATEMENT OF PROBLEM OR QUESTION: Improving systems to identify outpatient (OP) adverse drug events (ADE) may reduce patient harm. Establishing improved teamwork and communication between pharmacy services and primary care should result in safer patient care. To effectively integrate service delivery, efficient ADE capture tools are required. Diabetes mellitus (DM) and hypertension (HTN) patients are frequently on complex regimens, and more likely to experience an ADE. In our community health center (CHC), ADE pharmacy-related reports typically number 0.2 events per 1000 prescriptions filled per month. This is likely an under-count of the true incidence of ADEs in this OP setting. Computerized ADE triggers are clues which are used to identify true ADE; this process is better developed for inpatient versus outpatient settings.
DESCRIPTION OF PROGRAM/INTERVENTION: The intervention is an ADE surveillance system utilizing a list of potential triggers in 2 CHCs. A collaborative multidisciplinary team was assembled to address the identification of ADEs and shared responsibilities to decrease medical errors. Proposed triggers for ADEs among a cohort of HTN patients and insulin-requiring DM patients included doubling of the serum creatinine, change from an ace inhibitor (ACE) to an angiotension receptor blocker (ARB), hyperkalemia, hypokalemia, hyperglyce-

mia, hypoglycemia, and an urgent care visit. The first look at these triggers included data from 12/16/07–12/15/08.
OBJECTIVES OF PROGRAM/INTERVENTION: The goal is to develop and utilize an automated system of triggers to identify and quantify ADEs in the OP setting. This pilot program aims to test the validity as well as the feasibility of this method.
FINDINGS TO DATE: Cohorts of patients with insulin requiring DM (N=455) and HTN (N=1256) who use the in-house pharmacy were identified. Among all identified patients, the number with doubling of the serum creatinine (N=33), change from ACE to an ARB (N=69), hyperkalemia (N=44), and hypokalemia (N=45) were identified. For patients with DM, the number with low blood sugars (N=25) and high blood sugars (N=48) were identified. The number with urgent care visits with the DM and HTN cohorts were 74 and 138 respectively. Excluding the hypo- and hyperglycemia results, for the entire cohort, applying this set of tools resulted in 19 triggers per 1000 patients per month. Data validation of the automated trigger tool was performed through chart review and abstraction including: demographic information, chief complaint, diagnoses, laboratory data, medications, dose, description of event, contributing factors and notes. Then a decision (i.e. causality assessment) was made by a clinician reviewer regarding ADE or not. For example, among all serum creatinine doublings, 13(40%) were determined to be true ADE. Assuming a similar true ADE event rate this results in 7.8 per 1000 patients per month.
KEY LESSONS LEARNED: 1. Use of IP framework for OP ADE surveillance may be helpful and there may be great potential for these trigger tools to uncover otherwise unreported events. The application of a set of tools might lead to systems changes that could reduce errors and improve patient safety. 2. Trigger analysis needs to continue before any intervention may be implemented. Tuning of the algorithm is essential and requires additional data for confirmation. 3. A multidisciplinary approach to OP ADEs requires all practitioners to use a reliable and up to date surveillance system. Enhancements for data capture and validation are being developed to support this multidisciplinary intervention.

APPROACHING SMOKING CESSATION EDUCATION THROUGH THE GROUP VISIT FORMAT S. Shah[1]; J.K. Mavromatis[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 204946)*

STATEMENT OF PROBLEM OR QUESTION: Smoking has been linked to the death of over 400,000 people each year in the United States. However, general internists routinely do not have adequate time to counsel patients effectively regarding smoking cessation.
DESCRIPTION OF PROGRAM/INTERVENTION: We have developed a smoking cessation group medical visit, approaching tobacco use as a chronic medical condition. Our smoking cessation group visit format and agenda is modeled on a program of diabetic group visits, established in our practice in December of 2006, and conducted on a monthly basis since that time. Eight smoking cessation group visits were conducted on a six to eight week interval beginning in January of 2008. The 2 hour visits are facilitated by a physician and attended by 4 to 12 patients recruited from our general medical practice. The agenda begins with introductions and a discussion of each participant's "stage of change." Information is provided to patients about pharmaceutical options to treat nicotine addiction. In addition, the group discusses behavioral strategies involved in lifestyle change. Discussion is generated by patient questions and participants engage in exercises to identify triggers as well as brainstorm on coping strategies. Participants are encouraged to learn from each others' experiences and questions and provide peer support. The physician facilitator reviews patients' charts prior to the group visit and brings in discussions of participants' chronic medical illnesses and the impact tobacco use has on these conditions. The group is concluded with patient self-management goal and action plan setting.
OBJECTIVES OF PROGRAM/INTERVENTION: The objectives of this smoking cessation group visit are to provide peer support and more intensive exposure to the medical care team, to assist patients in their desire to quit smoking. By providing information about smoking cessation, chronic medical conditions impacted by cigarette use, and by facilitating behavior change through supporting patient self-management we aspire to pilot a program format that can improve patient self-confidence and increase rates of smoking cessation in a comprehensive and fiscally sustainable fashion.
FINDINGS TO DATE: Our new program has included 44 patient visits total. Seventy-five percent of the participants were women. The no-show rate was forty-one percent. The average number of chronic medical conditions for this group was 2.1. Forty-four percent of participants attended two or more classes. Of patients surveyed following the group visit, the positive aspect of the class was repeatedly the group dynamic and peer support. We were unable to accurately assess the rate of cessation because of failure to contact the majority of group participants.
KEY LESSONS LEARNED: The group visit format may be a useful approach to address smoking cessation. It provides an in-depth opportunity to discuss an important health risk behavior with patients in depth. The group format provides peer support for patients as they relay their own struggles and successes with tobacco use and focuses on activating patients to behavior change. Recruitment of patients and attendance has been a barrier to the program and its efficacy in terms of improving patient confidence and rates of smoking cessation remain to be better defined. Discussion of chronic medical problems in relation to tobacco use is a key aspect of our group visit and is relevant for billing services, because at this time medical insurers do not adequately reimburse for counseling for smoking cessation on its own.

AUTOMATED DIABETES REGISTRY TOOLS TO ENHANCE PATIENT SELF-MANAGEMENT AND PROVIDER PERFORMANCE FEEDBACK H. Fischer[1]; S. Eisert[1]; J. Durfee[1]; K. Mccullen[1]; A. Steele[1]; K. Anderson[1]; L. Penny[1]; T. Mackenzie[1]. [1]Denver Health and Hospital Authority, Denver, CO. *(Tracking ID # 206045)*

STATEMENT OF PROBLEM OR QUESTION: Can we improve diabetes outcomes through 1) report card mailings to patients 2) point of care distribution of report cards to patients and 3) provider performance feedback with patient level data?
DESCRIPTION OF PROGRAM/INTERVENTION: Our federally qualified health care center serves over 7000 diabetic patients, many of whom are uninsured (43%) or on medicaid (18%) or medicare (26%). The population is 54% Latino, 25% Caucasian, and 14% African American. We excluded patients older than 75; those without English or Spanish as a first language; and the homeless. The remaining 5457 patients were randomized to this one-year study which ended January 1, 2009. One-half of the enrolled patients received quarterly mailed report cards on their HgA1c, blood pressure, and lipid performance. They were asked to pick from a list of self-management goals and to see their provider if their last visit was more than 2 months prior to the mailing. In a 2×2 design, our eight clinics were randomized to i) on-site printing of patient report cards or no on-site printing and ii) standard provider performance report cards or enhanced provider report cards. The standard provider report cards included data on provider performance on HgA1c, LDL, and blood pressure compared to other providers. The enhanced provider report card also included a list of up to 10 patients not at HgA1c, LDL, or blood pressure goal. The provider report cards were distributed on a quarterly basis, and the point of care patient report cards were distributed at every clinic visit.
OBJECTIVES OF PROGRAM/INTERVENTION: To determine if 1) mailings of patient performance report cards improve diabetes process outcomes and 2) on-site diabetes report card distribution to patients and patient level provider performance feedback impact intermediate outcomes.
FINDINGS TO DATE: Intermediate outcomes improved in all groups of study patients. Process outcomes did not improve with quarterly diabetes report card mailings to patients. Patients randomized to both point of care report card distribution and to the enhanced provider report card had significantly greater absolute increases in A1c and LDL intermediate outcome performance as compared to patients randomized to neither of the two interventions: percent with A1c less than 7 increased in absolute percentage points by 8.5 versus 5.2 and percent with LDL less than 100 mg/dL increased by 10.7 versus 5.4 respectively. However, there was less absolute improvement in percent of patients with BP less than 130/80 mg/dL in the intervention group (0.6) versus the control group (5.9).
KEY LESSONS LEARNED: We can use computer technology to query diabetes registry data and automate patient mailings, point of care report cards, and provider feedback. Patient report card mailings did not impact process outcomes. Automated on-site patient self-management support and patient-level provider feedback had a small but significant impact on important glycemic and lipid outcomes. Additional

qualitative and quantitative analyses will further explore the impact of the interventions, concomitant quality initiatives that impacted outcomes, and provider and patient attitudes toward the interventions.

BUILDING AN ELECTRONIC ALERT AND ORDER SET TO IMPROVE ADHERENCE TO SMOKING CESSATION GUIDELINES IN AN INTERNAL MEDICINE CLINIC J.S. Mathias[1]; A. Didwania[1]; D. Baker[1]; S. Persell[1]; J.M. Feinglass[1]; J. Thompson[1]. [1]Northwestern University, Chicago, IL. *(Tracking ID # 205346)*

STATEMENT OF PROBLEM OR QUESTION: The discrepancy between those desiring to quit smoking and those offered assistance with quitting represents a major area for quality improvement. The AHRQ has attempted to address this discrepancy with guidelines, recommending that clinicians ask about tobacco, advise to quit, assess readiness to quit, provide assistance, and arrange for close follow-up (the 5 A's). However, adherence to guidelines has been poor, and identifying interventions that can convert guideline recommendations to clinical practice has proven difficult.
DESCRIPTION OF PROGRAM/INTERVENTION: We developed a best practice alert within the Northwestern Memorial Faculty Foundation (NMFF) General Internal Medicine clinic electronic medical record (EMR) system. The NMFF clinic is an urban, academic outpatient primary care practice with 40 attending and 80 resident physicians, with over 80,000 clinic visits yearly. The EMR system used in the clinic is EPIC, which serves as a comprehensive medical record and computerized physician order entry system for referrals and printed prescriptions. The best practice alert is activated if a patient presenting for care is an active smoker, defined as those who say they are currently smoking when asked as a sixth vital sign by the rooming nurse or previously in the social history. The alert prompts the physician to consider smoking cessation interventions and links the user to an order set. Within the order set, the user is able to select orders for methods of assistance recommended by the AHRQ guideline, including nicotine replacement therapy, varenicline, bupropion, or counseling referrals. The order set also provides physicians with up to date guideline warnings on use of varenicline in patients with a history of psychiatric illness. Selecting a method of assistance in the order set will automatically create the appropriate referral information or paper prescriptions. In addition, the order set provides all smokers with a printout of basic smoking cessation information, which the user can supplement by selecting additional patient instructions specific to the mode of assistance the patient desires.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Improve adherence to smoking cessation guidelines in a general medicine clinic by increasing rates of physician counseling, referrals to cessation programs, and the use of pharmacotherapy to aid in smoking cessation. 2) Improve quit rates among patients in a general medicine clinic.
FINDINGS TO DATE: We activated the best practice alert and order set December of 2008. Early feedback indicates that this non-intrusive reminder is prompting the use of the order set. We plan to compare guideline adherence and quit rates both pre-and post order set intervention. We will have first quarter data by March of 2009.
KEY LESSONS LEARNED: 1) A single EMR tool can successfully integrate physician decision support, order sets with updated guideline recommendations, and patient education and behavior modification information. 2) An EMR alert coupled with computerized physician order entry with decision support may be used to improve guideline adherence by making providers more aware of recommended treatments and interventions while also making it easier to provide them. 3) Addressing the appearance and functionality of EMR based alerts and order sets may improve their successful integration into physician workflow.

EFFECT OF A DIABETES GROUP CLINIC USING SHARED MEDICAL VISITS ON OUTCOMES FOR DIABETIC PATIENTS CARED FOR IN AN URBAN RESIDENT CLINIC. C.D. Falck-Ytter[1]; R. Ellert[1]; K. Denise[1]; D. Einstadter[1]. [1]Case Western Reserve University, Cleveland, OH. *(Tracking ID # 205058)*

STATEMENT OF PROBLEM OR QUESTION: Resident physicians at large urban academic medical centers care for a diverse population of diabetic patients, often with multiple medical problems and no insurance. Clinic time constraints and competing medical and social problems make care of this population challenging. We examined the effect of a new Diabetes Group Clinic (DGC) on outcomes for resident physician managed diabetic patients with poor control.
DESCRIPTION OF PROGRAM/INTERVENTION: The DGC combines group meetings for up to 8 patients, individual education sessions, and individual physician visits into a once weekly 2 hour session. The group meeting portion of the session is led by a Nurse practitioner and a RN (both Certified Diabetes Educators) and patients discuss topics such as diet, exercise, use of insulin or how to pay for medication. After the group session, individual patient training sessions for the initiation of insulin therapy, glucometer maintenance or diet and exercise counseling are conducted as needed. Finally, patients are seen individually by a physician for any medication adjustments, referrals and additional exams, as needed. Eligible patients (type 2 diabetes, hemoglobin A1c (HBA1c) >8%, English speaking, and without gestational diabetes) were offered referral to the DGC.
OBJECTIVES OF PROGRAM/INTERVENTION: The primary targets for improvement were HBA1c, LDL and BP. Patients attended the clinic once monthly for 6 months or until a HBA1c <7% was achieved. All patients continued to see their regular primary care resident physician as needed.
FINDINGS TO DATE: Between January and October 2008, a total of 93 diabetic patients were referred and 52 (56%) agreed to attend and completed at least one visit to the DGC. Patients with and without visits did not differ significantly on any demographic characteristics. For DGC attendees, the mean age was 52 years, 57% were women, 57% were non-white, 32% were uninsured and the mean HbA1c was 10.1%. DGC attendees completed about 50% of their scheduled visits. Attendance in the DCG was associated with a significant 1.3% drop in HbA1c (10.1% to 8.5%, p=0.007). Over a similar time period, the mean HbA1c for non-DGC attendees decreased by 0.5% (10.7 to 10.2, P=0.4). The mean LDL at baseline was higher among DGC attendees vs. non-attendees (117 mg/dl vs. 100 mg/dl) and did not change significantly over the study period. Blood pressure was similar in the DCG attendee and non-attendee groups at baseline (131/75 vs. 137/78) and did not change significantly for either group during the study period.
KEY LESSONS LEARNED: A Diabetes Group Clinic is a useful adjunct for improving diabetes care in patients cared for at a busy urban resident clinic. The improvements may be related to a focus on patient concerns in group discussions, immediate targeted individual training, and more face to face time with a provider.

EFFECTIVENESS OF ABIM'S PRACTICE IMPROVEMENT MODULE IN IMPROVING DIABETES CARE J. Sheth[1]; L. Thomas[2]. [1]American College of Physicians, Scranton, PA; [2]Scranton Temple Residency Program, Scranton, PA. *(Tracking ID # 206077)*

STATEMENT OF PROBLEM OR QUESTION: Introduction: The Diabetes (DM) Practice Improvement Module (PIM) of the American Board of Internal Medicine (ABIM) was utilized as a practice assessment tool to measure outcomes and processes of care for diabetic patients. This was implemented at our ambulatory clinic involving physicians, residents, physician assistants, nurses, and medical assistants. Stages of PIM: According to PIM guidelines, patient surveys (n=25) and chart reviews (n=40) were conducted to address key processes and outcomes of diabetes care. A clinic Microsystems analysis was completed. This data was submitted to the ABIM and a practice report was generated. Outline of problem: Multiple areas were identified that required improvement. It was observed that less than 50% and 25% patients knew their target fasting and post-prandial blood sugar values respectively. Although 90% of patients had a hemogloginA1c tested only 40% knew that it was being monitored.
DESCRIPTION OF PROGRAM/INTERVENTION: Areas for improvement: Implement a process of care to improve patient knowledge and understanding of target blood sugar and hemoglobinA1c values. Data Collection: The data was collected using patient surveys and chart reviews by a prospective sequential method. Patients treated for diabetes in our practice for at least one year were included. Patient knowledge and clinical outcomes were assessed from surveys and chart reviews identified quality of care indices, and key areas for improvement.
OBJECTIVES OF PROGRAM/INTERVENTION: Analysis and Interpretation: The patient knowledge of diabetes and the care provided was

suboptimal and indicated a definite need for patient education and engagement in their care. We identified ways to optimally utilize current resources. Strategy for change: Blood sugar was included as a vital sign in all diabetic patients and this was used as a teachable moment to promote blood sugar checks at home. Reminder postcards listing information about hemoglobinA1c, target blood sugar values and importance of home glucose monitoring were reviewed and distributed to these patients.
FINDINGS TO DATE: Effects of change: A follow-up patient survey (n=30) was using the retrospective sequential sampling method. The results showed improved patient's knowledge of hemoglobinA1c from 40% to 80%, and target fasting and post-prandial blood sugar values from 48% and 24% to 93% and 67% respectively. Home blood sugar measurement rates improved from 63% to 100%.
KEY LESSONS LEARNED: Conclusion: The PIM developed by the ABIM is a very effective tool to identify areas for improvement in an ambulatory clinic setting. It also serves as a framework for integrating various quality improvement initiatives through a multi-disciplinary team approach. Next Steps: We identified discordance in our charts for instance, foot and eye exams were done in 90% of patients but the report was found in only 40% charts. We believe that template development will help us achieve documentation goals and decrease variability of care.

FEASIBILITY AND ACCURACY OF SINGLE FIELD NON-MYDRIATIC FUNDUS PHOTOGRAPHY FOR THE SCREENING OF RETINAL DISEASE IN A PRIMARY CARE SETTING R.J. Seballos[1]; A.D. Misra-Hebert[1]; J.P. Campbell[1]; R. Lang[1]; A. Tarabishy[1]; R. Singh[1]. [1]Cleveland Clinic Foundation, Cleveland, OH. *(Tracking ID # 205996)*

STATEMENT OF PROBLEM OR QUESTION: Visual impairment and disability are common in the elderly. Most causes can be easily diagnosed and at least 30–40% of blindness and visual impairment is preventable or treatable. Yet, preventative health studies have documented the non-adherence of patients to recommended fundus examinations based on American Academy of Ophthalmology guidelines. Barriers to examination include lack of access to trained ophthalmic professionals, lack education of patient on screening guidelines, and significant socioeconomic costs associated with visits.
DESCRIPTION OF PROGRAM/INTERVENTION: Non-mydriatic fundus photography in a primary care setting offers 'point of care' service and may be useful as a screening tool to identify patients with retinal disease. We aim to determine the feasibility, accuracy and sensitivity of a single-field nonmydriatic digital fundus image interpreted by an ophthalmologist and performed within a primary care setting.
OBJECTIVES OF PROGRAM/INTERVENTION: Fundus photography using a digital non-mydriatic camera (Topcon NW6s) was performed by a registered nurse located in a primary care office on both eyes of 1388 consecutive patients. Images were electronically transmitted to tertiary eye clinic and interpreted by a retina specialist. The fundus images of all patients included a 45 degree field of the posterior pole capturing the optic nerve and macular area. Diagnostic findings and interpretations were recorded via shared electronic medical record with the primary care physician. Appropriate recommendations for follow-up were made. Patients were then contacted to see if appropriate follow-up was successfully completed and chart reviews were performed to determine biomicroscopic findings.
FINDINGS TO DATE: Photographs were adequate in both eyes in 1326 patients (95.5%). Exam findings were normal in both eyes in 1125 (84.8%) of patients. Abnormal findings were noted in either eye in 201 (15.2%) patients. The most common abnormal findings were macular degeneration (71/201, 35.3%), optic nerve cupping (51/201, 25.3%), hypertensive retinopathy (21/201, 10.4%), and choroidal nevi (11/201, 5.5%). In all patients with abnormal findings, routine follow-up ophthalmologic examination with an eye care specialist was indicated, and none of the patients required urgent attention. Sensitivity was found to be 87% and stratification was performed based on the initial diagnosis. Those with false positive results were from confounding diagnoses rather than true false positives.
KEY LESSONS LEARNED: Single field non-mydriatic fundus photography is feasible and can be performed by a nurse in a primary care office. This office-based procedure can improve screening rates especially in high risk patients with diabetes. It is accurate and sensitive for screening retinal disease in a primary care setting.

HEAVY POLYPHARMACY BURDEN IN GERIATRIC PRIMARY CARE - THE DIRECT PATHWAY TO ENDANGER ELDERLY PATIENTS BY CULTIVATING NEGATIVE DRUG INTERACTIONS. I. Heinrich[1]; I. Melanevsky[2]. [1]Haifa University, Kiryat - MOZKIN, ; [2]CLALIT HEALTH SERVICES, Kiryat Motzkin, . *(Tracking ID # 204032)*

STATEMENT OF PROBLEM OR QUESTION: Polypharmacy is common among elderly patients. High co morbidity patients' are prescribed and consume several medications simultaneously exposing them to deleterious side effects and drug interactions. Pharmcokinetic and pharmacodynamic factors enhance those iatrogenic effects in aged population and deserves special attention in primary care. Being preoccupied by the issue of elderly using multiple remedies given by several consultants, family members and self OTC acquisition, we conducted a study in our primary care urban clinic to evaluate the dimensions of this phenomenon and locate the frequent drug offenders.
DESCRIPTION OF PROGRAM/INTERVENTION: From 1124 patients aged 75 and above, screened at our clinic - 52 had been identified as consumers of 12 and more different medications over a 3 month period for chronic and acute illnesses. Every drug pair given was crossed and stratified by levels of drug interactions found in the LEXI Drug Comp program: Level C (drug combination needs monitoring) Level D (drug dosage needs adjustment) Level X (drug combination should be stopped and changed immediately)
OBJECTIVES OF PROGRAM/INTERVENTION: A. Incidence evaluation of all drug interactions options possible. B. Sorting interactions by "severity" levels. C. Focusing upon D level interactions – locating the most frequent abusers. D. Ceasing treatment when X level reaction occurred.
FINDINGS TO DATE: Single patient did not have drug interactions of any kind. We identified: 2 type X interactions: Escitaprolam SSRI and Selegiline MAO Inhibitor, Clarithromycine macrolide and Salbutamol). 37 drugs caused 58 type D interactions in 33 patients (63.5%): 14 - (Beta blockers and Alpha1 receptor blockers) – orthostatic hypotension, recurrent falls. 5 - (Beta blockers and Alpha 2 receptor agonists) – rebound hypertension after abrupt drug cessation. 5 - (Warfarin and Levothyroxin) – increase anticoagulant effect. 5 – (simvastatin and Calcium blockers) - increase risk for rhabdomyolysis. 29 – different drug couplets. 144 drugs caused 328 type C interactions identified: 34 – (Statins and Proton pump inhibitors) - increase risk for rhabdomyolysis.
KEY LESSONS LEARNED: Drug interaction is almost inevitable in the old elderly receiving at least a dozen medication regimen. The primary care physician should serve as a hinge care giver by supervising and adjusting drug formulations given by different health professional and purchased as OTC by the patients. A patient oriented tailored attitude is necessary to the aged being troubled and confused by polypharmacy and unable to identify their complaints and symptoms as iatrogenic. A synchronized complementary team approach with a clinical pharmacist, using accessible, easy to operate drug - interaction software (as Lexi Drug Comp) is crucial to assure elderly patients' health and avoid unwanted sequella.

HELP FROM THE BLUES: PAYING FOR PCMH C.J. Standiford[1]; S.J. Bernstein[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205463)*

STATEMENT OF PROBLEM OR QUESTION: Public and private payers are launching Patient-Centered Medical Home (PCMH) pilots as a strategy to improve quality and coordination of care and increase financial support to primary care physicians. The Center for Medicare and Medicaid Services will conduct a demonstration project for practices that are already functioning as a PCMH and will employ a pay-for performance model. Other payors, including Blue Cross Blue Shield of Michigan (BCBSM) are proactively paying group practices to develop the infrastructure to provide care coordination, a pay-for-participation model.
DESCRIPTION OF PROGRAM/INTERVENTION: BCBSM is partnering with physician groups in Michigan to pay them to develop and implement elements of a PCMH. These elements include registry development, performance reporting, individual care management, extended access, e-prescribing, test tracking and follow up, patient-provider partnership agreements, specialty referral process, care coordination, preventive health care, self-management support and linkage to community resources. Participating groups are paid quarterly by BCBSM for implementing PCMH elements. Practices designated as a PCMH receive higher E&M fees as well as payment for nonphysician face to face and phone visits.
OBJECTIVES OF PROGRAM/INTERVENTION: To discuss the funding methodology BCBSM is using to pay participating physician groups.

Currently, BCBSM is withholding 0.5% of all payments to physicians in Michigan ($50 million in 2008) to fund this initiative. Once the first seven of eleven elements noted above have been met, practices can apply for designation as a basic PCMH. Effective July 1, 2009 those practices designated as a PCMH will receive an additional 10% payment per evaluation and management (E&M) billing code. Although this is not an ideal mechanism to support the PCMH, it was logistically difficult for BCBSM to obtain the necessary permissions from employers and regulators to provide a capitated payment at this time.

FINDINGS TO DATE: We initially established all payor registries for patients with four chronic diseases (asthma, coronary heart disease, congestive heart failure and diabetes mellitus), we then measured the quality of care the patient received, fed this information back to our healthcare providers, and developed quality improvement initiatives to address gaps in care. For achieving these tasks in 2008, the University of Michigan received a $1.2 million payment from BCBSM. The first payment this fiscal year exceeded $442,000. These funds are then distributed back to these practices based on the number of unique patients seen at each practice ($1/member per year) and the number of patients with one or more of the 4 chronic illnesses ($1/member/month/illness). The physician practices use this money to support additional team members, e.g., panel manager, a portion of a clinical pharmacist, certified diabetes educator, additional nursing care manager etc. In addition, BCBSM and BCN (Blue Care Network) are rewarding physicians who can demonstrate improved care management by paying for face to face ($60) and phone visits ($30 for 15 minutes) for the following practitioners: registered nurses, masters of social work, certified diabetes educators, registered dieticians, clinical pharmacists, and respiratory therapists.

KEY LESSONS LEARNED: Through ongoing higher payments for physicians' office visits and direct payments for face to face and telephone visits by nonphysician providers, the University of Michigan is hopeful it will be in a position to truly realize and sustain the vision of the PCMH.

IMPACT OF A PATIENT SERVICE REPRESENTATIVE ON QUALITY OF CARE ON A NON-TEACHING HOSPITALIST SERVICE E. King[1]; D.M. Cottrell[2]; S. Kasi[3]; M. Cary[4]; L. Shawhughes[1]. [1]Division of General Internal Medicine, PENN Hospital Care Physicians, Hospital of the University of Pennsylvania, Philadelphia, PA; [2]University of Pennsylvania Health System, Philadelphia, PA; [3]University of Pennsylvania School of Medicine, Philadelphia, PA; [4]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 204164)*

STATEMENT OF PROBLEM OR QUESTION: Improving discharge planning is a high priority in hospital medicine. There are numerous studies on discharge checklists, follow-up phone calls, standardization of communication between inpatient and outpatient physicians, and links between improved follow-up and better outcomes. We explored the impact of non-physician extenders on quality of care by adding a Patient Service Representative (PSR) to our Non-Teaching Hospitalist Service in February 2008.

DESCRIPTION OF PROGRAM/INTERVENTION: The PSR is a non-clinical, clerically-trained staff member focused on patient-centered discharge planning, working personally with patients to make follow-up appointments and communicating with their physicians. 1085 patients having a diagnosis of CHF, COPD, or DM and discharged from July 2007 to September 2008 were included for retrospective analysis. Administrative data was combined with data from two other hospital databases in order to compare outcome variables for patients discharged before versus after the PSR began working on this service.

OBJECTIVES OF PROGRAM/INTERVENTION: We hypothesized that the use of this novel, cost-effective resource would improve quality and efficiency of care, in particular in patients with diagnoses felt to be high risk for readmission to the hospital. Primary outcome variables were: readmission rates to hospital within 30 days of discharge and length of stay. Secondary outcomes were: time of discharge, percent discharges before noon, and patient satisfaction on discharge related metrics. In a subset of 442 patients, emergency department (ED) visits within 30 days and number of scheduled follow-up appointments were examined. Data was also analyzed to determine if increasing comorbidity (total number of conditions out of CHF, COPD, DM), age, disposition plan or insurance status had any significant impact on outcomes.

FINDINGS TO DATE: Primary outcome variables of 30-day readmissions and length of stay did not improve, nor did secondary outcomes (time of discharge, number of discharges before noon), though there was a non-statistically significant improvement in pre-noon discharges (increase from 9.4% to 12.8%, p=0.93). In a subset of 442 patients, number of return ED visits in 30 days was not different but there was a significantly higher number of follow-up appointments made after the PSR started (p=0.009). In subgroup analysis, it appeared that both increasing age and increasing index of comorbidity increased length of stay, 30-day hospital and ED readmission, but that the PSR did not improve these in the post-intervention period. Disposition and insurance status had no consistent impact on outcomes. Patient satisfaction scores in discharge related metrics did not improve.

KEY LESSONS LEARNED: A Patient Service Representative significantly increased the number of follow-up appointments scheduled in discharged high-risk medical patients, and may have contributed to improvement in pre-noon discharges, but did not have a measurable impact on other outcomes. Further study is required to determine whether quality of patient care improved in other ways.

IMPROVING CLINICAL ACCESS AND CONTINUITY THROUGH PHYSICIAN PANEL RE-DESIGN J. Stahl[1]; H. Balasubramanian[2]; R. Banerjee[3]; B. Denton[4]. [1]Massachusetts General Hospital, Boston, MA; [2]University of Massachusetts at Amherst, Amherst, MA; [3]Mayo Clinic, Rochester, MN; [4]North Carolina State University, Raleigh, NC. *(Tracking ID # 205114)*

STATEMENT OF PROBLEM OR QUESTION: Population growth combined with the increasing prevalence of chronic disease due to aging is projected to increase the demand for primary care services in the United States. Patient panels, the cohort of patients a physician takes care of and is responsible for, are composed of patients of varying degrees of clinical urgency and clinical need. Typically patient panels develop ad hoc, are acquired on entering practice or are imposed by a health care organization. The are not typically designed to maximize access to care or continuity.

DESCRIPTION OF PROGRAM/INTERVENTION: We use numerical and simulation techniques to design physician panels based on appointment and capacity data for 2004–2006 from a primary care group practice of 39 physicians with over 20,000 patients at the Mayo Clinic in Rochester, MN. Main Outcome Measures: Patient waiting time and patient/clinician continuity, i.e., 1/the number of times patients redirected to see a provider other than their primary care physician (PCP).

OBJECTIVES OF PROGRAM/INTERVENTION: To use systems engineering methods to design physician panels that improve access to and continuity of care.

FINDINGS TO DATE: Waiting time decreases by 57% and continuity increases by 54% in simulations that use the optimal panel design produced by our numerical technique. The new panel design remains more efficient (less waiting, more continuity) than a standard practice up to adding an additional more 3500 patients to the new system.

KEY LESSONS LEARNED: Our simulation results indicate that redesigning primary care physician panels using numerical techniques that trade-off access to and continuity of care has the potential to increase the efficiency of primary care practices and may therefore help mitigate the expected shortage of PCPs.

IMPROVING COLORECTAL CANCER SCREENING IN A PRIMARY CARE SETTING I.J. Neeland[1]; M. Fleischman[1]; A. Rahman[1]; S. Liebman[1]; R. Blatt[1]; V. Coronado[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 204958)*

STATEMENT OF PROBLEM OR QUESTION: Our aim was to increase the rates of colorectal cancer screening with colonoscopy by 50% in average risk patients in the Wednesday afternoon purple pod primary care medical clinic by March 31, 2008.

DESCRIPTION OF PROGRAM/INTERVENTION: The Grady Primary Care Center is a hospital-based clinic staffed mainly by medical residents that serves a low socio-economic population. We assessed baseline rates of colorectal cancer screening and conducted interventions and tests of change to improve screening rates in a pilot clinic setting. We then used the pilot data to spread the intervention/test of change to a second medicine clinic to confirm the effectiveness of the intervention.

OBJECTIVES OF PROGRAM/INTERVENTION: To establish baseline data for colorectal cancer screening in a pilot clinic setting and conduct

tests of change to improve screening rates. Our initial tests of change included: (1) Posted list of ACG screening guidelines in clinic and handed out reminder cards with the guidelines to physicians. (2) Increased reminders for data collection to team members by verbal and electronic means. (3) Designated monthly team leader to improve participation in and "ownership" of project by team members. We then attempted to confirm our findings in a second clinical setting. These objectives included: (4) Collection of baseline data in green pod Wed AM in preparation for spread of intervention tool. (5) Initiated spread of intervention to second medical clinic to confirm efficacy of performance improvement tool. (6) Continued data collection on both pilot medical clinic and second "spread" clinic until the end of the study period.

FINDINGS TO DATE: In the pilot clinic, referral rates for colorectal cancer screening were improved by 50% from baseline. This improvement was durable throughout the duration of the study. In the "spread" clinic, referral rates were improved by only 5% with our intervention. In addition, the "spread" clinic had a lower baseline rate of referral (30%) when compared to the pilot clinic.

KEY LESSONS LEARNED: 1. Change is a process. Our first test of change resulted in an absolute improvement with regard to percentage of referrals; however, only through continued reminders and team encouragement did continued improvement occur. 2. Team work is essential. Systematic change and improvement is accomplished only through the efforts of many despite the good intentions of a few. 3. Measures of performance improvement may be biased toward the performer. 4. A single test of change is not applicable in all circumstances. Performance improvement is motivated in different ways for different people and change is sustainable only when all means of improvement are utilized. 5. Referral rates for colorectal cancer screening may be significantly improved by simple tests of change in a primary care medical clinic. This may help to improve the overall health and well-being of patients in the clinic and improve physician performance and efficiency. However, the successful spread of the same test of change to other medical clinics remains a challenge.

IMPROVING PRESCRIBER ADHERENCE TO TREATMENT GUIDELINES: RESULTS OF A NURSE LED INTERVENTION USING AN ELECTRONIC MEDICAL RECORD E. Gandara[1]; T. Moniz[1]; M. Dolan[1]; C. Melia[1]; K. Allen[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205788)*

STATEMENT OF PROBLEM OR QUESTION: To meet recommended care guidelines, patients with chronic disease often require complex medication regimens. Several studies have demonstrated that patients with chronic disease do not always receive the proper regimen. Several issues contribute to this problem–such as patient adherence, clinical inertia, and competing medical issues.

DESCRIPTION OF PROGRAM/INTERVENTION: Wishing to improve chronic disease management and to leverage our electronic medical record (EMR), we initiated a quality improvement effort for managed care patients receiving primary care at Brigham and Women's Hospital. The following 5 diseases were targeted: coronary artery disease (CAD), diabetes mellitus (DM), heart failure, stroke, and chronic kidney disease. Patient were evaluated and identified for intervention when hospitalized for any reason. Three weeks post discharge, a registered nurse (RN) conducted a chart review of the EMR to assess whether the patient's regimen required addition or intensification of pharmaceutical agents to meet chronic disease management guidelines. The RNs conducted the review using a standardized manual (institutionally developed using latest evidence, guidelines and local expert input) that included relevant therapy goals (blood pressure, LDL cholesterol levels) and what drugs were indicated (e.g., aspirin, beta blockers, etc.) based on the patient's status. If additional clinical information was needed, the RN contacted the physician or patient to obtain it. Once all necessary information was gathered, if modification to the regimen appeared indicated, the RN sent an e-mail to patient's physician to offer assistance to get the medication regimen adjusted. If modification was not indicated at initial review, a follow up review was planned in 6 to 9 months.

OBJECTIVES OF PROGRAM/INTERVENTION: The program was created to help physicians improve care of patients with the targeted chronic diseases and to reduce the number of patients not receiving optimal care. Our primary goal was to provide physician support for prescription of appropriate regimens. However, the program also sought to directly support to patients to improve adherence and to reduce clinical inertia.

FINDINGS TO DATE: From January 2006 to December 2007, 444 patients were included in the program. The mean age was 58 years old, 174 (39.2%) were women, 251 (56.5%) were diabetics and 143 (32.2%) had at least two diseases. 104 (23.4%) of the patients required intervention. 84 (80.1%) of this group had DM and 33 (31%) had CAD. Of the patient's receiving intervention, 6 months later there was a 44.2% (46/104) reduction in those not at target regimen; this improvement was driven by patients with DM (n=42, 50%), CAD (n=15, 45%) and stroke (n=3, 50%). Of the patients in the group that did not need intervention at first evaluation (n=340), only 266 (73.7%) of patients were still at treatment goals 6 months later. The leading category was blood pressure above target in 36 patients (24.8%).

KEY LESSONS LEARNED: A simple EMR facilitated chart review by nurses using a standardized manual and sending e-mails was able to cause 44% reduction in those patients not receiving recommended care. The relatively high rate of patients falling out of target (26.7%) suggests the need for continuous monitoring (of periods less than 6 months) of all patients with the targeted chronic diseases, especially with regard to blood pressure control.

LINKING THE COMMUNITY TO THE PATIENT-CENTERED MEDICAL HOME K.B. Desalvo[1]; J. Pollock[1]; K.G. Roth[1]; T. Jones[1]; E.G. Price[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 204945)*

STATEMENT OF PROBLEM OR QUESTION: Though the Patient-Centered Medical Home (PCMH) has promise to improve the quality and efficiency of care, community engagement is not yet part of the recognition criteria.

DESCRIPTION OF PROGRAM/INTERVENTION: We developed a community outreach program to mirror our internal quality program for our neighborhood health center to better link our neighborhood with our academically affiliated health Tier 3 PCMH. In concert with the community, the health center leadership team identified 12 health topics that are spotlighted monthly. Each month a report is generated from the EHR describing the status of the health center population as it relates to the designated monthly health focus. Individual providers are given reports on the characteristics and status of their own patients. Providers are updated on the evidence-based guidelines for the care of the health focus or tools for addressing the social and lifestyle determinants of health that may be part of the monthly focus. The health center literature and bulletin boards are refreshed to focus on the monthly health topic. The Community Outreach Coordinator works with providers, community organizations and other local resources to develop a consistent set of in house and outreach tools. We work to participate in at least one health fair and one "discussion with the expert" who is usually a faculty member or clinic provider. Weekly inserts for local church bulletins and a monthly newsletter are distributed through the Church Nurse and Lay Health worker programs and to other community organizations. The quality team geocodes health center patients at risk according to the monthly topic to assist the Community Outreach Coordinator in her efforts.

OBJECTIVES OF PROGRAM/INTERVENTION: To develop a model, replicable community outreach program that would mirror the quality improvement activities of the PCMH.

FINDINGS TO DATE: The monthly topics selected include: hypertension, diabetes, depression, cancer screening, smoking cessation, exercise, nutrition, reproductive health, heart disease, allergies and asthma, community empowerment and vaccines. By way of example, for the monthly health focus of hypertension, information on health center users with high blood pressure revealed that 37% of the 6238 patients carried a diagnosis of hypertension of which approximately 50% had controlled disease. Demographic information about the patients with hypertension is shared with the clinic team overall such as that these patients are older, more likely to be minority, speak Spanish as a first language, and report poor/fair health ($p<0.001$ for all characteristics). One-third of the at-risk patients lived within a 2 mile radius of the facility and a health fair, education and outreach was targeted in those neighborhoods. The response from the community and providers to the program has been overwhelmingly positive.

KEY LESSONS LEARNED: 1) Health care quality initiatives in the PCMH should involve the health center and the community to truly improve the health of populations. 2) Community outreach programs that synchronize with internal QI projects can be standardized for ease of implementation. 3) Working with networks of community organizers, such as church nurse programs, can greatly streamline efforts and enhance bidirectional communication about the community's health care needs.

MONITORING MEDICATION SAFETY VIA AN ENHANCED PERSONAL HEALTH RECORD IN AN URBAN, DIVERSE HIV POSITIVE POPULATION U. Sarkar[1]; D. Schillinger[1]; K. Bryant[1]; T. Nunnery[1]; S. Myers[1]; J.O. Kahn[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205793)*

STATEMENT OF PROBLEM OR QUESTION: Can health information technology enhance between-visit medication communication and safety among HIV positive patients?

DESCRIPTION OF PROGRAM/INTERVENTION: We based this program at the publicly funded Positive Health Program, a comprehensive HIV clinic within the San Francisco Department of Public Health. This program serves a low-income, ethnically diverse, urban, HIV+ population. We developed an enhanced personal health record, that interfaces with the existing electronic health record (EHR), called Healthcare Electronic Record Organizer (HERO), which includes demographic and clinical information, all provider documentation, diagnostic and laboratory information, and electronic medication information and prescribing capability. This ePHR, called myHERO, allows patients to review their medications and send refill requests directly to providers. In addition, myHERO has two distinct medication communication capabilities: (1) continuous medication reconciliation, which allows patients to report discrepancies between their listed medications and their own medication administration; (2) patient-directed adverse drug event reporting, which allows patients to report symptoms or problems that they believe are related to medication use. In order to facilitate appropriate clinical action, these functions generate both documentation in the EHR and written (email) communication to primary providers.

OBJECTIVES OF PROGRAM/INTERVENTION: We aimed to provide ethnically diverse, vulnerable HIV patients with the ability to participate in medication reconciliation and report medication-related symptoms using an enhanced personal health record (ePHR).

FINDINGS TO DATE: Enhanced medication functionality has been developed and will be tested in several domains. We will conduct a practical trial, with a randomized controlled design with patients assigned to initial or delayed ePHR access. Our outcomes include the proportion of patients with medication reconciliation as well as the accuracy and completeness of medication reconciliation for myHERO users compared to usual care. We will also compare the yield for adverse drug event reporting via ePHR compared to usual care.

KEY LESSONS LEARNED: In designing the ePHR, we found it critical to separately address medication reconciliation, or agreement between patient and provider, versus medication adherence and patient self-administration. Providing trade and generic names and an image of each medicine improved patient recognition of medications. In parallel with the design, a standard process was developed to review and document patient communication emanating from the ePHR. Implementation of medication reconciliation and symptom reporting via personal health record requires tight integration with clinical care and with the electronic medical record in order to support rather than burden clinicians. A well-designed personal health record can not only retrieve information but also facilitate bidirectional communication between patients and providers, in order to enhance self-management and improve medication-related communication.

MONTEFIORE GOES GREEN – RESIDENT-LED ADVOCACY FOR ORGANIZATIONAL CHANGE I. Linetskaya[1]; L. Richmond[2]; E. Pfleging[2]; M. Katzman[2]; S. Safyer[3]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Montefiore Medical Center, Bronx, NY; [3]Montefiore Medical Center of the Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205758)*

STATEMENT OF PROBLEM OR QUESTION: The health care sector, while advocating for public and individual health, generates a tremendous amount of waste. Inappropriate disposal of medical waste poses significant harm to public health and the environment. This paradox has stimulated the "green hospital" movement aimed to reduce the industry's global footprint. While models exist for the construction of new green hospitals, few models exist for transforming existing hospitals into green institutions. This is especially true in underserved urban settings where scarce resources often make the green imperative a secondary priority. Attaining widespread organizational change under such circumstances usually requires institutional buy-in, formation of a task team, creation of a technically and financially feasible program, and systematic data collection to ensure growth, improvement, and sustainability. Grass-roots advocacy has the potential to catalyze institution-wide organizational change.

DESCRIPTION OF PROGRAM/INTERVENTION: We describe a resident-led advocacy campaign culminating in the "Montefiore Goes Green" campaign which aims to: (1) to create a comprehensive, financially feasible, and sustainable hospital-wide recycling program, (2) to create multidisciplinary collaboration, and (3) enhance leadership skills of medical residents as agents for organizational change.

OBJECTIVES OF PROGRAM/INTERVENTION: Montefiore Medical Center comprises 3 hospitals and 75 ambulatory sites serving indigent communities of Bronx, New York. In January of 2007, Montefiore made an institutional commitment to adopt an environmentally sound waste management strategy aimed to reduce waste and institute recycling. A medical resident, who had become a vocal advocate for recycling, attained institutional buy-in from the hospital's new CEO. The CEO committed institutional and financial support toward a recycling initiative by forming the "Green Team" comprised of leaders in engineering, facilities, transportation, purchasing, and public relations. With input from the medical resident, the Green Team's first project was to pilot a recycling initiative at one ambulatory site in the South Bronx. The single site recycling program was launched, evaluated, and modified to maximize participation and yield. Lessons learned there shaped a large-scale, hospital-based recycling program. Given the large projected volume of recycling, Montefiore was able to secure lucrative contracts with local recycling companies to install a free compactor (a savings of $300,000) and haul recycled paper, metal, glass, and oil free of charge, saving rather than costing Montefiore money to divert trash away from landfills.

FINDINGS TO DATE: One year after inception of an institution-wide program, Montefiore recycles 5.9 tons of glass, metal, and plastics, 2.5 tons of white paper, and 50 gallons of vegetable oil every week. Montefiore's cafeteria has eliminated the use of 5,000 Styrofoam trays per week, replacing them with equivalently-priced recyclable products. Unexpectedly, rather costing money, recycling saves Montefiore $1000 per week.

KEY LESSONS LEARNED: Grass-roots activism can catalyze institutional change, dramatically affecting institutional recycling practices. Although medical residents often feel powerless in a hierarchical medical system, they can represent a strong voice for innovation and change.

OUTPATIENT MEDICATION RECONCILIATION AT THE VA D.R. Anderson[1]; L. Vasquez[1]. [1]Veterans Affairs Medical Center, West Haven, CT. *(Tracking ID # 205455)*

STATEMENT OF PROBLEM OR QUESTION: Joint Commission Patient Safety Goals for 2005 require reconciling medication lists at every clinical encounter, and the Institute for Healthcare Improvement (IHI) includes medication reconciliation as one of six interventions in its "5 Million Lives Campaign". Despite this emphasis, little has been reported on the design and impact of systems to improve medication reconciliation. The Veterans Administration Health System, with an integrated pharmacy and an electronic health record, presents an ideal setting to develop and study the impact of such an intervention. We developed a system to ensure that patients and providers review and reconcile medication lists at every primary care visit. We hypothesized that this system would result in more frequent reviewing and editing of the medication list by providers, which would in turn reduce medication errors and improve patient adherence to treatment regimens.

DESCRIPTION OF PROGRAM/INTERVENTION: As part of a regional VA primary care improvement collaborative, patient medication lists from the VA electronic health record were printed in advance of the appointment and given to each patient upon check in. Patients also received a notice prompting them to review the medication list, note any inaccuracies, and discuss it with their primary care provider. Primary Care providers were instructed to review the list with the patient, and to update the list in the electronic health record whenever discrepancies were noted. In addition, providers were asked to identify and record any medications that were being prescribed by an outside source or being taken over the counter.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. Improve the accuracy of the electronic health record medication list 2. Reduce medication errors and adverse drug events 3. Improve patient adherence to medications

FINDINGS TO DATE: We evaluated the impact of this intervention using focused, periodic patient surveys, and in addition using aggregate, administrative data. Ninety-four percent of patients surveyed over a 2 year period indicated that they had been given a copy of their medication list prior to their visit, and 94% indicated that they received an updated list following the visit. We then identified several specific actions within the electronic health record related to reconciling medication lists and that could be measured using aggregate data. These "medication reconciliation actions" (MRA) include: · Discontinuing Active Prescription · Adding Non VA-prescribed and OTC Medications · Discontinuing VA-prescribed and OTC Medications We identified a list of all established patients who were seen by an attending primary care provider at least twice in the two years prior to and following the start of the initiative. We then measured the number of MRAs that occurred in these two timeframes. In the year following the intervention, discontinuations of active VA prescriptions increased from 53,490 to 70,401, an increase of 31%. In addition, the rate of discontinuation of "non VA" medications increased from 68,540 to 87,450, an increase of 27%.
KEY LESSONS LEARNED: These results suggest that primary care providers are making edits in the medication list and reconciling them with patients. Through this relatively simple process we have ensured that medications are reconciled at every outpatient visit, representing thousands of encounters per year. Further study of this data will attempt to identify additional benefits, including a reduction in adverse drug events and an improvement in patient medication adherence.

PATIENT EDUCATION SYSTEMS BUILT AROUND THE IPOD: A NEW USE FOR A POPULAR TECHNOLOGY N. Denizard-Thompson[1]; S. Singh[1]; D.P. Miller[1]; S. Stevens[1]; M. Wells[1]; J.L. Wofford[1]. [1]Wake Forest University School of Medicine, Winston-Salem, NC. *(Tracking ID # 204088)*

STATEMENT OF PROBLEM OR QUESTION: With the limited amount of time allotted for the office encounter and a growing number of patient education tasks, new strategies are needed to improve educational efficiency. Based on our previous efforts at iPod-based education, we sought to determine whether a patient education system built around the iPod is practical and sustainable in the office setting.
DESCRIPTION OF PROGRAM/INTERVENTION: Faculty/staff at this busy urban community health center clinic developed and pilot tested a series of three 4-minute patient education modules on (#1) INR monitoring and management, (#2) nutrition advice for patients on warfarin, and (#3) indications for anticoagulation. Using a paper-based registry of warfarin patients, we tracked INR checks, iPod use, and knowlege/attitudes from the iPod experiences over a four month period. After a patient received a routine INR check, the tracking sheet was brought to one of five practice nurses who reviewed the INR results, administered a sequenced survey (2–3 questions that assessed knowledge retention from the previous module), and presented the next iPod-based education module.
OBJECTIVES OF PROGRAM/INTERVENTION: 1. To demonstrate the acceptability of using an iPod-based system of sequenced educational modules related to chronic anticoagulation. 2. To expand a mobile patient education system using iPod technology for office-based practice.
FINDINGS TO DATE: Approximately 150 patients were registered as active warfarin patients. At baseline, patients (50% female, mean age 53.4 years) had a variety of clinical indications (afib 33%, DVT/PE 45%, mechanical valves 10%, other 20%). During the four-month study period, a total of 141 iPod module presentations were delivered to 91 patients. 44 patients had no INR checks and thus no opportunity to view the modules. 32 patients had at least three INR checks but no modules were documented. Of the 130 patients with at least one INR performed during the study period, 22 patients completed all 3 modules, and 91 patients received at least one module. 9 patients refused to view at least one module. Neither of the two iPods were lost or stolen, and no physician time was used in this routine educational activity. Sequenced surveys with INR checks showed variable uptake in knowledge. Based on the 10-point Likert scale survey of 22 patients who completed all three modules, audio and visual quality was judged very good, (9.0/10), the patient education experience was helpful (7.4/10) compared with the patient's previous warfarin education (6.3/10). According to patients, the iPod strategy extended the INR visit duration by 1–5 minutes at most.
KEY LESSONS LEARNED: A patient education system using iPods was well received by patients and staff. The iPod-mediated strategy standardized the educational message, improved clinic efficiency and helped the clinic meet educational goals with a system that was largely transparent to busy clinicians. The educational strategy has been successful enough that the clinic is planning new modules on other topics for routine use in the clinic.

PATIENT NAVIGATION TO REDUCE BREAST CANCER HEALTH DISPARITIES: A NATIONAL SAMPLE T.A. Battaglia[1]; J.A. Clark[2]; J. Leyson[2]; C. Logan[2]; S.E. Lane[3]; K.M. Freund[1]; V.A. Parker[4]. [1]Boston University, Boston, MA; [2]Boston University School of Public Health, Boston, MA; [3]Boston University School of Medicine, Boston, MA; [4]Boston University, Bedford, MA. *(Tracking ID # 205672)*

STATEMENT OF PROBLEM OR QUESTION: Patient navigation is emerging as a promising model to reduce cancer health disparities. Despite growing literature documenting improvements in care across single navigation sites, there exists no standardization of navigation interventions. As a result, little is known about the characteristics of existing navigation programs that would allow for meaningful comparisons.
DESCRIPTION OF PROGRAM/INTERVENTION: To describe programmatic characteristics of existing breast health navigation programs funded by the Avon Foundation and then to identify differences and similarities in programs across diverse settings.
OBJECTIVES OF PROGRAM/INTERVENTION: A self-administered written survey was mailed to programs identified by the Avon Foundation as recipients of safety net funding with patient navigation as part of their funded services. The survey contained 24 questions about the navigation programs. Topics covered included information about the site where navigation occurs, characteristics of the populations served, navigation activities, navigator characteristics, and additional funding sources.
FINDINGS TO DATE: Among 44 eligible programs dispersed across the United States, 40 completed the survey (91% response); 6 are in rural settings, 34 in urban settings; 9 are community-based, 31 are hospital-based programs. Consistent with the programmatic goal to reduce cancer health disparities, the majority of programs (27) served primarily minorities (>50% of the population served is minority race/ethnicity). Most programs (25) offered navigation services across each step of the cancer care continuum including screening, diagnostic care and cancer treatment, while only 4 programs provided navigation services for only one of these steps. Navigation activities occurred almost exclusively by telephone outreach and/or in person in a clinical setting, with only 12 programs providing services in a community setting such as the patient's home. Each program reported multiple sources for patient referrals with the most common sources being doctor referrals and clinic schedules or other administrative databases, followed then by family or friends. Median monthly case load was 23 patients per program (1st and 3rd quartile 14, 88). Educational attainment of navigators varied widely both between and within programs. For example, 6 programs employ only navigators with less than a high school degree, 8 programs employ only Registered Nurses, while 4 programs employ only navigators with a graduate level degree. Hospital-based programs were more likely to employ those with advanced degrees. Ten programs reported no additional funding source for their navigation services beyond the Avon Foundation support, while the remaining programs reported additional funding support from internal operations (17), other charitable foundations (12) and local or federal government funds (7).
KEY LESSONS LEARNED: Across a national sample of breast health navigation programs serving at risk populations, we found tremendous variability in programmatic structure and function. This may reflect both the lack of standardization of cancer care services as well as the particular needs of the populations served. Further study is needed to determine what factors drive these differences before meaningful comparisons are made and best practices put forth.

PHARMACIST OUTREACH TO RECENTLY DISCHARGED CLINIC PATIENTS G.S. Fischer[1]; J. Donehoo[2]; M.A. Mcneil[1]; J. Riley[1]; D. Simak[1]; W.N. Kapoor[1]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 204234)*

STATEMENT OF PROBLEM OR QUESTION: Hospitalized patients often have their home medications (meds) altered because of therapeu-

tic changes to their regimen along with changes due to hospital formulary requirements . After discharge, med errors may occur because (1) patients may be confused by discrepancies between discharge meds and their previous home regimen, (2) they may be unaware of the correct way to take new meds, and (3) they be unable to fill prescribed meds due to insurance formulary constraints.

DESCRIPTION OF PROGRAM/INTERVENTION: The University of Pittsburgh Physicians General Internal Medicine (UPP-GIM) assembled a team of physicians, nurses, medical assistants, a pharmacist, and a facilitator to redesign outpatient clinic operations to meet requirements for NCQA Medical Home Certification. One of these requirements is outreach to recently-discharged clinic patients.The group concluded this outreach might best be done by a pharmacist, who could help reconcile pre-admission and discharge regimens, counsel patients about the correct way to take meds, address patient questions about meds, encourage compliance, and uncover potential drug-drug interactions. A daily report was obtained from the University of Pittsburgh Medical Center Health System (UPMC-HS) containing a list of all patients of UPP-GIM discharged to home from UPMC-HS hospitals the previous day. UPMC-HS includes 18 hospitals across Western Pennsylvania. The clinic is housed in one of these hospitals and the vast majority of clinic patients are admitted to a UPMC hospital. The pharmacist attempted to call all patients within 2 days of discharge, with the exception of obstetrical and psychiatric discharges. Prior to the call, the pharmacist would review the discharge med list (from the hospital EMR) and the patient's prior outpatient lists (from the separate clinic EMR) and screen the lists for potential interactions. During the call, he would ask the patients what meds they were taking, review all meds for indication and safe usage instructions, and identify and resolve med-related issues. After the call, the pharmacist would document the call, reconcile the med list, and make recommendations to the physician for changes if needed.

OBJECTIVES OF PROGRAM/INTERVENTION: Primary: (1) Ensure patient compliance by verifying that patients are taking their meds properly and counseling them on correct usage, (2) identify and mitigate causes of non-compliance, (3) detect potential safety issues (e.g. side effects and interactions), and (4) reconcile the outpatient med list with discharge medications. Secondary: Decrease readmission rate and adverse drug events.

FINDINGS TO DATE: Between October and December, 2008, approximately 56 patients qualified for outreach. Of these, 42 were contacted. 37 required counseling regarding proper med administration, 14 reported undocumented side effects, 10 had been discharged on a new med, and 3 had not filled new prescriptions yet. Two who could not afford the meds were referred to social work. Pharmacist recommended that 2 meds be changed for cost and that 5 be changed because of side effects, making specific recommendations for alternatives. Pharmacist had to update or change the outpatient med list in 10 cases.

KEY LESSONS LEARNED: Pharmacist outreach to discharged clinic patients facilitated med reconciliation and identified unmet informational and financial needs of patients. Pharmacist intervention resulted in recommendations for med changes for cost and side effects. Studies on the effect on readmission rate and on physician satisfaction are underway.

PILOT OF EPRESCRIBING IN A GENERAL INTERNAL MEDICINE CLINIC G.S. Fischer[1]; C. Zielinksi[2]; A. Aspinall[2]; A. Fiorillo[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 204410)*

STATEMENT OF PROBLEM OR QUESTION: In electronic prescribing (eRx), providers generate prescriptions (Rxs) using technology that maintains a medication (med) list, checks for drug-drug and drug-allergy interactions, electronically transmits Rxs to pharmacies, receives refill requests electronically, displays formulary information from the patient's Pharmacy Benefits Manager (PBM), and provides access to meds dispensed to the patient within a fixed time period. eRx is a requirement for NCQA Medical Home certification and is encouraged by CMS. We wished to implement the eRx package of our electronic medical record (EMR) in an outpatient general internal medicine (GIM) clinic and determine its effect on workflow and clinical decision-making.

DESCRIPTION OF PROGRAM/INTERVENTION: The University of Pittsburgh Medical Center has deployed EpicCare (Epic Systems, Inc,. Madison, WI) as its ambulatory EMR. To deploy eRx, a multidisciplary team including Epic representatives, IT systems analysts, operations analysts, RNs and MDs met weekly to determine clinical and operational workflows, validate build, resolve problems, and develop a training strategy. eRx was piloted in an academic GIM clinic with 40 faculty, 32 residents, and 28 clinical staff. eRx was implemented in 2 phases. Phase I, starting Jan, 2008, involved electronic transmission to and from retail pharmacies. Phase 2, which started in Sept, 2008, added formulary information and dispensed meds history. Prior to both phases, operations and systems analysts did training demonstrations for MDs and staff and were available on site for the first 2 weeks to help resolve problems. Questionnaires about prescription work flows were distributed to MDs, staff, and patients before and after Phase 1.Plans are underway to distribute post-Phase 2 questionnaires and to survey patients.

OBJECTIVES OF PROGRAM/INTERVENTION: 1. To successfully implement eRx in an academic GIM clinic. 2. To determine the acceptability and effect on workflow of eRx from the perspective of MDs and staff. 3. To learn about the clinical utility of existing eRx functionality, particularly formulary and med dispense history data.

FINDINGS TO DATE: Phase 1 began in Jan 08, and phase 2 in Sep 08. From Jan until Dec 08, 52,414 Rxs were sent electronically, and we received 4,416 refill requests. Comparing survey response before phase 1 with after, the percent responding very satisfied was as follows: Ease of placing a Rx order – MDs 28 to 78%, RNs 29 to75%; Time to resolve Rx request – MDs 17 to 67%, RNs 14 to 50%; Overall satisfaction – MDs 11 to 67%, RNs 14 to 63%. RNs felt the average time spent to process a refill request went from 6.5 mins to 2.3 mins. During Phase 2, MDs found that med substitutions suggested by the eRx system were often nonsensical (e.g. recommending IV formulations instead of pills) and that formulary alerts ignored automatic generic substitution. As a result, MDs felt formulary information and suggested substitutions were generally not useful. Med dispense hx allowed MDs to discover meds that the patients did not report taking (including opioids).

KEY LESSONS LEARNED: 1. Careful planning and training can lead to success of eRx in a large, academic GIM clinic. 2. Electronic transmittal to and from retail pharmacies is well received by staff and MDs. 3. Suggested substitutions for non-formulary meds are not always clinically appropriate. 4. Systems need to account for automatic generic substition when reporting formulary status of meds.

REDESIGNING ROLES AND MEASURING CARE C.J. Standiford[1]; H. Choe[1]; S.J. Bernstein[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205451)*

STATEMENT OF PROBLEM OR QUESTION: It is hoped that the Patient Center Medical Home (PCMH) will improve quality and care coordination through increasing support to primary care physician practices. The PCMH model is based on a physician-directed medical team that shares responsibility for the ongoing care of patients. It requires clinical redesign to train providers and staff to work together as a team and optimize each team member role. In addition, to assure that the PCMH actually leads to improved care, groups must objectively assess outcomes.

DESCRIPTION OF PROGRAM/INTERVENTION: At the University of Michigan we have 9 general internal medicine practices that include 64 clinical faculty and 120 internal medicine residents. In 2006–2007 we focused on implementing the Chronic Care Model through participation in the Association of American Medical Colleges (AAMC) Chronic Care Collaborative. We are currently partnering with and receiving payments from Blue Cross Blue Shield of Michigan (BCBSM) to implement the elements of a PCMH. As we develop our care coodination model, we are continually redefining and expanding support staff roles to optimize the team approach to patient care.

OBJECTIVES OF PROGRAM/INTERVENTION: Our goals are to redesign the work appropriate to the level of training/professionalism of our team members and improve job satisfaction for all members of the team, including physician, and patient satisfaction. Through this work we have developed a series of delegation protocols and collaborative practice agreements and measured outcomes of care.

FINDINGS TO DATE: Through a delegation protocol our medical assistants are trained to provide influenza and pneumovax to eligible patients before the physician enters the exam room. This has resulted in the immunization rates for influenza and pneumovax increasing by 9% and 21%, respectively, across our general medicine practices. Medical assistants have also been trained to work with patients to set and document self management goals and provide a follow up phone

call. We have developed a medication renewal protocol that is used by our licensed practical nurses to renew routine medications until the next appointment for patients who have missed their planned visit. Our clinical pharmacists have a collaborative practice agreement which allows them prescriptive authority to adjust or start new medications for select chronic conditions (e.g., antihypertensive medications). This has resulted in a 10% improvement in blood pressure control in our patients with diabetes under a clinical pharmacist's care. We have developed a statin intensification protocol which is used by our clinical pharmacists and nurses to intensify statin medications in our patients with diabetes and coronary heart disease. We are piloting "panel managers" to "work" the registry data, arranging for patients to return for appointments or testing. We are working with site based social workers and transitional care managers to coordinate the care of the most vulnerable of our patients. For several of the interventions we have measured quality of care indicators and will share what seems to work, what hasn't, and why.
KEY LESSONS LEARNED: Redesigning clinical care is not easy, but it is of paramount importance to implementing the PCMH. It requires physician consensus, staff member buy-in, protocol development, training, and measurement to assess effectiveness of the intervention.

REDUCING IATROGENIC PNEUMOTHORAX: MAKING CENTRAL VENOUS CATHETER PLACEMENT SAFER L. Shieh[1]; P. Maggio[1]; L. Meinke[2]; K. Bowes[3]; J. Lee[1]; D. Sedehi[1]; F.G. Mihm[1]; I. Tokareva[1]; N. Szaflarski[1]; J. Hopkins[1]. [1]Stanford University, Stanford, CA; [2]University of Arizona, Tucson, AZ; [3]Misawa Air Force Base Hospital, Misawa, . *(Tracking ID # 205000)*

STATEMENT OF PROBLEM OR QUESTION: The Agency for Healthcare Research and Quality (AHRQ) has adopted Iatrogenic Pneumothorax (IAP) as a Patient Safety Indicator. From 2006–07 our institution was ranked within the lowest United Healthcare Consortium performance quartile for IAP. In response, we established a multidisciplinary team to reduce our rate of IAP.
DESCRIPTION OF PROGRAM/INTERVENTION: A Quality Improvement (QI) Team was formed with representatives from the departments of medicine, surgery, critical care, anesthesia, emergency medicine, simulation, nursing, and hospital quality. We performed detailed analysis of all 2006–07 IAP, and identified three important findings:(1) the majority of IAP were due to central venous catheter (CVC) placement, of which 70% were from the subclavian approach; (2) some IAP occurred with inadequately supervised housestaff; and (3) medical record documentation of CVC placement was poor. Our goal was to reduce the rate of IAP from CVC placement by 50%. Our strategy used evidence-based medicine to promote ultrasound guided IJ as method of choice for CVC placement.
OBJECTIVES OF PROGRAM/INTERVENTION: Implementation was carried out in two phases: Phase 1 (Physician Education): We developed a website curriculum for IJ ultrasound-guided CVC placement. In addition, a CVC Simulation Program was created for ultrasound guided IJ placement in our simulation center for all incoming medical, surgical, anesthesia, and emergency medicine interns. To reinforce the curriculum's teaching and to disseminate this information more widely, we created two educational tools: (1) a checklist with evidence based practices for CVC placement distributed via central line kits; (2) CVC procedure note template with California Department of Public Health documentation requirements. Phase 2 (Culture change/physician buy-in): Leaders of our critical care and surgical services promoted ultrasound guided IJ as the method of choice for CVC placement. The subclavian approach was limited to cases when the ultrasound guided IJ was contraindicated or not available. Our institutional policy requires that the first 5 CVCs by residents be supervised by a physician who has successfully inserted and documented the placement of 5 CVCs. In our ICU, all CVC placement by residents is supervised by an ICU fellow or attending.
FINDINGS TO DATE: After implementation of the processes described, CVC related IAP cases decreased from 16 (1Q-3Q07) to four (4Q07-3Q08), a 75% reduction in CVC related IAP.
KEY LESSONS LEARNED: Our biggest challenge was physician buy-in. We found it took strong leadership to intitiate culture change, and evidence based guidelines helped support that change. Standardization was also key to reduce practice variation. Partnership with hospital leadership helped provide funding for our simulation workshops and ultrasound equipment. This allowed us to use new technology to make patient care safer. Finally, the most important lesson learned was the importance of multidisciplinary teamwork. We would not have been able to achieve our results without the combined efforts of representatives from the departments of medicine, surgery, critical care, anesthesia, emergency medicine, simulation, nursing, and hospital quality.

THE REDUCTION OF THE NO-SHOW RATE WITHIN AN ACADEMIC OUTPATIENT COMMUNITY CLINIC L. Burgess[1]; L.A. Bowlby[1]. [1]Duke University, Durham, NC. *(Tracking ID # 205544)*

STATEMENT OF PROBLEM OR QUESTION: The Duke Outpatient Clinic (DOC) needed to reduce the patient no-show rate as it was at at a high of 24%.
DESCRIPTION OF PROGRAM/INTERVENTION: The patient no- show rate had climbed to 24% a the DOC. The practice leaders wanted to understand why the rate was so high and create tools, processes or mechanisms necessary for reduction. When patients do not show for their scheduled appointments it affects resident education. It creates wasted effort on the residents part and can negatively affect overall patient outcomes. Additionally, chronic disease management, continuity and patient monitoring are affected. Finally, there is a significant financial aspect and affect when patients do not show for their appointments.
OBJECTIVES OF PROGRAM/INTERVENTION: We determined, using extensive data review, the following: who was not showing, when they were not showing, how the appointment was scheduled, longevity with the practice, demongraphics of no-show population and appointment type. Use this information we wanted to reduce the no-show rate via: understanding of the patient and physician data, creation of policies as needed, implementation of resident processes for follow up with patients, creating relationships between schedulers, physicians and multiple hospital sites and staff adjustments as needed based on data analyses.
FINDINGS TO DATE: The Duke Outpatient Clinic was able to reduce the patient no-show rate from 24% in 2006–07 to 19% in 2007–2008 and then to 16% in 2008–09.
KEY LESSONS LEARNED: To reduce the no show rate, entities will need to: understand/analyze the data from the site that is having the no-show challenge, create policies for patients who do not show, create processes that connect residents with their patients for follow up and follow through, understand the financial impact of patient who do not come to their scheduled appointments and create relationships and improved communications with the staff who provide the scheduling services to patients.

THE USE OF PRE-VISIT SURVEY TO IMPROVE PATIENT SATISFACTION BY MEETING PATIENTS' EXPECTATIONS M. Cho[1]; D. Levine[2]. [1]Wayne State University, Troy, MI; [2]Wayne State University, Detroit, MI. *(Tracking ID # 205872)*

STATEMENT OF PROBLEM OR QUESTION: Effective communication between a patient and a physician is critical to meeting patient expectations in primary care. Unmet expectations are predictive of low patient satisfaction. Previous study found that patient expectations were met when the patient or the physician directly articulated an agenda for the visit. At Wayne State University, internal medicine residents see urban patients who often have chronic conditions and multiple barriers to adherence. We need a system to facilitate effective patient-doctor communication to meet the demands of our patients efficiently.
DESCRIPTION OF PROGRAM/INTERVENTION: To address patient expectations, we performed a pilot study to address the effectiveness of a Patient Agenda Form (PAF). The PAF queried the patient's reason for visit: new problem, follow up of chronic condition, diagnosis, lab results, medications, referral, forms, or pain control. It also contained a review of systems section to allow patients to identify additional issues they want to address during that visit. PAFs were distributed randomly to patients prior to seeing their doctors. After the visit, a patient survey was distributed to those who received the PAF and those who did not to evaluate the role of PAF in addressing patients' agendas and overall satisfaction of their visit. A physician survey was also distributed to evaluate whether PAF augmented communication and improved efficiency of the visit.
OBJECTIVES OF PROGRAM/INTERVENTION: Our aim was to optimize each visit to meet the demands of our patients while addressing their chronic conditions. We believed that the pre-visit PAF would enhance patients' awareness of their diseases and allow the opportunity

to reflect and communicate their expectation for each office visit. We proposed that the PAF would enhance patient-doctor communication to facilitate meeting patients' agendas and improving patient satisfaction, as well as improving physician-perceived efficiency.
FINDINGS TO DATE: Forty-four patients participated in the study. The majority (95.5%) of patients receiving PAFs thought they were helpful in communicating with their doctor. However, using Fisher's Exact Probability Test, we found no significant difference in patient satisfaction or meeting specific expectations between the group that received PAF and the group that did not. Though it is difficult to interpret this result due to small number of study, we hypothesize that this is due to high satisfaction rates perceived by our patients, as has been shown previously (data not published). We also measured the provider-perceived efficiency of the PAF. Approximately half of the residents (45.6%) felt that it did not improve patient communication and 63.3% of residents felt it was either neutral or impaired visit efficiency.
KEY LESSONS LEARNED: The discrepancy between the patient satisfaction and efficiency perceived by the physician raises an important concept in medical education. The balance between patient-centered care and physician satisfaction may be difficult. Additionally, patient satisfaction relates to achieving the patient's agenda whereas physician satisfaction also encompasses patient flow and staying on time. Even though solicitation of patients' agenda may increase visit time, the gain in physician understanding of the patients needs are invaluable. However, this study shows that more research needs to be done to find ways to address patient satisfaction without compromising physician satisfaction and efficiency.

TRACKING ABNORMAL CERVICAL CANCER SCREENING E. Dupuis[1]; H.F. White[1]; D. Newman[2]; J. Sobieraj[2]; K.M. Freund[1]. [1]Women's Health Unit, Boston University School of Medicine, Boston, MA; [2]Section of General Internal Medicine, Boston University School of Medicine, Boston, MA. *(Tracking ID # 204076)*

STATEMENT OF PROBLEM OR QUESTION: Inadequate follow-up of abnormal cervical cytology contributes to the development of cervical cancer, especially in low-income and racial/ethnically diverse populations. Patient and system level barriers have been attributed to high rates of inadequate follow-up of Papanicolaou (Pap) tests.
DESCRIPTION OF PROGRAM/INTERVENTION: We implemented an electronic medical record (EMR)-based Pap test tracking system at two clinical practices at Boston Medical Center. Utilizing cytology results available in the EMR, the tracking system includes 1) the generation of a provider-specific monthly report of all abnormal Pap results, and 2) a patient-specific Pap tracking table embedded in the EMR for each patient. We compared abnormal Pap test follow-up rates for the 24 months prior to availability of the tracking system intervention (pre-test) with rates 12 months following its implementation (post-test), allowing for a 3 month start-up phase.
OBJECTIVES OF PROGRAM/INTERVENTION: The primary goal of this tracking system intervention is to reduce rates of inadequate follow-up of abnormal Pap tests by addressing systems barriers to care.
FINDINGS TO DATE: Among 137 women with abnormalities in the pre-test group and 69 in the post-test group, subject characteristics included: 31% ages 18–25, 34% ages 26–35, and 35% ages 36 and over; 42% were white, 37% African American; 88% were English-speaking; 40% had some form of private health insurance, while 48% were insured through public or subsidized insurance (Medicaid, Medicare, Massachusetts Commonwealth Care). The most common cervical abnormalities were LGSIL (60%) and ASCUS/HPV+ (29%). There were no differences in demographic or Pap abnormality characteristics between the pre- and post-period groups. In the pre-test period, 10 of 137 (7%) women had no diagnostic resolution of their cervical abnormality; in the post-test period, only 2 of 69 (3%) had no resolution (Fisher's Exact Test=0.34). After multivariate analysis controlling for type of abnormality and practice location, patients in the post-test period were significantly more likely to resolve than patients in the pre-test period (OR=0.065, p=0.0002). The mean time to resolution decreased significantly from 154 days in the pre-period to 82 days in the post-period (p=0.02). Multivariate analyses (controlling for type of abnormality and practice location) confirmed this (HR=1.4, p=0.02), indicating that patients in the post-test period were more likely to achieve diagnostic resolution in a shorter period of time.
KEY LESSONS LEARNED: In an at-risk urban population, an automated, EMR-based tracking system reduces the time to resolution, and decreases the number of women who never achieve diagnostic resolution.

TRAINEE SAFETY AT HOME AND ABROAD: A PRACTICE INNOVATION IN RESOURCE-POOR HOSPITAL SETTINGS S.L. Russell[1]. [1]Massachusetts General Hospital, Jamaica Plain, MA. *(Tracking ID # 205104)*

STATEMENT OF PROBLEM OR QUESTION: Increasing numbers of residents and medical students are participating in rotations in resource-poor settings. In the absence of safe venipuncture systems, needle sticks occur frequently and trainees are at risk.
DESCRIPTION OF PROGRAM/INTERVENTION: In recent years, a growing number of training programs and medical schools have expanded the scope of clinical training to include rotations in resource-poor hospital settings, from rural America to southern Africa. Massachusetts General Hospital has a long-standing relationship with Edendale Hospital in Pietermaritzburg, South Africa. During month-long rotations, residents work closely with their local counterparts in the care of patients. In the past year, MGH residents witnessed a colleague sustain a needle stick from a large-bore, hollow needle while drawing blood on an HIV-positive patient. Based on the high-risk nature of the blood-drawing system, needle sticks are not uncommon in places like Edendale. The Infection Control Department at this hospital, which tracks needle sticks, noted that five physicians are stuck per month and at any time, up to five physicians are taking post-exposure prophylaxis. A colleague's exposure inspired an innovative program that is cost-effective, sustainable, and easily replicable in both domestic and international settings. The program is based on a partnership with Becton-Dickson Company (BD), an American maker of "Safety-Loc" needle systems, and guarantees cheaper, safer needles when purchased in bulk for resource-poor hospitals. A "Safety-Loc" system uses a push-button retractable needle to protect the handler and replaces the current system of a separate unsheathed needle, syringe, and vacutainer. The program is sustainable because the cost of the safety-loc system is cheaper per unit. Direct distribution from BD makes this cost-effective.
OBJECTIVES OF PROGRAM/INTERVENTION: 1) Eliminate or significantly reduce the risk of blood-borne exposure through needle sticks. 2) Decrease the risks associated with patient care for residents and medical students on electives in resource-poor settings. 3) Train local and visiting physicians and medical students in effective and safe phlebotomy techniques. 4) Establish partnerships with local Infection Control Departments.
FINDINGS TO DATE: 1) A "lead-in" period of data collection in the second part of 2008 has shown that on a monthly basis, five physicians, on average, sustain a needle stick in the Departments of Medicine and Pediatrics. As of January 2009, the pilot intervention begins with the Infection Control Department tracking needle sticks in these areas. 2) The "Safety-Loc" system occupies less space in storage than the prior needle/syringe system. 3) Despite compact packaging, "Safety-Loc" needles fill disposal units more quickly; the units in turn require more attention from maintenance staff.
KEY LESSONS LEARNED: 1) Needle safety interventions are more successful if cost-saving to the hospital. 2) Changes in phlebotomy behavior require significant inputs of training and "buy-in." 3) Infection Control Departments play a key role in assessing and managing safety-based interventions.

USING INFORMATION TECHNOLOGY TO FACILITATE SHARED DECISION MAKING REGARDING CANCER SCREENING C.D. Brackett[1]; N. Cochran[2]; S. Kearing[3]; W.B. Brooks[1]. [1]Dartmouth-Hitchcock Medical Center, Lebanon, NH; [2]WRJ VAH, WRJ, VT; [3]The Dartmouth Institute, Hanover, NH. *(Tracking ID # 205897)*

STATEMENT OF PROBLEM OR QUESTION: Decision aids (DAs) have been shown to facilitate shared decision making (SDM) about cancer screening. Our previous work involved automatically mailing prostate cancer screening (PSA) video DAs to all men aged 50–75 and offering colorectal cancer screening (CRC) video DAs to age eligible patients prior to a preventive medicine visit. After this year-long effort, we needed to

adapt the distribution strategies in order to continue to effectively distribute DAs to appropriate patients prior to their clinician visit and to reduce the expense and effort involved in mailing and tracking hard copy DAs.

DESCRIPTION OF PROGRAM/INTERVENTION: Patients complete a web-based health history questionnaire (at home or in clinic) before their preventive medicine appointment. Age and gender appropriate patients are asked further questions to determine eligibility for PSA or CRC screening. Screening-eligible patients are presented with a brief description of the screening decision to be made, asked their screening preference, and offered the choice of a video or print DA. DAs are offered for immediate online viewing (for those completing at home) or for pick up at the appointment. Patients are then asked to complete questions assessing their knowledge and values regarding the screening question. Feedback on incorrect answers to knowledge questions and another offer of further information are displayed on a written report given to the patient. Patients' screening choice and responses to knowledge and values questions are fed forward to a clinician report available at the visit.

OBJECTIVES OF PROGRAM/INTERVENTION: To facilitate SDM during the clinician visit by using information technology to: 1) identify cancer screening eligible patients who desire a DA before the visit, 2) deliver the DA through the web, 3) assess the patient's preferences, uncertainty, knowledge and values, and 4) feed that information forward to the clinician.

FINDINGS TO DATE: The questionnaire properly identified patients eligible for screening: 864 for PSA and 538 for CRC. 515 patients completed the questionnaire at home, and 887 completed it in clinic.18% of eligible patients requested a DA, with the majority of those preferring the written format over video. Online delivery of the DA was chosen by a minority of patients requesting a DA before the visit. 19% of patients declined a DA because they preferred the doctor make the decision. Many patients declined a DA because they "already know enough to make their decision" (52% for PSA, 40% for CRC). Knowledge scores for this group were higher than for patients choosing a DA (86% vs. 65% correct for PSA, 49% vs. 43% for CRC). 52% of patients had received the PSA DA during the prior intervention, and their knowledge scores remained high compared to those who had not yet received the DA (87 vs. 69%). Only 4% had previously received the CRC DA.

KEY LESSONS LEARNED: A web based health history questionnaire provides an efficient means to identify patients eligible for cancer screening and offer them DAs before an appointment. Although many patients appropriately chose not to view a DA based on prior knowledge and experience, DA viewing rates among the remaining patients were lower than hoped. We hope to improve this by changing the language in the questionnaire from "offering" to "recommending" the DA. Although viewing DAs before the visit better facilitates SDM during the visit, patients preferred to receive DAs at the visit-likely due to time pressure while completing the questionnaire.

USING RFID IN THE OUTPATIENT SETTING: INITIAL EXPERIENCE COMPARING 2 CLINICS J.E. Stahl[1]; J. Holt[2]; N. Gagliano[2]. [1]Harvard University, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205100)*

STATEMENT OF PROBLEM OR QUESTION: We are living in an era of increasingly limited medical resources, i.e., physicians and physician time, and rising demand. Outpatient clinical practices are the main interface between the health system and the population. Understanding how they actually behave is critically important. Indoor positioning systems (IPS) hold the promise of being able to track patient and workflow objectively, unobtrusively and comprehensively within the work environment.

DESCRIPTION OF PROGRAM/INTERVENTION: The system used in this study is a low power Active RFID system with supplemental IR. The system has a 10-second temporal resolution and <2 meter-squared spatial resolution. The primary outcomes were flowtime (time from initial registration at check-in to the time the patient checks out), wait time (time from check-in to first service) and face time (the time patients and clinicians were in the same room at the same time) and flow-dwell time maps. Two separate clinics were chosen for the evaluation. One was a traditional primary care clinic (PC) with templated (preset timeslots) appointments (15 min, 30 min) the other was an urgent care clinic (UC) with a first-in, first-out scheduling model and unconstrained visit time. Clinical staff – physicians, nurses and front desk staff - all wore transponders throughout the clinic day. Patients were given transponders at patient check in and asked to carry them through the course of their visit up until check out. Both patients and staff were allowed to opt out from wearing the transponders. The study was approved by the hospital's IRB. Standard descriptive and comparative statistical methods were used where appropriate. Data was analyzed using JMP software (SAS, Cary, NC)

OBJECTIVES OF PROGRAM/INTERVENTION: The purpose of this study was to determine if a radiofrequency-identification (RFID)-based IPS could reliably capture clinical behavior in the outpatient setting.

FINDINGS TO DATE: Data for this phase of the project was gathered from April 30 - July 1, 2008 during the AM shifts. 309 patients volunteered to be tracked in the PC clinic and 217 in the UC clinic. Total flow time and wait time were similar in both clinics (PC=44.5 min [sd 36.9] vs UC=41.9 min [s.d. 47.5], p=ns). Wait time was significantly shorter in the PC (7.6 min [s.d. 15.8]) vs UC (19.7 min [s.d. 25.3], p<.0001), Face time was significantly longer in the PC (29.9 min, [s.d. 19.1] vs UC (9.8 min [s.d. 8.5], p<.0001). Of note time distributions for face time in the PC reflect either the template structure of the clinic or several distinct visit types. In contrast the overall facetime distribution of the UC is a smooth log normal distribution with a lower mean value. Flow-dwell diagrams reflected staff understanding of clinic behavior.

KEY LESSONS LEARNED: Our study seems to indicate that an RFID based IPS can successfully measure important clinical process measures in a live outpatient clinical setting. The technology can detect the difference in similar measures between different clinic organizational structures/ process flows and holds the potential for gaining objective insight into the behavior of tightly coupled clinical systems and measuring the consequences change.

VALIDATION OF A TOOLKIT TO ASSESS ORGANIZATIONAL PERFORMANCE IN SUPPORTING PATIENT-CENTERED COMMUNICATION M. Wynia[1]; M. Johnson[2]; T.P. Mccoy[3]; L. Griffin[3]. [1]American Medical Association, Chicago, IL; [2]Institute for Ethics at the AMA, Chicago, IL; [3]Wake Forest University, Winston-Salem, NC. *(Tracking ID # 204732)*

STATEMENT OF PROBLEM OR QUESTION: Effective communication is the foundation for high quality health care. Most communication measures focus on the patient-clinician dyad, yet communication is often affected by organizational factors, such as a hospital or clinic's internal climate and infrastructure. We created a toolkit for measuring the communication environment in health care organizations.

DESCRIPTION OF PROGRAM/INTERVENTION: A prospective validation study of an organizational assessment toolkit. The toolkit was developed intially through a national, multistakeholder expert consensus process and refined through pilot testing in 13 organizations. For this validation study, 9 diverse organizations nationwide underwent an evaluation using the toolkit, which comprises a set of matched surveys of leaders, staff and patients, as well as an internal, team-based assessment of organizational resources and structures that affect communication. Organizations were assessed in 9 content areas, or domains, and a standardized scoring system was created (scores: 0–100, with 100 indicating perfect performance in the domain according to both staff and patients).

OBJECTIVES OF PROGRAM/INTERVENTION: This study aimed to determine whether: (1) communication performance can be reliably measured at the organizational level; (2) communication performance varies between organizations; and (3) communication performance within organizations varies across 9 discrete domains.

FINDINGS TO DATE: A geographically and demographically diverse group of 5 hospitals and 4 clinics participated. Completed surveys were received from 1,763 patients (13% African American, 39% hispanic/latino, 29% with limited English proficiency), 651 staff members (44% clinical, 56% non-clinical), and 29 organizational executives. Survey reliability as measured by internal consistency in each of the 9 domains was acceptable for both patient survey measures (range of Cronbach's alpha: 0.59–0.90) and staff survey measures (range: 0.69–0.96). Scores demonstrated considerable within-site and between-site variability and all sites showed strong results (scores>80) in some communication domains but weaker results (scores<60) in others. No domain received consistently low or high scores across all sites; the lowest range observed was in the domain "Understanding Organizational Commitment" where the lowest scoring organization was 67.2 and the highest was 76.6.

KEY LESSONS LEARNED: Organizations can undertake a valid, 360-degree assessment of organizational support for effective communication in 9 distinct domains using matched patient, staff and executive surveys. Assessment results may be useful for tracking organizational performance, benchmarking, and to inform tailored quality improvement interventions.

VIDEO-TRANSLATION OR FAST-TRACKING FOR LIMITED ENGLISH PATIENTS IN AN URGENT CARE SETTING: A SIMULATION ANALYSIS J. Stahl[1]; A.T. Carter[2]; R. Squires[2]; B. Denton[2]. [1]Harvard University, Boston, MA; [2]North Carolina State University, Raleigh, NC. *(Tracking ID # 205110)*

STATEMENT OF PROBLEM OR QUESTION: A large proportion of primary care is accessed through either Urgent care clinics or emergency departments. These settings typically have a relatively high proportion on non-English or limited English speakers (LEP). This language barrier creates at potential barrier to care, potentially limiting patients' ability to communicate their concerns or symptoms to clinicians, access to care itself, lengthening the clinical interaction and to poorer health outcomes. Unfortunately, properly trained translators are a scarce resource and delays waiting for translator can cause knock on delays and bottlenecks in the system. LEP compete with everyone else for the same clinical resources, e.g., beds and clinician time. Improving LEP access should improve the dynamics of the whole system. This may be done through changes in policy or through changes in technology. Two strategies are examined: LEP Fast tracking and centralized translation services with videophone access.
DESCRIPTION OF PROGRAM/INTERVENTION: We used discrete-event simulation for this model. Discrete event simulation is a computer simulation method that explicitly allows process flow, queues and resource utilization to be modeled directly. The probability of events and duration of events are typically drawn stochastically. These probability and time distributions are derived from either empiric or theoretic data. In the case of this project these were derived using an RFID tracking system currently deployed in the target clinic and expert opinion. DES is designed to capture flowtime, wait time, utilization and the interdependency of events so is well designed for the purpose of this study. All models were developed, instantiated, run and tested in SIMAN, a general purpose discrete-event simulation language and on the ARENA 11 platform (Rockwell Software, Inc.). A comparative analysis of three scenarios was then performed: 1) current base-case where English speaking and LEP patients are seen on a first-in, first-out basis and translators are called as needed when the patient arrives at the head of the queue, 2) A scenario where patients in need of a translator are fast-tracked or jump queue and translator is called as needed and 3) a centralized translator service with videophone access, where translators are called as needed. The below analysis assumed one translator per language group on call.
OBJECTIVES OF PROGRAM/INTERVENTION: Evaluate the effect of fast-tracking vs the use of centralized video translation services for limited English patients
FINDINGS TO DATE: Average flow time for all patients was 98.6 +/- 4.8. Wait time for all comers was 40. 2 min (range 16.5–63.8 min). Flow time was significantly different for LEP patients. (Current 92.7 + /- 21.6, FT 68.8 + /- 14.4, Video 70 + /- 17.4, $p<.05$). For the LEP subset of patients, WT for a translator was (Current 30.4 min +/-7.2, FT 28.3 +/-6, Video 8.7 +/- 4.2, $p<.05$). Translator utilization remained relatively stable across strategies (Current .32 + /- .08, FT .31 + /- .08, Video .33 + /- .08, $p<.05$).
KEY LESSONS LEARNED: Both the fast tracking and centralized video access strategies performed better with regard to wait time and flow time for LEP patients than standard practice while keeping translator utilization relatively constant.

A NOVEL CURRICULUM TO STIMULATE INTEREST IN SUBSTANCE ABUSE RESEARCH A.L. Kalet[1]; T.K. Ark[1]; C. Gillespie[1]; F.G. More[1]; M. Naegle[1]; J. Lee[1]; S. Oh[1]; S. Ross[1]; M.N. Gourevitch[1]. [1]New York University, New York, NY. *(Tracking ID # 205196)*

URL & LOG IN INFORMATION: URL: http://edinfo.med.nyu.edu/saret/saret.html ID&password:sgim1,sgim2

BACKGROUND: Researchers in substance abuse (SA) are few in number, despite the great need for work in this field. The goal of SARET (Substance Abuse Research Education and Training) is to engage graduate health professional students (i.e. nursing, dentistry and medicine) in considering SA research careers. SARET is a multifaceted initiative built around a core curriculum of 8 web-based, rich media modules and stipend-supported mentored research.
CONTENT: We piloted a 30 minute, web-based "activation module" entitled 'Investigators needed' to pique learners' interest in enrolling in SARET. The module introduces participants to cutting edge SA research by showcasing four filmed interviews with nationally recognized, NIDA-funded researchers. The investigators discuss their work, which includes: determining relapse risk factors, the role of alcoholism in HIV, using brain imaging to understand addiction in adolescents, and challenges of human subjects SA research. Participants are simultaneously introduced to principles of sound research design through application of the Patient/Population, Intervention, Comparison and Outcome ('PICO') formula.
DESIGN: In this module students complete a brief survey (pre-test) on their current interests in SA research and a quiz on interesting SA facts, learn about the PICO formula, read module objectives and watch 4 filmed interviews separated by open-ended questions that participants answer. The module ends with a post-test and an opportunity to participate in an online forum. A week later students are sent an online survey asking detailed questions about their experiences with the module. Module design features are based on principles of adult learning (i.e. self-directed learning, goal- and relevance-oriented), multimedia theory (i.e. dual channel, limit cognitive load, utilizing interactivity), social network theory (i.e. forums for discussion) and cognitive principles (i.e. visual imagery, mnemonics and chunking). The module is built into the open source, web-based program called Learning Activity Management System (LAMS).
EVALUATION: In our pilot of 2nd and 3rd year dentistry students, 376/378 completed the module and 277 completed the online survey sent the following week (74% response rate). Students reported being more interested (somewhat and very interested) in SA research after viewing the module than before (57% vs. 22%). Students stated the video/cutting-edge research questions (74%), quiz questions (72%), presentation of content (70%) and PICO principles (68%) helped (some to a lot) them understand key elements of SA research. Thirty-seven percent of the students actively discussed the module content in the on-line forums. Lastly, 35% of students requested more SARET program information and 60% stated they wanted more information about the cutting edge research questions presented (i.e. methodological design, preliminary results, outcome measures).
SUMMARY: The goal of this web-based module is to use various multimedia and adult learning techniques to encourage young health care professionals into the field of SA research. These preliminary findings will inform the development and evaluation of the remaining 7 modules of the SARET curriculum. In the coming year we will track the extent to which this module motivates enrollment in the SARET program and compare data on those who don't enroll to identify the factors that predict participation in mentored research programs.

A WEB-BASED MODULE TO FACILITATE THE DIRECT OBSERVATION OF TRAINEES S.G. Reddy[1]; E. Holmboe[2]. [1]American Board of Internal Medicine, Philadelphia, PA; [2]Yale University, Philadelphia, PA. *(Tracking ID # 205082)*

URL & LOG IN INFORMATION: http://www.abim.org/online/default.aspx Contact Siddharta Reddy (215-606-4140, sreddy@abim.org) for login information. Sample Summary Report available at http://www.abim.org/pdf/publications/Clinical-Supervision-Screenshots.pdf
BACKGROUND: A large body of research evidence has demonstrated that trainees lack competence in medical interviewing, physical examination and informed decision-making. In addition, many quality and safety processes of care are not adequately performed. Supervising physicians are required to evaluate trainees' clinical skills, have a responsibility to provide the learner with sufficient and timely feedback, and to ensure that clinical care provided by the learner is of high quality and safe. Direct observation should be the primary means of assessing these competencies. Unfortunately, research shows direct observation and systematic review of care delivered by trainees occurs infrequently.

CONTENT: The American Board of Internal Medicine (ABIM) developed the web-based Clinical Supervision Practice Improvement Module (CS PIM), which enables diplomates to fulfill their Evaluation of Practice Performance requirement for Maintenance of Certification (MOC). The module provides a mini-CEX-based framework for evaluating trainee clinical skills and patient care using direct observation. The module also asks the physician to identify and document up to three things the learner did well, three things the learner could improve, feedback given, and any changes the trainee made between clinical encounters (if applicable). A medical record audit facilitates review of the trainee note for accuracy and performance on core patient safety measures.
DESIGN: A summary report is generated after completion of at least 10 observation-audit cycles that the physician uses to reflect upon and to develop a personal action plan aimed at improving his or her own direct observation and supervision skills. A beta test was carried out in 2008 to determine how well the CS PIM facilitated the evaluation of trainees.
EVALUATION: Eighty-five diplomates enrolled in the beta test and to date 41 completed the module and a feedback survey (48%). Beta testers spent an average of 53% (20%-100%) of their time in patient care activities; 74% (10%-100%) of this time was spent supervising and teaching trainees. All participants (100%) rated the module as very good or excellent in facilitating their observation and evaluation skills. All indicated that they would recommend the module to a colleague and 90% would use it outside of MOC for teaching and supervision. As a result of completing the module, 95% of supervising physicians indicated having made changes to their evaluation strategies and 45% made changes to their own clinical practice. Means scores on the 7 mini-CEX domains ranged from 6.4 - 7.2 (9-point scale), but faculty provided ratings from 2–3 (poor) to 9 (superior) on all 7 categories. Finally, module navigation and data transfer via the Internet presented no difficulty for 95% of users.
SUMMARY: This CS PIM was well received by supervising physicians as a means of observing and documenting trainee clinical skills. More importantly, it resulted in changes in the way they observed and assessed trainees, and enabled participation in quality improvement through the evaluation of clinical care provided by their trainees. The CS PIM successfully integrates a validated direct observation measure and a key patient safety component into a user-friendly, web-based option for supervising physicians in MOC.

AN INNOVATIVE, INTERACTIVE WEB-BASED MODULE TO BUILD MEDICAL RESIDENTS' COMPETENCIES IN CHRONIC ILLNESS CARE FOR DEPRESSION D.N. Gutnick[1]; S. Cole[2]; K. Remus[1]; C.J. Daetwyler[3]; D.H. Novack[3]. [1]New York University, New York, NY; [2]State University of New York at Stony Brook, Stony Brook, NY; [3]Drexel University, Philadelphia, PA. *(Tracking ID # 203687)*

URL & LOG IN INFORMATION: http://webcampus.drexelmed.edu/moccod/hhc/PHQ9.htm
BACKGROUND: In this abstract, we describe a web-based learning module created to teach residents how to apply the principles of the Chronic Illness Care Model (CICM) to depression (-D) management. NYC's Health and Hospitals Corporation (HHC), the largest municipal hospital and health care system in the country, serves 1.3 million New Yorkers at multiple hospitals and community clinics. Major Depressive Disorder (MDD) affects 10–13% of medical outpatients and PCPs fail to diagnose it over 50% of the time. At Bellevue (BH), we screened over 10,000 patients for MDD using the PHQ9. More than 12% had a PHQ9$\geq$10. In an effort to improve the care and outcomes for MDD and other chronic diseases, HHC made a commitment in 2004 to redesign its health delivery system for the chronically ill along the lines of the CICM. (www.ihi.org). Since then, many HHC ambulatory care clinics have developed significant infrastructure to support the CICM-D (i.e. hired care managers (CMs), implemented PHQ9 screening programs.) However, education and motivation of housestaff and attendings to participate in the program has been sporadic and non-systematic. Our educational module was developed to standardize PCP depression education across HHC facilities and to increase physician participation in the CICM-D.
CONTENT: Our web-based module, through a series of annotated videos (longitudinal case vignettes), introduces and demonstrates how four components of the Chronic Care Model (delivery system design, decision support, self-management support (SMS), information technologies (IT)) are used to enhance the care of depressed patients. It demonstrates how a provider can, within the limitations and challenges of a busy clinic session, make a diagnosis of depression, communicate with a patient about this diagnosis, initiate and titrate medication, collaborate with physician extenders for coordinated follow up care and outreach, and provide SMS. Additional videos show a brief, yet highly effective suicide assessment and intervention by a PCP, and introduce and demonstrate the IT tools developed at HHC to help facilitate effective depression management. These include an electronic version of the PHQ9, with built in decision support, and an electronic note designed to streamline CM workflow, and document and track patients' self-management goals. The module also introduces the PHQ9 as a tool that can be used to screen for depression and guide disease management, and demonstrates how our depression treatment algorithm can be easily navigated to guide medication and therapy adjustment.
DESIGN: .
EVALUATION: .
SUMMARY: At Bellevue, the module is a required part of the outpatient curriculum for all medicine housestaff. We anticipate it will be viewed by housestaff rotating through all HHC ambulatory facilities in the future. It can also be incorporated into the medical school curriculum to illustrate an effective application of the CICM into clinical practice. The authors have received grant funding to evaluate the module's effectiveness and plan to study if exposure improves and increases physicians' self-efficacy and proclivity to treat depression, knowledge of depression and the CICM-D, and if it will increase providers actual CICM-D concordant patient care activity. If effective, additional modules can be developed for other chronic diseases such as diabetes, asthma and CHF, to model specific collaborative care interventions shown to be effective in improving outcomes for each.

AN INTEGRATED PATIENT LOG AND CLINICAL ASSESSMENT SYSTEM FOR MEDICAL STUDENT EDUCATION N.B. Mehta[1]; D.R. Wolpaw[2]; J. Isaacson[1]. [1]Cleveland Clinic Foundation, Cleveland, OH; [2]Case Western Reserve University, Shaker Heights, OH. *(Tracking ID # 205553)*

URL & LOG IN INFORMATION: site: https://ectest.casemed.edu/clerkshipadministrationnew Student: username: cclmtst PW: test Faculty: username: saboj2@ccf.org PW: cclmtst
BACKGROUND: Computer-based tracking and evaluation systems are evolving at many institutions. Tracking systems such as patient logs, are often used by clerkship directors to monitor the quantity and content of student experiences. Evaluation systems have traditionally focused on summative comments and scores.
CONTENT: We sought to develop an integrated computer-based system with the following goals: Provide a patient log function that would allow for monitoring of student exposure to core clinical conditions Provide students with formative feedback based on patients seen during clinical rotations Provide summative feedback and end of rotation evaluations/grades Integrate with registrar and electronic portfolio system
DESIGN: We have developed an electronic clinical assessment system (CAS) (web-based custom built application developed on the ASP.NET and SQL platform) that combines the functions of a patient log system with formative and summative feedback from faculty to students. Students enter a log for all meaningful patient encounters and request assessments on a subset of their patient logs. Faculty preceptors receive an email with a direct link to CAS and the relevant assessment form. Clerkship directors monitor CAS for quantity and quality of feedback as well as student exposure to core clinical conditions. The system is integrated with the University Registrar database to identify student rotation assignments and to submit end of rotation reports for transcripts and records. It is also integrated with the e-portfolio system for students and their advisors to review their formative and summative assessments. There are role based permissions for reviewing reports and assessments. The system's database is populated with an updated list of all faculty in 4 major teaching sites in the city to help with authentication and assessment reminders.
EVALUATION: Quantitative data indicates that the system is widely and frequently used across all sites. In the last 30 months over 500 students have each logged an average of 350 patient and procedure logs and requested on an average of 100 formative assessments each. Over 3000 faculty and house staff have completed assessments with over 60% response rate. The assessments have been used in student ePortfolios and for generating grades. All support requests are logged and reviewed. The system was initiated in July 2006 and has had annual revisions based on qualitative feedback from students, faculty and clerkship directors and analysis of the data. Results and updates

have been presented at numerous faculty meetings and the project received a School of Medicine Scholarship in Teaching Award in 2008. Details of qualitative and quantitative evaluations can be viewed at http://www.clevelandclinic.org/gim/cas_sit_2007.pdf

SUMMARY: CAS has been instrumental in meeting the challenges of delivering high quality feedback to trainees in the current climate of busy, disseminated clinic rotations. This electronic tool has provided an effective method to monitor student exposure to core clinical conditions, allow for paperless ongoing formative and summative feedback including end of rotations evaluations and grades, stimulate faculty development in feedback skills, and enhance compliance with LCME directives. We believe this model can be adapted to the individual needs of other academic medical centers.

AN INTERNET-BASED CONSULT CURRICULUM FOR HOSPITALISTS

L.S. Feldman[1]; K. Pfeifer[2]; A.K. Jaffer[3]; S. Mckean[4]; A.N. Amin[5]; A.D. Auerbach[6]; P. Kallas[7]; P.J. Grant[8]. [1]Johns Hopkins University, Baltimore, MD; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Cleveland Clinic Foundation, Solon, OH; [4]Brigham and Women's Hospital, Boston, MA; [5]University of California, Irvine, Orange, CA; [6]University of California, San Francisco, San Francisco, CA; [7]Northwestern University, chicago, IL; [8]University of Michigan, Ann Arbor, MI. *(Tracking ID # 205830)*

URL & LOG IN INFORMATION: http://www.jhcme.com Log in is free

BACKGROUND: JHCME.com is a free consultative medicine curriculum created for the 20,000 hospitalists in the profession. Now in its second year, the website is a response to the growing role that hospitalists play in consultative medicine. According to a 1998 survey of hospitalists, "almost all hospitalists provide preoperative evaluation". The 2007–2008 Society of Hospital Medicine survey revealed that consultations comprise 8.2% of billable encounters. While the ACGME requires a "consultative experience" for internal medicine residents, the lack of a defined curriculum has left residents and hospitalists with inadequate formal exposure to consult medicine issues. We chose an online continuing medical education format after a systematic review concluded that "CME appears to be effective at the acquisition and retention of knowledge". Moreover, another study revealed that an internet-based curriculum for internal medicine residents improved knowledge.

CONTENT: The curriculum currently consists of twelve interactive modules. An advisory board comprised of hospitalist leaders and educators chose the 8 module topics for 2008.

DESIGN: Each module includes a pretest-didactics-posttest format. The didactic section introduces topic summaries only after learners answer a multiple-choice case-based question on the subject correctly. The question is meant to engage the participants and pique their interest. Pop-up message screens provide feedback on the answers selected by the learner. In 2008, the prestest and posttests were all 10 questions each.

EVALUATION: Since July 1, 2008, over 1000 users have signed up for the website. 614 (61%) of the user have completed a residency program. 292 (29%) of the learners are currently residents. 87% of the attending physicians are internal medicine trained and almost all of them (91%) perform general medicine consults. Over 50% of the attendings completed residency in the last 6 years. Another 26% completed residency 7–15 years ago. 78% of the attendings spend 60% or more of their time caring for inpatients. 66% of the attendings received 4 weeks or less of general medicine consult training during residency and 18% received no training in consult medicine. Almost all of the attendings, 92%, perform perioperative cardiac evaluations. Since July 3, 2008, over 1100 modules were completed. The first three modules introduced in 2008 have been completed more than 100 times each. 95% or more of all readers stated that the modules would "change" their practice. On a scale of 1–4, the average quality of the content was 3.83 or higher. Greater than 72% of learners rated each module as "better than average" CME. The majority of the learners thought about 25% of the content was new to them. Over 50% of the users prefer online CME to other forms of CME.

SUMMARY: JHCME.com is impacting the education of hospitalists. Most of the attendings finished residency in the last 6 years and received 4 weeks or less of training in consult medicine. Almost all of them perform perioperative cardiac consults. The evaluations of the modules are very positive, and the modules are changing the way that the learners practice medicine. The content of the modules is rated very highly.

AN ONLINE EVIDENCE-BASED INPATIENT MEDICINE CURRICULUM REDUCES TEACHING PREPARATION TIME WHILE MAINTAINING HIGH LEARNER AND TEACHER SATISFACTION

S.Y. Chan[1]; J. Tong[1]; T. Ormiston[1]. [1]Santa Clara Valley Medical Center, San Jose, CA. *(Tracking ID # 204767)*

URL & LOG IN INFORMATION: www.professorebm.com. Please contact the author for the username and password.

BACKGROUND: There are numerous barriers to effective teaching on inpatient medicine wards, including a variable degree of clinical and educational experience in both teachers and learners, lack of time for teaching preparation, and an emphasis of passive over active learning. In addition, faculty who attend infrequently on the wards may feel that their knowledge of inpatient medicine is limited or outdated.

CONTENT: Professor EBM, a web-based teaching curriculum, was created to review and analyze landmark articles about common inpatient medical problems and to guide attendings on how to lead interactive, evidence-based discussions on these topics. The curriculum is composed of about 80 core modules, each composed of a Learner's Guide and a Teacher's Guide. Both guides contain learning objectives, links to key and reference articles, a sample case and questions. In addition, the Teacher's Guides contain brief summaries and analyses of the key and reference articles, suggested answers to the case questions, and guidelines on how to stimulate discussion. Each topic is reviewed and updated on a yearly basis. A randomized, controlled trial was performed to assess learner and teacher satisfaction with this curriculum, as well as the amount of time attendings spent preparing for their teaching sessions.

DESIGN: Medicine ward attendings were recruited to participate in this study over six months. Each attending was asked to select two inpatient medicine topics from a set list. He or she was then randomized to teach one of these topics with a Professor EBM teaching module and one without. Each teaching session lasted 40 to 50 minutes and included 3–10 learners. Target learners were residents, interns and medical students. After each session, learners were asked to fill out a confidential survey, rating their own satisfaction and the teacher's effectiveness, using a 5-point Likert scale. Teachers completed a separate survey about their own satisfaction and perceived effectiveness. They also reported the amount of time spent preparing for the teaching session.

EVALUATION: There were a total of 56 teaching sessions: 28 in the experimental group and 28 in the control. Twenty-three different attendings participated, of whom 48% were hospitalists and 52% were nonhospitalists. Three-hundred and fifty learner surveys and 56 teacher surveys were completed. Overall, the satisfaction and effectiveness scores on the learners' surveys were very high in both the control and experimental groups, 4.60. and 4.57, respectively (P=0.89). The scores on the teacher's surveys were also high in both control and experimental groups, 4.76 and 4.77, respectively (P=0.99). There was a significant reduction in teacher preparation time with the web-based curriculum, from 98.3 minutes to 67.9 minutes (mean difference 30.4 minutes, P<0.0001). This reduction was statistically significant for both hospitalists and nonhospitalists, although nonhospitalists had an even greater reduction in preparation time (mean difference 39.9 minutes for nonhospitalists vs. 19.8 minutes hospitalists, P<0.0001).

SUMMARY: Professor EBM, a web-based inpatient medicine curriculum, reduced the amount of time attendings spent preparing for teaching sessions, while maintaining high educational quality and learner and teacher satisfaction. This type of curriculum may prove useful for busy educators who are less familiar with ward-based topics.

CLINICAL CORRELATIONS: A DAILY DOSE OF MEDICINE

C.B. Litvin[1]; J. Brenner[2]; M.M. Triola[2]; M.A. Poles[2]; N. Shapiro[2]. [1]Medical University of South Carolina, Charleston, SC; [2]New York University School of Medicine, New York, NY. *(Tracking ID # 203744)*

URL & LOG IN INFORMATION: www.clinicalcorrelations.org

BACKGROUND: Although a substantial online medical blogging community exists, most medical websites are intended for patients and few are geared toward enhancing medical education. Clinical Correlations was established two years ago by faculty and housestaff in an internal medicine residency program with the principle goal of inspiring both new physicians and more experienced faculty members about internal medicine and encouraging daily reading. Medical students, residents

and faculty are invited to submit postings. The website is accessible to the public, and contributions from medical professionals outside the institution are encouraged.
CONTENT: Postings are varied and include weekly summaries of medical news, evidence-based answers to clinical questions, brief reviews of journal articles, synopses of medical conferences, discussions about ethical dilemmas, health care policy reports and mystery quizzes. Residents are also encouraged to submit clinical questions which are then answered online by more senior faculty members. The website currently contains over 420 posts written by over 160 faculty, housestaff and medical students encompassing a broad range of topics. To further enhance the credibility of Clinical Correlations and assure the quality of contributions, a formal peer-review process has recently been instituted. All posts are reviewed twice, first by a senior editor and then by a faculty expert in the relevant subspecialty. Reviewers are encouraged to provide a commentary that is included in the final post. To our knowledge, our website is the only existing peer-reviewed medical blog.
DESIGN: New posts are published approximately 4 to 5 times a week. Older posts are archived by category and searchable via the website. Comments are encouraged. Mystery quizzes, which often consist of a clinical vignette along with a mystery image (i.e. CT-scan, chest x-ray), are published on a bimonthly basis. Such quizzes are conducted via interactive polling, with the answer revealed at a later date. Links to any additional references discussed on the website are provided.
EVALUATION: Readership is tracked using the Google Analytics™ tracking system. Available data include overall number of hits, location of readers, frequency of return visitors and length of visit. The website receives an average of 450–600 hits per day by viewers from over 125 countries. Our readership continues to grow each month and has doubled over the past year. To assess Clinical Correlations' value in contributing to the academic community, we track the number of posts submitted per month, the number of authors published on the site and the number of peer reviewers. Lastly, we log the number of house officers who devote elective time to participating in Clinical Correlations. For physicians in training, our website offers remarkable educational value. First, our residents gain knowledge from reading the website. In addition, the process of writing submissions and making revisions after peer review introduces them to the academic model of scholarly research and authorship.
SUMMARY: Since its inception over two years ago, Clinical Correlations has developed into a comprehensive online internal medicine educational resource for medical professionals and continues to evolve on a daily basis. Moreover, Clinical Correlations serves as a source of enrichment and provides both novice and seasoned physicians alike a quick way to collectively keep up with the rapid pace of internal medicine.

HAVE WIKIS COME OF AGE? THE BIDMC EXPERIENCE A. Mostaghimi[1]; B. Crotty[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205364)*

URL & LOG IN INFORMATION: http://www.bidwiki.org. Log-in restricted to BIDMC community but public presentation available at SGIM.
BACKGROUND: The increase in the use of digital resources by residents for patient care and medical education has outpaced our ability to organize this information. The proliferation in electronic data has resulted in fragmentation of resources across multiple websites, emails, and online forums. Published guides and materials quickly become outdated with no mechanism for updating. In this context, we sought to develop a wiki-based online platform aimed at improving resident education based around core curricular topics.
CONTENT: We postulated that the creation of a housestaff wiki organized around the existing internal medicine curriculum would enable widespread adoption of a collectively authored and updated residency knowledge bank. Initial content was based upon institutional knowledge including a user-generated phonebook and literature library, a housestaff calendar which archived teaching conferences, and common links. Our content focus was to create a resident-written guide to the literature for common medical diseases based around general medicine and medical subspecialty rotations with one-click links to selected papers.
DESIGN: The wiki platform was created using the Microsoft Sharepoint Software Package bundled with Windows Server 2003, chosen for its integration with our hospital's active directory for user authentication. Residents volunteered to be editors in a range of medical disciplines in conjunction with faculty advising, and administrative support was provided from the department to archive teaching conferences
EVALUATION: We are tracking the number of website hits, page creations, and page edits. Incoming interns were administered a survey to garner a priori information about attitudes toward wikis, with an active plan for a post-wiki survey. Usage data were obtained from the server in an anonymous fashion recording number and location of visits. This project qualified for IRB exemption as a quality improvement initiative. Preliminary data reveals that prior to deployment, 63.6% of incoming interns were familiar with the use of a wiki, 54.5% had used a wiki, and 9.1% reported contributing to a wiki. The wiki was launched on 7/1/08, and has averaged 2145 visits per month through 12/31/08 (total 12,872 visits). 17% of current interns have authored or edited pages in conjunction with resident and faculty editors. Faculty have been eager to play an important advising role in this process, and have been recruited from every division in the BIDMC Department of Internal Medicine.
SUMMARY: Wiki software is an affordable and easily adaptable platform for sharing knowledge and ideas among medical residents. Our usage data demonstrates that the wiki has become a fixture in daily ward work. The impact of improving efficiency remains an active question that is being investigated with a survey instrument after one year of use. We anticipate that similar models may be successfully implemented in other academic medical centers.

SMARTPRESCRIBE: A WEB-BASED CURRICULUM TO TEACH RATIONAL PRESCRIBING D.P. Miller[1]; R.T. Anderson[2]; H.H. Atkinson[1]; D.L. Bowton[1]; K.M. Sink[1]; J.S. Lawlor[1]; C.D. Furberg[1]. [1]Wake Forest University, Winston-Salem, NC; [2]Pennsylvania State University, Hershey, PA. *(Tracking ID # 205458)*

URL & LOG IN INFORMATION: www.smartprescribe.org. Click the "Lessons" tab on the left side of the homepage. Choose the option to take SmartPrescribe with or without CME credit.
BACKGROUND: Pharmaceutical companies spend over $24 billion each year on marketing in the United States. Several studies document that medical students and residents are frequently exposed to marketing activities, and marketing affects physician behavior. We developed a web-based curriculum to teach medical students, residents, and other healthcare providers about drug regulation, marketing, and principles of safe prescribing.
CONTENT: The on-line curriculum includes five lessons covering the following learning objectives: 1) knowing how to critically appraise drug-treatment studies, 2) understanding how drugs are regulated in the United States, 3) knowing how drugs are marketed, 4) recognizing and avoiding marketing's influence, and 5) reducing polypharmacy and adverse drug events. A curriculum development committee comprised of individuals with expertise in drug safety, drug regulation, the pharmaceutical industry, clinical medicine, and medical education developed the lessons. Lesson content is based on peer-reviewed literature supplemented by expert opinion. Included teaching tools include narrated slides, video testimonials, case-based learning, interactive games and surveys, assigned readings, quizzes, and links to additional resources. Medical schools and residency programs may freely use the curriculum.
DESIGN: Lessons incorporate text, audio, video, graphics, and interactive elements. Each lesson requires approximately 15–20 minutes to complete and includes a post-test and a lesson evaluation form. Specific interactive elements include sample cases with quizzes, an on-line tool to determine personal marketing exposure, a drug interaction game, and knowledge post-tests with immediate feedback. The interactivity keeps learners engaged and reinforces the presented material. Learners also may set their own pace by choosing which lessons to complete over as many sessions as desired. The curriculum's website is maintained by the North Carolina Northwest Area Health Education Center in cooperation with the Wake Forest University School of Medicine.
EVALUATION: Physicians from at least 8 specialties and 12 different states have taken at least one lesson. To date, we have received 113 evaluations of at least one lesson. The vast majority reported that their educational needs were met (93%) and that the material was presented in an interesting and effective manner (90%). Most also reported that the material was relevant to their practice (83%) and that they would

immediately incorporate something new into their practice as a result of watching a lesson (71%).
SUMMARY: SmartPrescribe is a free web-based curriculum designed to enhance medical professionals' skills for rational prescribing. Evaluations indicate that the lessons effectively meet learners' needs and result in plans to incorporate new skills into actual practice. SmartPrescribe can be a valuable resource for medical schools and residency programs seeking to expand their curricula in the areas of drug regulation, marketing, and evidence-based prescribing.

WENI, WIDI, WIKI: THE BRIGMED RESIDENCY EDUCATION PORTAL N. Vakharia[1]; C.A. Morris[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 204834)*

URL & LOG IN INFORMATION: URL: www.brigmed.org. Login: please contact.
BACKGROUND: The Brigham & Women's Internal Medicine Residency Program trains 170 residents across three primary training sites and several international rotations. The program has a need to optimally organize its myriad educational resources, and the way in which it delivers educational content, particularly in light of work hour reform. An interactive, wiki-driven web portal would efficiently organize our materials, encourage the updating of documents rather than duplication, support virtual learning communities, and allow for unique, real-time linkage of educational materials and patient care.
CONTENT: The core of the BrigMed portal is a library that assigns metadata to resources (e.g. specialty, type, tags), which are used for classifying and advanced searching. Behind the library is a database of 11,000 medical terms against which resources are tagged. Wikis allow for inclusion of graphics, tables, links and, importantly for communal editing. The calendar allows linkage of files and multimedia resources to conferences, lectures and case presentations. A Communities function will allow residents with shared interests to collaborate and share materials. Finally, we plan to build a Diagnosis module to deliver targeted educational resources linked to the admitting diagnosis codes for inpatients so residents can focus on knowledge gaps.
DESIGN: The portal is interactive both for the consumer and producer of educational content. All of the Clinical-Pathological Cases from the past three years are now wikis incorporating the relevant slides, videos, and self-assessment modules which allow the case to proceed stepwise. Wikis also allow for the easy creation of mini-websites with multiple sub-pages, links to other resources, tables, images, and videos. Curricula for the Ambulatory, General Medicine, Subspecialty Medicine and Intensive Care rotations have also been converted to wikis, resulting in richer learning documents. Residents now build on each others' work by adapting and editing previous educational handouts and documents, which reduces duplication and multiple versioning. The Communities and personalized Diagnosis modules will be released shortly. Finally, videos of all conferences will be available online, including a format for viewing on smartphones.
EVALUATION: The Portal was launched residency-wide in November 2008. Feedback demonstrates that the portal facilitates self-directed learning and promotes efficiency. As of December 2008, there are 60–125 unique logins per day. Since the launch, users have added or edited 20–25 resources per week, increasing the number of resources to nearly 1000 today. A research proposal examining the impact of the personalized Diagnosis module and its impact on resident education is currently under development.
SUMMARY: The BrigMed portal is a flexible platform that allows for residents to enhance their own education and contribute to their colleagues' learning, promotes development of online communities, and allows for novel and efficient delivery of educational materials to help meet the teaching and learning needs of our residency program. It is a promising tool for future medical educational research.

Clinical Vignettes

A 21 YEAR OLD FEMALE WITH LIPEMIC BLOOD I.J. Halperin[1]; M. Dante[1]. [1]University of Toronto, Toronto, Ontario. *(Tracking ID # 205928)*

LEARNING OBJECTIVES: 1. Recognize the physiology, biochemistry and clinical presentation of severe hypertriglyceridemia 2. Manage hypertriglyceridemia in the acute and chronic setting.
CASE INFORMATION: A 26 year old female with type I diabetes mellitus presented to the emergency department with one day of severe mennorhagia and epistaxis. She had no personal or family history of a bleeding diathesis. Her only medication was NPH insulin. Physical examination was remarkable for eruptive xanthomas and lipemia retinalis. Examination of the blood revealed a lipemic sample. Initial blood glucose was 25. There was no evidence of pancreatitis on abdominal CT scan. Transvaginal US revealed normal uterus and ovaries with no explanation for the mennorhagia. Initial lab work revealed: Hgb 93, WBC 10, PLT 320. INR/PTT, bleeding time normal. Na 105, Serum osmolality 289, pH 7.42. Hgb AIC 14.4%, TSH 0.86, Amylase 58. Total Cholesterol 30, HDL 0.6, LDL unmeasurable Triglycerides 192. She was started on an' insulin infusion to control her sugars and hypertriglyceridemia. Her mucocutaneous bleeding resolved after initiation of the insulin infusion and gemfibrozil 600 mg PO BID. Her triglycerides dropped by 50 points per day and her serum sodium corrected.
IMPLICATIONS/DISCUSSION: Euosmolar pseudohyponatremia occurs when a marked elevation in a substance that does not contribute to the measured osmolality results in a reduction of the fraction of plasma that is water and an artificially low serum sodium concentration. Direct ion measurement has been used with limited accuracy in these settings. Our patient's normal mental status and lipemic blood were convincing features of pseudohyponatremia. The two main sources of plasma triglycerides are dietary fat (in the form of chylomicrons) and liver synthesis (in the form of VLDL). LPL and its cofactor apoC2 hydrolyze these chylomicrons and lipoproteins into free fatty acids. An elevation in triglycerides is a result of increased intake, increased synthesis, or a decrease in LPL or apoC2 activity. Most cases of severe hypertriglyceridemia have both a genetic and acquired etiology. Acquired causes of hypertriglyceridemia include: metabolic (hypothyroidism, renal failure, uncontrolled diabetes, and central obesity) toxin/drugs (estrogen, beta-blockers, thiazides, alcohol, isotretinoin, HAART) and others (SLE, HIV, paraproteinemias.) Aggressive treatment of severe hypertriglylceridemia is needed to reduce the risk for acute pancreatitis . Although no large scale studies have been conducted, numerous published cases report the efficacy of insulin in lowering triglycerides over 2–3 days . Insulin is a potent activator of LPL. Heparin is also a known activator of LPL and has been used in a few reported cases . Finally, plasma exchange has been shown to safely lower triglycerides in the acute setting . Regarding the patient's mucocutaneous bleeding, there is no literature to support a link between hypertriglyceridemia and platelet dysfunction. There is a postulated hyperviscosity phenomenon with severe hypertriglyceridemia that may explain the mucocutaneous bleeding. Unfortunately, serum viscosity was not measured. The clinical consensus is that our patient likely has a genetic defect in LPL or apoC2 to account for her long standing hypertriglyceridemia. Poor compliance with medications (specifically bolus insulin) resulted in this acute elevation.

A BIRD IN THE HAND: A PARKINSONIAN TREMOR IN A CASE OF WEST NILE ENCEPHALITIS A.A. Von[1]; J.K. Mavromatis[1]. [1]Emory University, Decatur, GA. *(Tracking ID # 205808)*

LEARNING OBJECTIVES: 1. Describe the presentation and diagnosis of West Nile Virus neuroinvasive disease.
CASE INFORMATION: A 53 year old man with a history of psoriatic arthritis presented in July with ten days of low-grade fevers, arthralgias, malaise, anorexia, fatigue, and throbbing headache. He had noted an outbreak of psoriasis on his chest, a separate rash over his trunk, and several recent mosquito bites. His exam showed a purple reticular rash over his abdomen and back with psoriatic plaques over the sternum. His neurologic exam revealed bilateral static and kinetic hand tremors, greatest on the left. Initial lab studies showed mild transaminitis; serum serologies for West Nile Virus (WNV) were positive for IgM and negative for IgG. Convalescent titers at one month were positive for both serum IgM and IgG. Brain MRI was normal. Neuropsychological testing showed mild cognitive dysfunction. Lumbar puncture performed a few months later showed elevated protein but was negative for pleocytosis or WNV antibodies. Given the temporal association of onset of his neurological symptoms and serologic findings, the patient was

diagnosed with West Nile encephalitis manifested by extrapyramidal symptoms and neurocognitive deficits; he was prescribed carbidopa/levodopa, which was discontinued because of lack of clinical improvement. After one year this patient's cognitive symptoms and tremor were mostly resolved without specific therapy and he was able to resume full-time employment.
IMPLICATIONS/DISCUSSION: WNV is a flavivirus, harbored in birds, and transmitted to humans via mosquitoes. Infection is asymptomatic in 80% of individuals. The large majority of symptomatic presentations feature flu-like symptoms: fever, headache, malaise, fatigue, nausea, anorexia, and sometimes a rash. Less than 1% develop neuroinvasive disease. Meningitis caused by WNV is characterized by meningismus with a pleocytic CSF, whereas WNV encephalitis can cause an encephalopathy accompanied by focal neurological deficits, often movement disorders such as Parkinsonism and ataxia. A Parkinsonian tremor, as in this case, is one of the most common manifestations of WNV encephalitis, but there are limited data on the efficacy of levodopa and other Parkinson's disease therapies. Acute flaccid paralysis is a less common presentation of WNV, characterized by acute, often asymmetric, limb weakness or paralysis. Neuroimaging is typically normal. Generalized physical and cognitive symptoms, as in our patient, are common and can take a year to resolve. Mortality ranges from <1% for febrile illness and meningitis, to 20% for encephalitis, and 10–50% for acute flaccid paralysis. Diagnosis of WNV is made by positive CSF IgM serology or fourfold rise in convalescent serum IgM titers. No treatment for WNV infection is available and care is limited to supportive therapy. This case illustrates the need to consider WNV infection in patients with viral symptoms, the wide spectrum of neurologic illness caused by WNV, and highlights Parkinsonism as a common manifestation of WN encephalitis.

A BONE TO PICK ABOUT CHEST PAIN K. Chakraborty[1]; B. Jenigiri[2]; A. Hamati[2]; H. Ismail[2]; A. Hammad[2]; R.D. Smalligan[2]. [1]East Tennessee State University, Johnson City, TN; [2]ETSU, Johnson City, TN. *(Tracking ID # 203558)*

LEARNING OBJECTIVES: 1. Recognize the importance of considering a broad differential diagnosis when evaluating a patient with atypical chest pain. 2. Diagnose multiple myeloma as the cause of atypical chest pain in the elderly with an unusual tracer uptake pattern on nuclear stress test.
CASE INFORMATION: Chest pain is one of the most common presenting complaints of patients in emergency rooms of the United States. Typically the initial diagnostic work up is directed towards evaluating etiologies of cardiovascular origin due to the potentially catastrophic results in case of a missed diagnosis. This case illustrates an unusual cause of chest pain that could be equally devastating if not diagnosed promptly. A 67-year-old male smoker presented with a 2-week history of constant chest pressure and pain. The chest pain was insidious in onset, dull, aching, non-reproducible on palpation, without radiation and not associated either with exertion or with nausea, vomiting and diaphoresis. The patient did complain of some fatigue and occasional dizziness but denied bone pain, night sweats or weight loss. Past history was negative for heart disease, HTN, DM or hyperlipidemia and no family history of coronary artery disease but he did have BPH and chronic anemia with a negative work-up. He was on no chronic medications. Physical examination showed normal vital signs; no JVD; no adenoapathy; lungs clear; heart with regular rate and rhythm, no m/r/g; abdomen soft without hepatosplenomegaly; no edema and otherwise normal exam. Laboratory: Hgb 9.1 g/dL, MCV 90/cumm, RBC 2.8 10(6)/mcL , BUN 27 mg/dL, Cr 1.9 mg/dL, Ca 9.5 mg/dL, protein 11.2 g/dL, albumin 3.7 g/dL, UA negative except for 3+ protein. Hospital course: Negative troponins and normal serial EKGs. The nuclear stress test was negative for ischemia or infarction, however, an unusual uptake of tracer was distributed in the sternum, clavicle, humerus, ribs, and vertebral column. The triad of anemia, elevated total protein and acute onset of renal insufficiency in combination with the atypical findings on the nuclear stress test raised suspicion of multiple myeloma. Subsequently electrophoretic studies along with bone marrow biopsy confirmed the diagnosis of IgA kappa multiple myeloma. The patient was treated with vincristine, doxorubicin and dexamethasone and had resolution of his chest pain and overall clinical improvement.
IMPLICATIONS/DISCUSSION: Atypical chest pain is often frustrating to patients since after ruling out a cardiac etiology they are left wondering about the cause of their pain. Common etiologies include dissecting aortic aneurysm, pulmonary embolism, pericarditis, pleuritis, esophageal spasm, gastroesophageal reflux, and costochondritis. In older patients neoplasms, including pathologic fractures are an important consideration. Our case illustrates a very unusual presentation of multiple myeloma and an equally unusual cause of atypical chest pain. Multiple myeloma normally presents with some combination of bone pain, fatigue, pathologic fractures, hypercalcemia and anemia. Further some studies have shown promise using Technetium-99 m (Tc-99 m) scintigraphy to assess the extent of disease and to follow remission after chemotherapy in patients with multiple myeloma. This case reminds internists of the importance of considering a broad differential diagnosis when approaching patients with atypical chest pain and shows the possible role of Tc-99 sestamibi nuclear imaging as a diagnostic modality in patients with multiple myeloma.

A BUNDLE OF NERVES: NEUROSYPHILIS INCIDENTALLY UNMASKED A.R. Lai[1]; C.J. Lai[2]. [1]University of San Francisco, San Francisco, CA; [2]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 206115)*

LEARNING OBJECTIVES: (1) Further evaluate newly diagnosed syphilis of unknown duration in the clinic setting, and recognize when expedited admission is indicated. (2) Identify neurosyphilis as an unusual etiology for atypical neuropathy when other common etiologies have been ruled out.
CASE INFORMATION: A 62 yo HIV-negative man with a history of an aortic root aneurysm s/p aortic valve replacement two years prior on anticoagulation, severe L4-L5 DJD, and cocaine use presented to clinic with a two year history of severe "shooting" pains migrating over his torso and upper extremities, described as sudden-onset, sharp, and fleeting. These had worsened in the past several months, leading him to finally seek help. He denied trauma, hazardous exposures, and significant alcohol use. Exam was unremarkable, including intact sensory and motor exams, except for an antalgic gait attributed to remote ankle trauma. A workup for common causes of neuropathy was initially negative, including routine chemistries, glucose, B12, ferritin, TSH, repeat HIV, and toxicology screen. However, a RPR unexpectedly returned positive with a 1:1024 titer confirmed by treponemal antibody testing. On return visit, the patient was unaware when he may have acquired syphilis; he could not recall a prior rash and denied high-risk behaviors. He was thus considered to have syphilis of unknown duration, evaluated for other STDs, which were negative, and counseled to have his partner tested. Given that he also reported recent new intermittent blurry vision, as well as had severe DJD and on anticoagulation, he was admitted for evaluation of suspected neurosyphilis. Ultimately, a fluoroscopy-guided lumbar puncture revealed a positive CSF VDRL. Interestingly, a re-examination of the patient's prior aortic root pathology was suggestive but inconclusive of spirochete involvement. He completed a 10 day course of IV penicillin and has since reported much improvement, but not resolution, of his migratory pains.
IMPLICATIONS/DISCUSSION: Caused by the spirochete Treponema pallidum, syphilis likely invades the CSF soon after acquisition, with neurosyphilis thus potentially manifesting at any time, even many years later. Syphilis incidence had previously been declining in the antimicrobial era but has since gradually increased in parallel with the HIV pandemic and growing rates of drug abuse. Given its notorious ability to emulate other disease processes such as neuropathy, syphilis should be considered when other common etiologies have been ruled out, especially when presenting with classically described "lightning pains," as with our patient above, which can be a manifestation of tabes dorsalis. Early diagnosis is critical, as it can lead to concomitant STD treatment and prompt contact tracing. In patients with syphilis of unknown duration, a LP should be performed to assess for CNS involvement, which can often be pursued in the outpatient setting with referral to neurology. However, consider expedited inpatient evaluation if worrisome neurologic symptoms newly appear or if co-morbidities would potentially complicate outpatient management. Early treatment with IV penicillin may help minimize the risk of further luetic complications, including meningitis, arteritis, progressive dementia, or paralysis. Follow-up LPs should be performed at least every six months until the CSF VDRL is nonreactive. This case highlights an initially puzzling clinic presentation of an uncommon diagnosis ultimately requiring inpatient management.

A CASE OF A CRYSTALLINE MAN S.J. Harder[1]; L. Lu[1]; A. Kolpakchi[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 204905)*

LEARNING OBJECTIVES: 1. Recognize that tophaceous gout with cervical spine involvement is a rare but treatable condition if a timely diagnosis is made. 2. Tophaceous gout should be suspected in patients with 'unclear' polyarthritis who present with spinal symptoms.
CASE INFORMATION: A 69-year-old man with "seronegative rheumatoid arthritis (RA)" presented with neck pain, bilateral upper and lower extremity weakness, and paresthesia involving the genitourinary and perianal regions for ten days. Additionally, he complained of solid food dysphagia with a 50-pound weight loss over the past 3 months. His RA diagnosis was based on constant stiffness, progressive pain, and decreased range of motion in bilateral hands, elbows, knees, and ankles for three years. Past therapy included NSAIDS. There was a remote history of excessive alcohol use. Physical examination was remarkable for bilateral ulnar deviation, intrinsic muscular atrophy with flexion contractures, and swelling with tenderness of bilateral MCP and PIP joints, wrists, elbows, and knees. There were two 6 cm nodules with crepitus to palpation, one in the right popliteal fossa and another over right olecranon. Neurologic exam was significant only for motor strength of 4/5 in lower extremities and mildly diminished rectal tone. ANA and rheumatoid factor were negative; uric acid was 8.2 mg/dL (3.5–7.5 mg/dL). Cervical spine x-rays showed vertebral destruction of C4-C7. MRI revealed an erosive soft tissue mass with vertebral destruction, esophageal compression, and severe spinal canal stenosis at C4-C5, C5-C6, and C6-C7. Upper GI confirmed external esophageal compression. A right olecranon mass aspirate and a CT-guided biopsy of the cervical spine revealed negatively-birefringent needle shaped crystals. The diagnosis of polyarticular and cervical tophaceous gout was established. He was treated with allopurinol and colchicine with dramatic improvement in symptoms. Surgical stabilization was not required. At 18-month follow up, he reported marked weight gain, resolved joint pain, weakness, and dysphagia.
IMPLICATIONS/DISCUSSION: Tophaceous gout involving the spine is rare with fewer than 80 cases reported. The cervical spine is affected in 22% of patients and lumbar in 56%. Urate deposition occurs in every component of the vertebrae including the facets, pedicles , vertebral body, intervertebral disc, lamina, ligamentum flavum, dorsal and ventral epidural space, and rarely in the intradural space. More than 70% of patients present with neurological deficits ranging from radiculopathy to motor weakness, including acute paralysis. On presentation, most patients have elevated serum urate level, a history of polyarticular gout or evidence of peripheral tophi; some carry the diagnosis of an 'unclear arthritis'. Image-guided needle biopsy is a valuable diagnostic procedure in conservative therapy. Surgery is indicated if biopsy if nondiagnostic or severe neurological compromise exists and resulted in good clinical outcomes. Aggressive control of hyperuricemia is essential regardless of the method of treatment. Polyarticular gout can mimic rheumatoid arthritis. The key to early diagnosis is demonstration of tophi on physical exam and a negative rheumatologic work up.

A CASE OF ATRIAL MYXOMA PRESENTING WITH DYSPNEA AND ANEMIA A. Anand[1]; D. Downey[2]; A. Kumar[2]. [1]Allegheny General Hospital, sewickley, PA; [2]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205062)*

LEARNING OBJECTIVES: 1) To identify and describe atrial myxoma and its symptomology 2) To analyze an uncommon association of atrial myxoma with anemia as noted in our case.
CASE INFORMATION: A 49 year-old patient presented with concerns of progressive worsening exertional dyspnea of about one year duration. She had a prior history of type 2 Diabetes Mellitus and iron-deficiency anemia and was taking metformin and iron supplements. On examination, she was afebrile with blood pressure of 110/58 mmHg and heart rate of 87/minute. Examination of her chest revealed rales in both lung bases. Heart sounds were regular and no murmur was heard on cardiac auscultation. A computed tomography scan of the chest did not show evidence of pulmonary embolism. Complete blood count revealed a hemoglobin of 9.5, hematocrit of 28.8, mean corpuscular volume of 92.6 fl and mean corpuscular hemoglobin of 29.3. Metabolic panel was normal and so was the sedimentation rate and level of C-reactive protein. Iron studies showed a serum iron level of 17 mg/dl, serum ferritin of 54 mg/dl, transferrin saturation of 3% and total iron binding capacity of 507 mg/dl. Chest roentgenogram revealed pulmonary edema and a normal cardiac silhouette. Earlier in the year, the patient had presented with similar complaints and was diagnosed with iron deficiency anemia. An upper and lower endoscopy had failed to reveal a possible source of gastrointestinal bleeding. She received transfusion of two units of packed RBC and was discharged with oral iron supplements. Transthoracic echocardiogram performed during this hospitalization showed a large (3 cm×4 cm) mass attached to the interatrial septum and prolapsing through the mitral valve into the left ventricle, leading to a functional mitral stenosis. Mean pressure gradient through the mitral valve was 25 mmHg Pulmonary artery pressure was moderately elevated at 47 mmHg. Coronary angiography revealed patent coronary vessels. The patient successfully underwent tumor excision and the mass was confirmed to be an atrial myxoma on pathological examination. She was discharged to home one week after surgery.
IMPLICATIONS/DISCUSSION: Cardiac myxoma is a rare cardiac tumor with an annual incidence of 0.5 per million population. They are more common in females and two-thirds of myxoma occur in the left atrium. Cardiac myxoma can present with mitral valve obstruction (leading to pulmonary edema, syncope and heart failure), embolization to distant sites or systemic symptoms such as fever, weight loss and anemia. Anemia is noted in less than 10% of cases of cardiac myxoma, and has been variously described as hemolytic, iron-deficiency or anemia of chronic disease. The systemic symptoms are believed to be mediated through the production of Interleukin 6 (IL-6) by tumor cells. In our case, absence of auscultatory murmur in cardiac examination could have lead to a delay in the diagnosis of left atrial myxoma. Transesophageal echocardiogram has a high sensitivity to detect cardiac tumors and is the diagnostic modality of choice. Treatment involves surgical resection.

A CASE OF COMMUNITY-ACQUIRED PNEUMONIA CAUSED BY KLEBSIELLA PNEUMONIAE S.S. Yoon[1]; M. Phoofolo[1]; M.P. Shah[1]; S. Jariwala[1]. [1]Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 205142)*

LEARNING OBJECTIVES: 1. Recognize clinical signs and symptoms of pneumonia associated with ***Klebsiella pneumoniae***. 2. Identify possible risk factors for the development of pulmonary ***Klebsiella*** infections.
CASE INFORMATION: A 62 year-old woman presented with three days of fever, chills and productive cough. She had a past medical history of achalasia, hypertension, intermittent asthma and eczema. She also endorsed two days of non-bloody, post-tussive emesis, watery diarrhea as well as dyspnea with wheezing prior to admission. She denied any recent travel or previous episodes but did endorse occupational contact with an individual with similar symptoms. She had not been vaccinated against pneumonia or influenza. She endorsed mild intermittent dysphagia to solids only and denied regurgitation, chest pain or weight loss. Achalasia, the etiology of which was unknown, was diagnosed two years earlier at an outside hospital. At that time she underwent dilation of the esophagus, with resolution of symptoms. On exam, she was found to be in mild respiratory distress, febrile to 102F, tachycardic and tachypneic. Lung exam revealed decreased breath sounds and end-expiratory wheezes. The remainder of the physical exam was unremarkable. Admission labs were notable for WBC of 43.5 K/uL with 10% bands. A chest X-ray showed complete opacification of the right upper lobe. A non-contrast CT scan of the thorax revealed a dense right upper lobe consolidation with air bronchograms, dilated fluid-filled esophagus and right paratracheal adenopathy. The patient was admitted to the hospital and started on parenteral antibiotics then changed to oral antibiotics, with clinical resolution. While other cultures did not yield an organism, a respiratory sample obtained on the fourth day of admission grew ***Klebsiella pneumoniae***. The patient was discharged home with instructions to complete a 14-day course of antibiotics and to obtain a repeat CT thorax in one month to evaluate for resolution.
IMPLICATIONS/DISCUSSION: *Klebsiella pneumoniae* is a gram-negative, rod-shaped bacillum that is normal flora of the human mouth and intestine. Pneumonia from ***Klebsiella*** is classically described as presenting with "currant jelly" sputum and occurring in patients at risk for aspiration. Epidemiologically, ***Klebsiella*** pneumonia is now considered rare, except in alcoholics or patients with severe COPD or diabetes. Although our patient did not endorse alcoholism, diabetes or COPD, she did have an independent risk factor for aspiration: achalasia. Certain radiographic signs are classic in community-acquired ***Klebsiella*** pneumonia: predilection for the posterior segment of the right upper lobe as well as the "bowing fissure"

sign (Friedländer's pneumonia), both of which were present in our patient. These signs are not usually present in nosocomial ***Klebsiella*** pneumonia. A review of current literature revealed several case reports of pneumonia caused by non-tuberculous Mycobacterium in patients with achalasia. A case of community-acquired pneumonia caused by ***Klebsiella pneumoniae*** in a patient with achalasia has not been previously described. Although ***Klebsiella pneumoniae*** is an uncommon cause of community-acquired pneumonia, it should be part of the differential diagnosis in the appropriate clinical setting.

A CASE OF HEYDE'S SYNDROME J.J. Payne[1]; C. Demott[1]. [1]Carilion Clinic, Roanoke, VA. *(Tracking ID # 205895)*

LEARNING OBJECTIVES: Recognize that severe calcific aortic stenosis is associated with gastrointestinal bleed.
CASE INFORMATION: A 77 year old female presented to the hospital with generalized, cramping, mid abdominal pain, unrelated to food, dark stool, shortness of breath and fatigue for two days. Prior history significant for heart failure, diabetes, chronic kidney disease, aortic stenosis, recurrent GI bleed requiring multiple blood transfusions and CLL. Prior capsule endoscopy revealed oozing from the small bowel and AV malformations, lesions not visualized with push enteroscopy. She denied alcohol, aspirin or NSAIDs use. Physical exam revealed BP of 113/53 mmHg, Pulse 88/minute, normal saturation and temperature. Cardiovascular exam was significant for grade 4/6 crescendo decrescendo murmur heard best at the base radiating to carotids and apex, elevated JVD and regular pulse with delayed carotid upstroke. Her abdomen was soft, non tender but had black feces on rectal exam. Remainder of exam was normal. Labs showed Hb of 5.7gm/dl, normal platelet count, coagulation profile, and creatinine of 1.6. Double balloon enteroscopy revealed oozing of fresh blood throughout the jejunum and hyperema , without visualization of AVMs. An echocardiogram revealed an EF of 60% and aortic valve area of 0.92 cm2. It was then thought that GI bleed was related to severe AS. Aortic valve replacement (AVR) was considered however patient thought to be at high risk for surgery. Furthermore, review of literature showed benefit of the surgery only in the presence of acquired Von Willebrands disease, for which she tested negative.
IMPLICATIONS/DISCUSSION: Heyde's syndrome was first reported in 1958 by Dr Heyde. Angiodysplasias are commonly found in ascending colon. It has been suggested that there may be congenital coexistence between AS and vessel abnormalities in the GI tract or that vascular abnormalities occur due to congestion in the GI vascular bed due to AS. More recently there has been an association with platelet function abnormalities consistent with acquired Von Willebrand's disease. Treatment options include segmental resection of portions of the GI tract but there is a high occurrence of rebleed. More recently studies and case reports have looked at AVR as a treatment option with less occurrence of rebleed, suggesting that AVR could potentially be a treatment option in the future with the caveat that a bioprosthetic valve be used to avoid anticoagulation. Currently ACC/AHA guideline do not include GI bleed as an indication for AVR . Other options include local endoscopic procedures or angiographic therapy. Medical therapy includes oral iron, estrogen and progesterone, long acting octreotide, antifibrinolytics, thalidomide or VWF/factor VIII concentrate.

A CASE OF ISCHEMIC CRANIAL NERVE VII PALSY AND ANOMALOUS VERTEBRAL ARTERY ORIGIN N.S. Desai[1]; D. Jones[2]. [1]Emory University, Decatur, GA; [2]Emory University, Atlanta, GA. *(Tracking ID # 205330)*

LEARNING OBJECTIVES: Differentiate facial palsies that are due to upper motor neuron lesions, which involve only the lower face, from lower motor nerve lesions, involving the lower face and forehead. Pursue neurologic imaging and cardiovascular risk factor modification for a facial palsy that presents with additional neurologic deficits.
CASE INFORMATION: A 59-year-old Bangladeshi woman with history of hypertension, diabetes, dyslipidemia, end stage renal disease on hemodialysis, and chronic vertigo presented with 7 days of left sided facial droop accompanied by occipital headache, lightheadedness, worsening vertigo, and generalized weakness. On the day of admission, she had a presyncopal episode following hemodialysis. Physical exam was notable for blood pressure of 153/67 with no orthostatic hypotension, pulse of 46 with regular rate, wide based gait, and left-sided facial droop with inability to wrinkle her forehead. The remainder of her neurologic exam was nonfocal. Labs were remarkable for hemoglobin A1C 9.1, LDL 54, HDL 26. ECG showed sinus bradycardia and LVH. Upon admission, her metoprolol and diltiazem were stopped, and her bradycardia and lightheadedness improved significantly. MRI/MRA of the brain revealed a subacute infarction of the left pons involving the nucleus of cranial nerve seven (CN VII), an old left posterior inferior cerebellar artery (PICA) infarction, and several old lacunar infarctions. Initial carotid ultrasound was concerning for subclavian steal. Therefore, an angiogram was done, which showed no evidence of subclavian steal, but did reveal an anomalous left vertebral artery originating from the aorta instead of from the subclavian artery. The left vertebral artery was completely occluded and thus not amenable to stenting. She was started on aspirin for secondary stroke prevention, and medications for hypertension, diabetes, and cholesterol were optimized. She also received an eye lubricant for prevention of corneal injury.
IMPLICATIONS/DISCUSSION: This is an unusual presentation of a facial palsy caused by a stroke in the nucleus of CN VII. An anomalous origin of the left vertebral artery from the aortic arch occurs in 6% of patients, and results in abnormal blood flow, which can lead to vascular injury, atherosclerosis, and vertebral artery dissection. In addition, this patient had multiple cardiovascular risk factors such as hypertension, diabetes, dyslipidemia, and ESRD, which predisposed her to atherosclerosis. All of these risk factors combined led to complete occlusion of the left vertebral artery, resulting in a stroke involving the left CN VII nucleus and PICA distribution. The patient likely had chronic vertigo from prior strokes and vertebrobasilar insufficiency that was exacerbated by bradycardia and the acute stroke. The involvement of her upper and lower face suggests a lower motor neuron lesion. While there are more common causes of Bell's Palsy such as viral infections, in this case, headache and worsening vertigo suggested a central etiology of her symptoms.

A CASE OF LEUKOCYTOCLASTIC VASCULITIS WITH RARE COMPLICATIONS T. Finch[1]; M. Brit[1]; M. Panda[1]. [1]University of Tennessee, College of Medicine, Chattanooga, Chattanooga, TN. *(Tracking ID # 203819)*

LEARNING OBJECTIVES: 1. To recognize the potential of leukocytoclastic vasculitis to cause severe systemic manifestations. 2. To recognize the need to initiate early aggressive immunosuppressive therapy for acute systemic inflammatory illness when systemic vasculitis is suspected and multiple organ involvement demonstrated. 3. To recognize the extrahepatic manifestations that occur in Hepatitis C infection irrespective of cryoglobulinemis.
CASE INFORMATION: A 45-year-old woman with type 2 diabetes and end stage renal disease presented with a 4 day history of tender, erythematous skin lesions involving her lower limbs. She presented with a temperature of 1040C, nausea, vomiting, abdominal pain, chills, headache, leg swelling, and painful skin lesions. On physical examination, she had multiple erythematous nonblanching papules and plaques over both lower limbs. Laboratory studies were remarkable for an elevated WBC of 14.3/mm3 and erythrocyte sedimentation rate and C-reactive protein were 44 mm/h and 25 mg/L, respectively. She was placed on antibiotic therapy for presumed cellulitis and after three days on a combination of broad spectrum antibiotics, she continued to spike fevers with an increase in WBC count to 20.8/ mm3, and an increase in number and size of the lesions. Blood cultures and wound cultures were both negative for organisms. Over the course of her admission, she developed multiple polymorphic lesions over all of the extremities, bilateral central retinal vein occlusion (CRVO), anterior uveitis, non-ST-elevation myocardial infarction, altered mental status, sepsis-like syndrome, and necrosis of the fingertips. Vasculitis was considered as a unifying diagnosis and treatment with methylprednisolone 1 g/day was started and a vasculitis workup revealed a positive hepatitis C antibody, negative cryoglobulins, negative HIV antibody, negative hepatitis B antibody, and negative autoimmune screen. Biopsy of skin lesions showed a florid leukocytoclastic vasculitis. Hepatitis C was presumed to be the cause of the vasculitis and treatment with pegylated interferon was deemed appropriate. After receiving 4 g of methylprednisolone, she was continued on tapering doses of methylprednisolone, pegylated interferon, and plaquenil. With the exception of blindness and necrosis of the fingertips, all other manifestations improved.
IMPLICATIONS/DISCUSSION: Leukocytoclastic vasculitis (LV) is a small vessel inflammatory disease mediated by the deposition of immune complexes. Cutaneous manifestations are usually the initial symptom; however functional impairment of the internal organs may be

caused by systemic LV. The development of LV has been linked to infection, drugs, chemicals, malignancies, and systemic diseases. Cryoglobulin is present in about two-thirds of patients with LV in hepatitis C virus infection. Our patient was negative for cryoglobulin and remained so on repeat testing. We concluded that immune complex disease played a role in the systemic manifestations in this patient irrespective of cryoglobulin. Our case's unique sequence of events highlights the need to initiate early aggressive immunosuppressive therapy for acute systemic inflammatory illness when systemic vasculitis is suspected and multiple organ involvement demonstrated. Furthermore, it is important to recognize the extrahepatic manifestations that occur in HCV infection irrespective of cryoglobulin.

A CASE OF MISTAKEN HISTORY R. Bognet[1]; S. Tepper[1]; E. Wu[1]. [1]Lehigh Valley Health Network, Allentown, PA. *(Tracking ID # 204557)*

LEARNING OBJECTIVES: Recognize that obtaining an accurate history may not be straightforward, and that all alleged medical records should be verified with the patient directly.
CASE INFORMATION: A 39-year-old bilingual Hispanic female was admitted with nausea, vomiting, and worsening right lower quadrant abdominal pain for four days. She reported a PMHx of ovarian cancer treated with chemotherapy while living in upstate New York. Physical exam revealed right lower quadrant tenderness. A CT scan revealed punctate calcifications surrounding the liver and beneath the anterior abdominal wall, but noted bilateral ovarian follicles present, and transvaginal ultrasound revealed 2 normal sized ovaries and a right ovarian cyst. The patient's husband brought medical records and medication bottles from home. Documents included a letter from a medical practice in Puerto Rico dated 3 years prior stating that the patient had metastatic esophageal cancer and chronic myologenous leukemia (CML). Other documents included an EGD report, a CT scan report, and a colonoscopy report, all within the past year. These papers mentioned metastatic disease but also contained numerous misspellings and words in Spanish, and appeared to have been inkjet-printed. Medication bottles contained aripiprazole, mirtazapine, and valproic acid; however, labels bore the patient's last name but a slightly different first name. On hospital day 2, an EGD revealed a normal esophagus. A Hematology/Oncology consult verified that there was no evidence of CML. A Gynecology consult confirmed that there was no ovarian cancer present. A Psychiatry consult's working diagnosis was somatization disorder and possible factitious disorder or Munchausen's syndrome, though it was noted that when the patient was confronted with clinical evidence that she had no cancer, she did not dispute this conclusion nor become defensive. On hospital day 3, the patient was re-interviewed in Spanish by the attending physician during work rounds and shown the alleged medical records. It was discovered that the patient did not read English, and that the papers had been obtained from her sister who lived in upstate New York. The patient stated that her sister had a history of incarceration, arrest for check forgery, and identity theft of the patient. The sister had been telling the patient repeatedly that she was ill, had multiple cancers besides ovarian cancer that the patient herself and doctors did not know about, and would die without treatment. The patient revealed that she did not know what medications she had been prescribed. It was concluded that the patient may have been mistakenly given the wrong medications. The patient was relieved to know she did not have cancer, and was aware to be cautious in any further interactions with her sister, who likely had produced the forged documents. The patient was deemed not to have any psychiatric diagnoses and discharged home, as her symptoms had improved.
IMPLICATIONS/DISCUSSION: Obtaining a thorough history remains the most important element in investigating a patient's symptoms, yet the path in doing so may not be straightforward. Use caution in arriving at a psychiatric diagnosis, even if a psychiatrist has done so. Prior medical records should be verified directly with the patient and preferentially obtained directly from a health care institution. The importance of obtaining an accurate history must be stressed to upcoming generations of medical students and trainees.

A CASE OF NECK STIFFNESS, ODYNOPHAGIA AND LEUKOCYTOSIS: A PAIN IN THE NECK WITH A DIAGNOSIS THAT IS HARD TO SWALLOW V.M. Shah[1]; E. Anish[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205061)*

LEARNING OBJECTIVES: 1. Create a differential diagnosis of a patient with neck pain and difficulty swallowing. 2. Describe the historical features and radiological findings associated with acute longus colli calcific tendonitis.
CASE INFORMATION: A 39-year-old female with a PMH of ITP, s/p splenectomy, presented with acute onset of right-sided neck pain and stiffness and odynophagia. The patient reported a history of mild chronic neck pain, however, after a day of shopping and carrying heavy bags, she developed the more severe neck and throat symptoms. She denied fever, URI symptoms, direct neck trauma, or sick contacts. On examination, the patient was uncomfortable due to pain, but non-toxic appearing. She was afebrile, normotensive and her HR was normal. Mild posterior pharyngeal edema was seen, but no exudate or other lesions were visualized. Neck exam showed limited ROM, with lateral bending and rotation creating the greatest discomfort. She had no cervical lymphadenopathy. Initial labs were significant only for a leukocytosis of 21,000 with no left shift. A CT scan of her neck was performed to rule out a retropharyngeal abscess (RPA). This showed calcification inferior to the C1 arch anteriorly to the right of midline with retropharyngeal edema from C1-C5 measuring 5–6 mm in AP diameter. These findings, along with the clinical presentation were consistent with acute longus colli calcific tendonitis (ALCCT), although RPA was still a consideration. She was started on analgesics, low dose steroids, as well as ampicillin-sulbactam. Despite treatment, the patient's pain progressed. An MRI was then performed confirming the findings seen on CT that were consistent with a diagnosis of ALCCT. No RPA was seen. As a result, her antibiotics were stopped and she was discharged home on ibuprofen and analgesic medication.
IMPLICATIONS/DISCUSSION: This case demonstrates the diagnostic difficulty that can be encountered in a patient with neck and throat pain. Initial evaluation must rule out the diagnoses with the potential for the greatest mortality, such as peritonsillar abscess, RPA, cervical disk fracture, meningitis, and extradural hemorrhage. Calcific tendonitis of the shoulder is a relatively common and well-recognized clinical entity. In contrast, involvement of the longus colli muscle is exceedingly rare. The longus colli muscle originates from the C1 to T3 vertebral bodies and inserts on the inferior aspect of the occipital bone. This muscle functions in rotation, flexion and extension of the neck. The tendon originating from the superior oblique fibers that inserts onto the anterior tubercle of the atlas has been found to be susceptible to calcification, with tendonitis occurring when these deposits rupture, causing an acute inflammatory response. This condition occurs most often in middle-aged patients, usually with a history of minor neck trauma. There are no sensitive or specific laboratory findings; however a mild leukocytosis is sometimes seen. The diagnosis can be made radiographically, with a lateral X-ray demonstrating calcium deposits below the arch of C1 and anterior to the body of C2. CT and MRI can be used to further delineate the extent of edema, as well as to rule out more ominous conditions such as RPA. Treatment should focus on pain relief with NSAIDs and other analgesics. This is a self-limited condition with symptom resolution typically occurring within 1–2 weeks.

A CASE OF NON-RESOLVING OROFACIAL SPACE ABSCESS AFTER MOLAR EXTRACTION IN AN UNCONTROLLED DIABETIC YOUNG WOMAN T. Onishi[1]; D.M. Elnicki[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204006)*

LEARNING OBJECTIVES: 1. To recognize the potentially serious infectious complications of dental procedures. 2. To recognize the role of prophylactic antibiotic use for dental procedure in diabetic patients.
CASE INFORMATION: A 26 year old female, with a history of poorly controlled type 2 diabetes mellitus and recent drainage of a masticator space abscess after molar extraction, presented with swelling and pain over the left temporal area. Three months earlier, the left maxillary second and third molars were extracted for periodontal disease under local anesthesia without prophylactic antibiotics. A month later, she presented to the emergency department for 3 weeks of progressive left upper jaw pain and inability to open the jaw (trismus). CT scan revealed 2.4×1.7 cm irregularly shaped rim enhancing mass in the left temporalis muscle at the level of the coronary process compatible with a masticator space abscess

related to the recent extracted maxillary molars. She underwent surgical incision and drainage of the abscess and was discharged. She was readmitted for 3 week-duration of progressive pain over the left temporal area associated with swelling and tenderness. She was afebrile and had unremarkable ocular and neurological exams. CT scan revealed 4.4 cm×1.3 cm multiloculated abscess within the left temporalis fossa and suprazygomatic space, likely related to the previous unresolved abscess. On the following day, she underwent successful drainage. The culture from the abscess showed penicillin sensitive Viridans streptococci. Blood cultures were negative. Intravenous ampicillin-sulbactum was initiated and converted to oral amoxicillin-clavunate on discharge to complete a 14 day course. An intensive insulin regimen was started for poorly controlled diabetes with hemoglobulin A1c of 12.6%.

IMPLICATIONS/DISCUSSION: Masticator spaces consist of temporal, pterygoid, and masseteric spaces. Infection of these spaces arises most frequently from molar teeth, particularly the third molars. The clinical hallmark of masticator space infection is trismus. If unrecognized and untreated, these infections can potentially spread contiguously into the deeper fascial spaces of the head and neck. The most important therapeutic modality for pyogenic odontogenic infections is early intervention with surgical drainage. Antibiotic prophylaxis in third molar surgery has long been an issue of controversy. Recent meta-analysis of randomized controlled trials indicated that systemic antibiotics given before third molar surgery may be effective in reducing the risk of surgical wound infection with a number of needed to treat of 12–25. The balance of risk and benefits of prophylactic antibiotics in third molar surgery is unclear. Uncontrolled diabetes is known for delayed healing, and these patients may benefit from prophylactic antibiotics in addition to glycemic control to prevent postsurgical wound infection. Viridans streptococci are important components of oral flora and common causes of periodontal infection. Up to a third of all viridians group streptococci isolated have been found to have decreased susceptibility to penicillin. Beta-lactamase production among oral anaerobes is increasingly recognized, and treatment failure with penicillin alone has been well-documented. Thus, penicillin monotherapy is no longer recommended, and ampicillin-sulbactum is now one of the first choices.

A CASE WHERE THE BRAIN DOES NOT HAVE ALL THE ANSWERS
S. Shahid[1]; R. Samuel[1]; V. Paralkar[1]. [1]Temple University, Philadelphia, PA. *(Tracking ID # 204846)*

LEARNING OBJECTIVES: To recognize that sarcoidosis has a wide spectrum of clinical signs and symptoms, and that neurologic findings may be the major manifestation of this disease.

CASE INFORMATION: A fifty three year old African American woman with a history of SLE, hypertension, occipital infarction with persistent left sided weakness, and depression was admitted to the hospital with progressively worsening weakness, ambulatory dysfunction, cognitive deficits, weight loss and fevers. An MRI with gadolinium of the brain showed meningial enhancement at the base of the brain and brainstem suggestive of meningitis. Subsequently, a lumbar puncture was performed which revealed a CSF that was lymphocyte predominant with 200 WBC's with, 92% lymphocytes, protein 245, and glucose 34. Culture data on this specimen was negative for routine bacteria, virus, and fungi. This subacute lymphocytic meningo-encephalitis was thought to be either viral or tuberculous in origin. Further serologies that were negative included CSF and serum cryptococcal antigen, HSV PCR, CSF VDRL, CSF AFB smear and culture, CSF RPR, and Lyme antibodies. A repeat LP in two weeks was unchanged. The patient was started on anti-tuberculosis treatment with isoniazid, rifampin, pyrazinamide and ethambutol given a history of remote exposure to tuberculosis, though she herself had no prior history of having had either TB or a positive PPD. The patient was continued on these medications for 9 weeks, but she became profoundly weak over this period, developed cranial nerve abnormalities, and was also found to have a concerning elevation of hepatic transaminases. All medications were stopped. On further questioning, the patient recalled having had some liver problem for which she had had a biopsy in the past, but was unaware of the results. In addition to the worsened neurological findings, the patient had also developed uveitis, had multiple papules on her lower extremities, and had evidence of hilar, abdominal and pelvic lymphadenopathy on a CT scan. This progressive multisystem presentation raised the suspicion of sarcoidosis, leading to a skin biopsy of one of the papules on her lower extremity that showed noncaseating granulomas, thus confirming the diagnosis. The patient was started on corticosteroid therapy and her neurologic symptoms improved significantly.

IMPLICATIONS/DISCUSSION: Sarcoidosis is a multisystemic disease that uncommonly affects the CNS. Symptoms of neurosarcoidosis include cranial nerve palsies, headache, ataxia, cognitive dysfunction, weakness, and seizures. The diagnosis of neurosarcoid should be considered when a lymphocytic predominant meningitis workup fails to demonstrate an infectious cause. Also, as evidenced in this case, the history and physical exam is fluid and must continuously be revisited in order to make the correct diagnosis.

A CATTY COUGH
L. Richey[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203853)*

LEARNING OBJECTIVES: 1. Recognize Pasteurella multicoda as a cause of serious respiratory infection in patients with underlying COPD. 2. Identify treatment regimens and risk factors for Pasteurella infections.

CASE INFORMATION: A 66 year-old woman presented with sudden onset of three days of shortness of breath. She reported a productive cough, fever, and chills over the same time period, but had had no symptoms prior to this event. The dyspnea was improved with albuterol, and exacerbated with laying flat. She denied any sick contacts. She had a past medical history of diabetes, hypertension, high cholesterol, and hypothyroidism. She reported smoking a pack per day for 20 years, quitting the week of admission. She denied any illicit drugs or alcohol abuse. Her temperature was 101.7 °F, her heart rate was 105 b/min, and her oxygen saturation was 88% on room air. Physical exam was remarkable for diffuse wheezing and decreased airflow bilaterally. There were no signs of pulmonary consolidation, and her cardiac examination was normal. There was no elevation in the jugular vein, and there was no peripheral edema. Her complete blood count was normal. Electrolytes and liver function tests were normal, except for a low serum sodium and albumin. The chest X-ray demonstrated right middle lobe airspace disease. Blood cultures from admission demonstrated gram negative coccobacilli consistent with Pasteurella multicoda. On further questioning the patient stated she lived in a small trailer with multiple pet cats. The patient was successfully treated with levofloxacin and slowly weaned off respiratory support.

IMPLICATIONS/DISCUSSION: Community acquired pneumonia is a common illness, affecting 1 out of 1000 adults each year. While Streptococcus pneumoniae is the most common cause, the general internist must use the history and physical examination to sequentially exclude less common pathogens. Pasteurella multicoda is a rare but important pathogen to consider in the differential of community acquired pneumonia. The bacteria are normally found in the upper respiratory tract of bird and mammals, especially healthy pet cats and dogs. It commonly causes soft tissue and bone infections after exposure via animal bites or scratches. In patients with COPD the bacteria is known to cause serious upper and lower respiratory tract infections, most commonly pneumonia. Bacteremia is commonly associated with the pulmonary infection, with subsequent mortality being as high as 29%. The clinical presentation usually begins with non-specific symptoms of fever, malaise, shortness of breath, and pleuritic pain. Wheezes and rhonchi are commonly heard on examination; the chest X-ray commonly reveals lobar consolidation, although a diffuse or multilobar consolidation can be seen. The organism can be isolated from the blood or respiratory secretions. The organism responds to many of the antibiotics used to treat pneumonia in the hospital, including quinolones, cephalosporins, and macrolides, but susceptibility testing needs to be completed to ensure susceptibilities. Our patient exhibited the common features of Pasteurella infection, including her history of a close exposure to cats. Her rapid onset of symptoms and the severity of her symptoms with her associated COPD were also typical of this infection. However, the lack of a report of a companion animal prevented consideration of this diagnosis. Companion animals should be considered an important part of a patient's social history in order to diagnose infections with Pasteurella species.

A CLOT WITH AN INTERESTING PLOT P. Hirudayaraj[1]; T. Shah[2]; M. Wells[2]; R.L. Krippendorf[3]. [1]Medical College of Wisconsin, Brookfield, WI; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Medical College of Wisconsin, Waukesha, WI. *(Tracking ID # 206029)*

LEARNING OBJECTIVES: 1. Recognize vascular anomaly as a possible cause for venous thrombo-embolism. 2. Recognize the importance of early referral for vascular interventions to minimize the potential complications of serious post thrombotic syndrome.
CASE INFORMATION: A 24 year-old African-American previously healthy woman was admitted with a 4-day history of left lower extremity swelling and pain. On examination she was hemodynamically stable and the only positive finding was a swollen left leg with minimal erythema and tenderness in the medial aspect of the thigh. Initial laboratory studies were normal, but a Doppler ultrasound revealed extensive, completely occlusive thrombus in the left common femoral and proximal saphenous veins with partial occlusion of distal veins. She had no other predisposing factors for VTE except for a normal vaginal delivery 6 months prior to admission and use of a once-monthly vaginal combination contraceptive. She was promptly started on anticoagulation and interventional radiology was consulted for possible thrombectomy in view of the extent of disease. Venography of the ileofemoral system revealed extensive filling defects in the left ileofemoral veins with band-like lack of opacification and web-like defects at the origin of the left common iliac vein (CIV) suggesting external compression consistent with May-Thurner syndrome. The patient underwent mechanical thrombectomy, catheter-directed thrombolysis and placement of intravascular stents in the left common iliac vein (CIV) and inferior vena cava filter. Her entire hypercoagulability panel eventually came back normal. She was discharged home on warfarin and has done well since.
IMPLICATIONS/DISCUSSION: May-Thurner syndrome (a.k.a. Cockett or ileocaval syndrome) is a condition caused by a common anatomic variant of the right common iliac artery (CIA). The anomalous origin of the right CIA causes compression of the left CIV at its origin against the 5th lumbar vertebra, and chronic compression and pulsation transmitted from the overlying artery has been postulated as a cause for endothelial irritation and extensive intimal hypertrophy with formation of lateral and anterior web-like lesions and intravascular spurs. Significant but asymptomatic compression has been noted in many individuals based on autopsy and CT scan studies. However, symptomatic veno-occlusive disease in the left proximal ileofemoral system can occur, especially in young women in the 2nd to 4th decades with other predisposing factors for VTE. Contrast ileofemoral venography is the gold standard investigation which can show features consistent with external compression at the origin of left CIV. Thrombectomy with catheter-directed thrombolysis and/or stent placement in addition to therapeutic anticoagulation is the mainstay of treatment since significant postthrombotic complications, including chronic pain,ulceration and venous stasis, are common. Re-occlusion rates are as high as 70% when stents are not placed.

A COMMON BUG, AN UNCOMMON PROBLEM N.A. Villa[1]; A. Kolpakchi[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 205221)*

LEARNING OBJECTIVES: 1. Recognize intracranial mycotic aneurysm as a rare complication of endocarditis. 2. Report ***Enterococcus faecalis*** being an uncommon cause of intracranial mycotic aneurysm. 3. Discuss treatment options for intracranial mycotic aneurysms.
CASE INFORMATION: A 72-year-old African-American male with history of benign prostatic hypertrophy and urinary tract infection (UTI) was admitted for altered mental status. Four months ago, he had a UTI caused by ***Enterococcus*** which was treated and subsequently underwent a transurethral resection of prostate 1 month later. After the procedure, he had been feeling weak and having night sweats without objective fevers. Five days prior to this admission, he came to the ER with complaint of increasing weakness. Urinalysis revealed 53 wbc, and he was discharged with levofloxacin. On the day of admission, he became confused and disoriented. Physical examination was remarkable for disorientation to time, meningismus, and a new apical III/VI holosystolic murmur. His serum wbc was 12.2 K/uL (86% neutrophils and 9% lymphs). Urine cultures showed <10,000 col/ml skin flora; blood cultures grew non-hemolytic ***Enterococcus*** species. A brain CT revealed subarachnoid hemorrhage, and a right middle cerebral artery mycotic aneurysm was found on a CT angiogram. An echocardiogram showed a vegetation in the anterior mitral valve leaflet. He was started empirically on vancomycin and gentamicin. ***Enterococcus*** species from blood cultures were finally identified as ***Enterococcus faecalis*** susceptible to ampicillin; thus, vancomycin was changed to ampicillin. He was discharged to a long-term acute care for completion of his 6-week intravenous antibiotic.
IMPLICATIONS/DISCUSSION: Intracranial mycotic aneurysms resulting from endocarditis develop in 2% of patients. A mycotic aneurysm is defined as a localized dilatation of an artery due to destruction of the vessel wall by infection. Tiny septic emboli occlude the vasa vasorum which damages the muscular layer of the blood vessel. In turn, subsequent intra-arterial pressure causes dilation and aneurysm formation. ***Staphylococcus*** and ***Streptococcus*** species have been identified to be the common pathogens in intracranial mycotic aneurysms. From the literature, ***Enterococcus*** is a rare organism. Risk factors for mycotic aneurysms have been described and include impaired immunity (DM, alcoholism, steroids, chemotherapy and malignancy) and increased age, as there is a higher incidence of atheromatous plaques. Mycotic aneurysms can decrease, increase, remain in size, or even disappear during treatment for endocarditis. There are no randomized controlled studies to guide management of mycotic aneurysms, but for ruptured intracranial aneurysms, combination therapy with antibiotics and surgery has a better outcome than antibiotics alone. The mortality rate of unruptured intracranial mycotic aneurysm is 30%, and ruptured is 80%. Thus, intracranial mycotic aneurysm should be considered in patients with endocarditis presenting with neurologic symptoms and/or a change in sensorium; prompt work up and intervention are critical for better clinical outcome.

A CONFUSING PICTURE: AMNESIA IN A PATIENT PRESENTING WITH SEVERE HEADACHE E. Thung[1]; L. Rolon[2]; M. Rotblatt[3]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Culver City, CA; [3]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 204808)*

LEARNING OBJECTIVES: Recognize that transient global amnesia (TGA) is in the differential diagnosis for patients presenting with acute confusion
CASE INFORMATION: A 64 y.o. Hispanic woman presented with a 1 day h/o severe headache that began suddenly. She had a PMH of DM, HTN, hypothyroidism, and migraines >10 years ago. The patient characterized her headache as 10/10 dull, constant pain localized to the left hemisphere. She denied trauma or associated symptoms suggestive of a classic migraine or stroke. However, she was unable to form new memories and kept asking the same questions repeatedly. Per the patient's children, she could not remember the day's events, including an altercation with her son over the phone in which she became overwhelmingly upset. In the ED, the patient also developed left sided, non-radiating chest tightness. Physical exam revealed no abnormal findings, including an extensive neurologic exam (no focal deficits or papilledema). A modified MMSE yielded a score of 12/25. The patient performed immediate repetition of sentences but only recalled 1/3 objects with prompting. EKG showed Q-waves in the inferior leads without ST elevations. Troponin levels and CXR were negative. Head CT and MRI were normal. An LP was done to r/o infectious causes such as meningitis, encephalitis. CSF revealed no WBCs or RBCs and had normal glucose and protein levels. CSF RPR, HSV PCR, India ink, and gram stain were negative. Urine toxicology was negative except for opiates, which had been given in the ED. The patient was treated with morphine and vicodin for pain. In the subsequent days after admission, the patient's amnesia resolved and mental status became intact. Based on lack of focal neurological and CT/MRI/LP findings, the Neurology service deduced that she most likely had transient global amnesia, supported by the patient's inability to form new memories and resolution of all symptoms within two days.
IMPLICATIONS/DISCUSSION: This case demonstrates a clinical presentation of transient global amnesia (TGA). TGA is characterized by a loss of recent past and current memories, as well as a state of confusion and anterograde amnesia for several hours. Patients with TGA are usually older and have intact neurologic exams. A classic finding is nonstop repetition of the same question and statements. TGA is usually acute in onset and may be preceded by strong emotional experiences, pain, cold temperature, sexual intercourse, or head trauma. In

addition, many patients with TGA have headaches during their episodes. There is some debate regarding the etiology of TGA. Some studies indicate it might be an undetectable temporal seizure, while others feel it is an ischemic process or migrainous in nature. Once the episode passes the patient is completely healthy with normal functioning, making TGA a benign process requiring no treatment. However, it is a diagnosis of exclusion, and should only be identified after thorough investigation to rule out a more serious pathologic process.

A COVERT OPERATION R. Beck[1]; B. Hymel[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203841)*

LEARNING OBJECTIVES: 1. Recognize the importance of a thorough history and physical exam in the evaluation of a patient with new onset shortness of breath. 2. To identify the appropriate diagnostic tests to establish causes of chronic shortness of breath.
CASE INFORMATION: A 46 year-old woman presented with one week of worsening shortness of breath. She had four-pillow orthopnea, paroxysmal nocturnal dyspnea, and intermittent symptoms of abdominal muscle tightening for two months prior to admission. She was diagnosed with asthma fifteen years earlier; she smoked one pack of cigarettes every two weeks and occasionally smoked crack cocaine. She had no additional medical history and she was taking no medications. Her blood pressure was 188/113 mmHg and her oxygen saturation was 95% on room air. She had no lymphadenopathy or jugular-venous distention. Auscultation of the lungs revealed diffuse fine crackles, more prominent at the bases, and distant breath sounds. Cardiac auscultation revealed distant heart sounds without murmurs. The remainder of the physical exam was normal. A chest X-ray revealed hyperinflated lung fields, increased interstitial markings, flattened diaphragms and severely distended central pulmonary arteries. The enlarged pulmonary trunks suggested that this process had been chronic, and likely accounted for the mis-diagnosis of asthma fifteen years earlier. A high resolution chest CT revealed interstitial septal thickening throughout all lung zones, scarring of the lingual and right lower lobe, diffuse emphysematous changes in all lung zones and no mediastinal lymphadenopathy. Lung biopsy via bronchoscopy showed non-caseating granulomas in a fibrous stroma. She was diagnosed with sarcoidosis.
IMPLICATIONS/DISCUSSION: Dyspnea is one of the most common presentations confronting the general internist. Because of the array of potential etiologies, it is important that the internist exercise a thorough method in establishing the diagnosis. The thorough method includes a detailed history and physical examination, focusing on the upper respiratory tract, chest and skin. A chest X-ray, artieral blood gas, and EKG are standard initial diagnostic tests, with additional diagnostic tests as indicated by the history. As was the case with our patient, sarcoidosis frequently presents with a protean presentation that is, for a time, mistaken as another more common diagnosis such as asthma. Our patient had been empirically started on beta-agonist therapy for a presumptive diagnosis of asthma but never had pulmonary function testing or a chest x-ray. Although she did not initially report any significant family history, a little bit of prompting revealed that she had a brother with sarcoidosis. Her diagnosis could have been made sooner if the history had been more comprehensive or the work-up for asthma was completed. Not only must the Internist have good methods, but he or she must apply those methods to the fullest of his or her abilities on each and every patient. It is patients like this one that serve as a constant reminder of this tenet espoused by Osler.

A CURE WORSE THAN THE DISEASE I. Butler[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203888)*

LEARNING OBJECTIVES: 1. Recognize the signs and symptoms of drug eruption with eosinophilia and systemic symptoms (DRESS) and drug hypersensitivity syndrome (DHS). 2. Identify the common medications associated with DRESS and DHS. 3. Understand the role of prompt medication discontinuation in DRESS and DHS.
CASE INFORMATION: A 53 year-old woman presented with five days of malaise. Her symptoms were associated with sore throat and fever. She had no past medical history, and described no alcohol, tobacco or drug use. She was taking no medications, but she did note that she had taken a friend's trimethoprim- sulfamethoxazole for a prior flu-like syndrome. one week earlier. On examination, her heart rate was 121 b/min, her blood pressure was 90/50 mmHg and her temperature was 96.2 °F. Her sclera were icteric and her pharynx was erythematous. There was no lymphadenopathy. Her lungs were clear and her heart was normal. The abdomen was diffusely tender without guarding, and she had a diffuse macular erythematous rash. Her initial WBC was 16,000 cells/mm3, with 12% eosinophils. Her creatinine was 7 mg/dl. The alkaline phosphatase was 1754 IU/l, the bilirubin was 13.5, and the AST and ALT were 351 and 395. An abdominal CT was obtained, revealing gall bladder wall thickening and fatty liver changes. During her hospitalization, her lab studies, rash and sore throat worsened. Skin biopsy showed acute and chronic inflammation of the epidermal interface with eosinophils.
IMPLICATIONS/DISCUSSION: Internists often encounter febrile syndromes with rash and organ dysfunction. Although infections and sepsis top the differential diagnosis, drug reactions are commonly the culprit symptoms. Drug eruption with eosinophilia and systemic symptoms (DRESS), in addition to anaphylaxis, toxic epidermal necorlysis and Stevens-Johnson Syndrome, is one of the four most feared drug reactions. DRESS typically presents one to eight weeks after medication exposure. While many drugs have been associated with DRESS, nonsteroidals, anticonvulsants and sulfonamides are the most common. The rash begins as erythematous macules, often progressing to confluent papules, or even a TENS-like appearance. The liver is the most common organ involved, and the combination of a skin rash with liver failure should alert the physician to the possibility of DRESS. Damage ranges from mild hepatitis to fulminant failure. Renal impairment also occurs, but is less common than the liver damange. Other manifestations include pharyngitis, colitis, pneumotitis and pancreatitis. Clinically, the important distinction is to differentiate DRESS from systemic sepsis, especially if the patient is being treated with an antibiotic that may be inducing the DRESS syndrome. While waiting for negative cultures, the presence of systemic eosinophilia is the diagnostic clue to suggest the presence of DRESS. Although diagnosis can be difficult, recognition is vital. Early discontinuance of the offending medication will mitigate symptoms. There may be a role for corticosteroids in treatment. Because the medications that trigger this potentially fatal syndrome are common, the diagnosis should be remembered in septic appearing patients with known exposure.

A DIPLOCOCCAL DEBACLE M. Dhand[1]; A. Carhill[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203843)*

LEARNING OBJECTIVES: 1. Recognize the susceptibility of lupus patients to meningococcemia 2. Identify the rapid progression of fulminant meningococcal sepsis and importance of early diagnosis and treatment
CASE INFORMATION: A 26 year-old woman with a history of systemic lupus erythematous presented with a two-day history of nausea, vomiting, abdominal pain and arthralgias. She was on chronic corticosteroid therapy and had repeatedly changed her dose over the previous week. On presentation she was hypotensive and tachycardic. Her temperature and respiratory rate were normal. Her lungs were clear and her heart was normal. The abdomen was not tender, and skin examination was normal. There was no evidence of meningismus or neurologic deficits Her laboratory values were normal with the exception of an elevated white blood cell count, a mild anemia, a creatinine of 1.7 and hypoglycemia. The chest X ray was normal. Owing to her hypotension, intravenous fluids were administered. The hypotension persisted. The hypoglycemia was similarly refractory to multiple ampules of D50. Adrenal insufficiency was suspected and she was given hydrocortisone with a D5 drip and she was admitted to the intensive care unit. Despite an initial rise in blood pressure after administration of hydrocortisone, she continued to be hypotensive and was started on vasopressors. By the second day, her platelet count dropped from 220,000 to 20,000, and her hemoglobin dropped from 12 mg/dl to 10 mg/dl. The peripheral smear revealed schistocytes; the LDH was 750. Disseminated intravascular coagulation was diagnosed. Blood cultures grew Gram-negative diplococci and treatment doses of ceftriaxone were initiated. On the third day, she developed acute respiratory distress syndrome, and she was intubated. At this time, a purpuric rash was noted over the lower extremities. Blood culture speciation reported Neisseria meningitidis. Her creatinine had in-

creased to 5.0 and she required hemodyalysis. Necrosis of the bilateral upper extremity distal phalanges was noted on the fourth day. Her oxygen saturation status remained tenuous but slowly improved. Complement 3 levels were well below normal. Over the course of her ICU stay, she developed multiple organ system failure and required IVIG.

IMPLICATIONS/DISCUSSION: SLE is a common admitting diagnosis encountered by the general internist. Patients with SLE are especially susceptible to Neisseria meningitidis infection secondary to the acquired hypocomplementemia and high concentrations of immune complexes. The most important virulence factor for Neisseria meningitidis is its polysaccharide capsule that is broken down by complement mediated bacteriolysis and opsonization by the reticuloendothelial system. Meningococcemia initially can present with symptoms mimicking a lupus flair, but rapidly progresses to fulminant meningococcal sepsis.A petechial or purpuric rash signifying disseminated intravascular coagulopathy is characteristic of a fulminant meningococcal sepsis. This may eventually lead to purpura fulminans with hypotension, acute adrenal hemorrhage (Waterhouse-Freidrichsen Syndrome) and multi-organ failure. Early recognition and treatment with antibiotics is essential. Management of complications, including corticosteroids for adrenal insufficiency and fresh frozen plasma for disseminated intravascular coagulopathy may be indicated. The general internist must recognize that infectious etiologies must be assumed in a lupus patient until proven otherwise.

A DOUBLE-CUTTING KNIFE: THE CONTRADICTIONS ABOUT IVC FILTERS V. Lioutas[1]; M.P. Shah[1]; S. Berk[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 203897)*

LEARNING OBJECTIVES: 1. Recognize potential complications associated with IVC filter placement. 2. Consider syncope as potential clinical presentation of IVC thrombosis.

CASE INFORMATION: A 55 year old man presented to the hospital following an episode of syncope accompanied by chest pain. He has a past medical history of a deep vein thrombosis (DVT) and pulmonary embolism on the same presentation, with IVC filter placement in 2005. He was treated with outpatient anticoagulation for two years. Patient had bilateral lower extremity weakness, and dizziness with occasional vertigo for 2 days prior to admission. He had a blood pressure of 78/40, and the physical exam was significant for orthostatic tachycardia and hypotension. No other abnormal findings on physical exam were noted. Oxygen saturation on room air was 96%. EKG showed sinus tachycardia and no signs of ischemia. Given the patient's history of DVT, a lower extremity venous duplex ultrasound was performed, which revealed no presence of thrombi in the deep veins of the lower extremities. Initial troponin-T was marginally elevated (0.09) and normalized in subsequent measurements. Next morning, the patient complained of increasing pain, weakness and swelling of his bilateral lower extremities. Physical exam disclosed significant bilateral lower extremity non-pitting edema, purplish discoloration of the skin and weak peripheral arterial pulses. Suspicious of an arterial occlusion, a heparin drip was started. A cardiac echo, performed as part of the syncope workup, revealed no right-sided heart strain, only hyperkinetic left ventricle and lack of visualization of the inferior vena cava (IVC). Given the clinical findings and the lack of visualization of the IVC on echo, an IVC thrombus was suspected. An IVC duplex ultrasound was obtained along with repeat lower extremity venous duplex, which revealed a thrombus starting at the level of the IVC filter and extending distally, and extensive acute DVTs including bilateral common iliac veins, bilateral common femoral veins, and extending distally to the left popliteal vein. The patient was subsequently taken to the operating room, where the thrombus was removed using a combined pharmacological (tPA) and mechanical technique. The filter was removed and the patient was discharged on coumadin.

IMPLICATIONS/DISCUSSION: IVC filters are widely used as an important alternative or adjunctive treatment strategy for patients with venous thromboembolism. However, there is a lack of reliable data on their long-term efficacy and safety (only one randomized control trial). In this trial, the occurrence of PE was decreased in patients with IVC filters, whereas the incidence of DVT was increased. Current grade 1C recommendations from American College of Chest Physicians favor IVC filter placement in patients with acute proximal DVT, if anticoagulant therapy is contraindicated, and reinstatement of a conventional course of anticoagulant therapy if the contraindication is eliminated. Attention should be brought to syncope as a possible clinical complication of IVC filters, as occurred in this case. We suspect that obstruction of the IVC from the large thrombus caused acute preload reduction, leading to decreased effective intravascular volume. This, in turn, led to the presentation of syncope due to decreased cerebral perfusion. In addition, the decreased volume caused demand myocardial ischemia, leading to the patient's chest pain and elevated troponin level.

A FAMILIAR FACE IN A FOREIGN PLACE R.L. Carruthers[1]; K.M. Finn[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 205314)*

LEARNING OBJECTIVES: Remember the consider common entities from other fields of medicine when creating your differential for abdominal pain. Describe a presentation of abdominal wall endometriosis. Understand the risk factors for abdominal wall endometriosis.

CASE INFORMATION: The patient is a 36 year old obese woman with no significant past medical history who presents with nausea and vomiting for three days and a growing painful left abdominal wall mass. She decided to seek medical attention when she developed pleuritic central chest pain and shortness of breath that morning. The patient noticed a small mass on her lower left abdominal wall one year ago. She showed it to her primary care physician, who reassured her that it would resolve. The patient did not follow up. The mass continued to grow and began causing her worsening pain in the LLQ radiating around to her back. The pain is constant but worsened by pressure and with her menstrual cycle. She denies diarrhea, constipation, melena or hematochezia. She has noticed a fifteen pound weight loss, drenching night sweats, anorexia and early satiety over the last month. The patient also reports headache and lightheadedness in addition to the previously described nausea and vomiting and chest pain. She has been using ibuprofen and occasionally oxycodone to manage her pain. Her obstetric history is significant for four caesarian sections. The patient's abdominal exam shows a caesarian section scar and a tender 4 cm nodular mass approximately 3 cm to the left of midline at the level of the anterior superior iliac crest. Screening labs including Chem 7, CBC and LFT's are normal. Urine HCG is negative. Pulmonary Embolus-protocol CT is normal. Abdominal CT shows an enhancing, spiculated mass measuring 3.5×3.6×3.0 cm in the anterior abdominal wall, apparently arising from the left rectus sheath. There is a similar, smaller lesion arising from the right rectus sheath, measuring 0.6×0.8×0.9 cm. Radiographic differential includes desmoid tumor or sarcoma. CT-guided biopsy yielded adequate tissue. Histopathologic diagnsosis was endometriosis. Gynecology was consulted and outpatient follow-up was scheduled.

IMPLICATIONS/DISCUSSION: Endometriosis is defined as endometrial glands and stroma outside the uterus. The most common extra-pelvic site for endometriosis is the abdominal wall. Abdominal wall endometriosis typically presents as a painful mass, worse with menstruation, near a surgical scar. This entity should be considered in the differential for an abdominal wall mass in a patient with prior surgeries (especially caesarian sections). A plausible mechanism for this presentation of endometriosis is iatrogenic inoculation of endometrium into a surgical wound during caesarian section. Radiographic features include spiculations on CT and hypoechogenicity on ultrasound. Considering the mass's proximity to her Caesarian section scar, and that her pain worsened during her periods, this diagnosis is compatible with the clinical picture. Although endometriosis is a common gynecologic disorder, it may present unexpectedly on a medicine service. This case serves as a reminder to keep a broad perspective when generating a differential.

A LETHAL RASH P.H. Fung[1]; A.L. Kolpakchi[2]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX; [2]Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX. *(Tracking ID # 203911)*

LEARNING OBJECTIVES:

Recognize allopurinol as one of the most common offending agent of toxic epidermal necrolysis (TEN).<\/li>Review the scoring system to estimate mortality of patients with TEN on admission.

CASE INFORMATION: A 63-year-old male presented with a 3 week history of diffuse rash. He was diagnosed with multiple myeloma

5 weeks ago, and treatment with thalidomide was started. Allopurinol was prescribed at that time for an unclear reason. Two weeks later, he developed a non-pruritic rash on his anterior chest, trunk, neck, bilateral shoulders, and back. Three days prior to presentation, he was seen in Hematology clinic, and thalidomide was discontinued. However, the rash worsened and spread to his extremities with formation of small tender bullae. On admission, 50% of total body surface area was covered by diffuse erythematous macular rash with bullae involving only 3%. A clinical diagnosis of TEN was made. He was transferred to the MICU and later to a burn unit, and allopurinol was held. A skin biopsy confirmed the diagnosis. He remained in the burn unit and was eventually discharged home. He resumed chemotherapy and tolerated it well.

IMPLICATIONS/DISCUSSION: TEN is in the same spectrum as Stevens-Johnson syndrome with high mortality rate up to 30–40%. It is a clinical diagnosis supported by histopathology showing basal cell layer necrosis. Early recognition and rapid transfer to a burn unit are associated with better outcomes. A scoring system, SCORTEN, is used at the time of admission to estimate the in-hospital mortality. The seven risk factors (with each given 1 point) include age >40 years, malignancy, pulse >120, initial percentage of epidermal detachment >10%, BUN >10 mg/dL, serum glucose level >140 mg/dL, bicarbonate level <20 mmol/L. Patients with <2 risks have mortality rate of <12% as compared to >5 risk factors with 90% mortality rate. Our patient had a SCORTEN score of 3 (age, malignancy, and BUN of 29 mg/dL). Many drugs can cause TEN, but current literature suggests that allopurinol is the most common precipitant of TEN by its widespread use, although the manufacturer's reported incidence of TEN is <1%. The causative agent in our patient was allopurinol. There have been only a few case reports with TEN associated with thalidomide, and thalidomide was actually used as a treatment for TEN in a few small studies. Management of TEN consists of supportive care with aggressive wound care and fluid management. There is limited data in the use of high-dose intravenous immunoglobulins. In conclusion, since allopurinol is frequently used for gout and other disease process, physicians must prescribe it judiciously, especially in elderly patients due to its high association with TEN.

A MILLION DOLLAR WORK UP S. Arora[1]; J. Cinicola[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]Allegheny General Hospital, Pittsburgh, PA, Pittsburgh, PA. *(Tracking ID # 205443)*

LEARNING OBJECTIVES: 1. To recognize that elevated Carcinogen embryonic antigen (CEA) levels are not specific for colon cancer and many other common etiologies may exist. 2. To recognize work up for elevated levels of CEA in context of the clinical presentation.

CASE INFORMATION: A 65 year-old Caucasian female with history of colon cancer, status post right colectomy in January 2007, presented with right upper quadrant abdominal pain. Patient had associated complaints of nausea, vomiting and decreased appetite. Her last colonoscopy two months prior to admission was normal. On exam, she had icterus, jaundice and right upper quadrant tenderness without rebound, guarding or palpable mass. Liver function tests showed elevated direct bilirubin and alkaline phosphatase. CEA level was elevated up to 10.1 (normal 0 to 2.5 mcg/L), which raised concern for recurrence of her colon cancer. CT scan of the abdomen showed extra-hepatic biliary dilatation. She underwent ERCP and was found to have a common bile duct stone. As a part of further work up for possible recurrence of colon cancer in setting of elevated CEA levels, patient underwent repeat colonoscopy which was unremarkable. CT-PET was ordered to evaluate for metastasis which was also negative. Her repeat CEA level on Day-8 of admission was 2.1. It was then realized that the elevated CEA levels were secondary to choledocholithiasis which had normalized after removal of the biliary stones and resolution of the obstruction.

IMPLICATIONS/DISCUSSION: Carcinogen embryonic antigen (CEA) is a tumor marker that is useful for follow-up of patients with colon cancer, but it is neither sensitive nor specific. CEA can be elevated in other malignancies such as breast, pancreas, stomach or lung cancer. Common benign conditions including cirrhosis, choledocholithiasis, smoking, inflammatory bowel disease and pancreatitis can also cause CEA levels. Studies have shown CEA levels to be elevated in up to 19 percent of smokers and in 3 percent of a healthy control population. It is elevated in less than 25% of early cases of colon cancer and 75% of late-stage cases. This patient underwent a "million dollar work up" to search for a recurrence of colon cancer despite the fact that choledocholithiasis, a more likely etiology of her elevated CEA based on her clinical presentation had already been found. This case highlights the need for keeping a broad differential and interpreting the results appropriate to the clinical context of each patient. When abnormal results are found the testing should be repeated to evaluate the trend before pursuing additional invasive investigations.

A NIGHT ON-CALL AT SAN FRANCISCO GENERAL HOSPITAL: THREE CASES OF HYPOGLYCEMIA S. Azari[1]; A. Chen[2]. [1]University of California, San Francisco, San Francisco, CA; [2]San Francisco General Hospital, San Francisco, CA. *(Tracking ID # 205579)*

LEARNING OBJECTIVES: 1. Recognize the various causes of hypoglycemia in patients presenting to a county hospital.

CASE INFORMATION: Case 1: JG is a 56 year old homeless male with no past medical history who presented with altered mental status. On initial asssessment, he was found to have a finger stick of 22 mg/dL. He received an ampule of 50% dextrose (D50) intravenously. His blood sugar rose to 220 mg/dL. Upon recheck, his glucose was 19 mg/dL. He received another ampule of dextrose with an initial rise to 119 mg/dL, but with a subsequent value of 50 mg/dL. He was placed on a 10% dextrose infusion. With correction of his blood sugar, he explained that he had severe tooth pain. He found a Mediset® in the trash and ingested three pills out of it which he thought were Valium and antibiotics. Within 6 hours, the IV infusion was discontinued and the patient was euglycemic. Case 2: XC is a 51 year old Chinese man with a history of cirrhosis secondary to hepatitis B admitted for altered mental status. On initial assessment he had a glucose of 25 mg/dL. He received an ampule of D50 and his sugar rose to the 207 mg/dL. On admission he reported increasing abdominal girth. In order to lose weight, he stopped eating breakfast. On the day of admission, he had missed breakfast and lunch, resulting in an 18-hour fast. The patient was fed and monitored overnight with no subsequent hypoglycemia. Case 3: RE is an 80 year old man with developmental delay and hypothyroidism brought in by his caretaker for increasing agitation over four months. He was initially prescribed aripiprazole for behavioral control. Routing laboratory tests revealed a blood glucose of 40 mg/dL. His physician prescribed frequent snacks and began a diagnostic evaluation. The patient had no renal or liver disease, ate well, and was receiving the correct medications. He had elevated levels of C-peptide and insulin, concerning for insulinoma. The patient was admitted for expedited evaluation. Upon admission, a 72-hour fast was done that showed inappropriately high insulin levels during hypoglycemia. He was prescribed diazoxide and corn starch. He had two computed axial tomography (CT) scans of the abdomen that showed no mass. An endoscopic ultrasound (EUS) showed a 5×5 mm mass in the pancreatic head. The patient underwent a calcium stimulation test that localized the lesion to the pancreatic head. The patient underwent laparotomy with successful enucleation of the mass. The pathology was consistent with insulinoma. Post-operatively, the patient's diazoxide was discontinued and his blood glucose normalized.

IMPLICATIONS/DISCUSSION: Hypoglycemia is a common cause of emergency room visits, estimated at 450,000 visits per year. The most common causes are missed meals and new or changed diabetic medications (Ginde 2008). Here we describe an accidental sulfonylurea overdose, a missed meal in a cirrhotic, and an insulinoma. These cases illustrate the following: first, accidental sulfonylurea overdose is rare - occurring mostly in children - so pill misidentification should be explored (Bronstein 2008). Second, most patients do not know how to dispose of medications and less than 20% of doctors teach them (Seehusen 2006). Third, hypoglycemia in a cirrhotic may represent occult sepsis or hepatocellular carcinoma, so these patients require evaluation for both. And finally, most diagnoses of insulinoma are delayed (median 1.5 years) and 20% of patients are mislabeled with psychiatric diagnoses. These patients have 10-year survival rates of 86% (Service 1991).

A NON-GASTROINTESTINAL SOURCE OF ABDOMINAL PAIN: THINK OUTSIDE THE BELLY L.C. Farrington[1]; K. Pfeifer[2]. [1]Medical College of Wisconsin, West Allis, WI; [2]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 204334)*

LEARNING OBJECTIVES: 1. Recognize non-gastrointestinal sources of abdominal pain. 2. Emphasize the importance of continuing to work-up abdominal pain even if a gastrointestinal source is not present.
CASE INFORMATION: An 87-year-old gentleman presented with a 4-month history of post-prandial, epigastric abdominal pain associated with nausea, anorexia and 20-pound weight loss. He reported no fevers, chills, diarrhea constipation, chest pain, or cough. His medical history included essential hypertension, atrial fibrillation, coronary artery disease, right-sided heart failure, hyperlipidemia, chronic kidney disease, type 2 diabetes mellitus, colon cancer, and chronic iron deficiency anemia. Seven months prior to presentation he had esophagogastricduodenoscopy (EGD) which showed a short segment of Barrett's esophagus and a small gastric polyp. His previous EGD 15 months prior to admission showed esophagitis and mid and distal jejunal arteriovenous malformations, and colonoscopy done 18 months previously showed no signs of recurrent cancer. Vital signs and physical exam on admission were unremarkable except for an irregularly irregular heart rhythm. Chest X-ray revealed no acute cardiopulmonary disease or significant interval change, and lab studies were remarkable only for baseline normocytic anemia and renal insufficiency. Subsequent abdominal series and abdominal ultrasound were also unremarkable. An abdominal MR angiogram was then ordered looking for possible bowel ischemia. This study revealed no stenosis of the arteries but new bilateral adrenal metastases and a left lower lobe lung mass. Chest CT revealed a 4 cm mass in the left lung base, upper lobe pulmonary nodules, and bulky adenopathy encasing and obstructing the mid thoracic esophagus. Bronchoscopy and EGD directed biopsies yielded nondiagnostic results, but eventual CT-guided biopsy confirmed a diagnosis of metastatic small cell lung cancer.
IMPLICATIONS/DISCUSSION: According to the National Comprehensive Cancer Network, 32,000 cases of small cell lung cancer (SCLC) have been diagnosed in the US alone in 2008. SCLC usually presents with cough and dyspnea, but given its aggressive nature, can spread early in its course and cause unusual presentations from metastatic disease. The rapid doubling time and high growth fraction of SCLC make it highly responsive to both radiation and chemotherapy, but prognosis is still poor given its typically advanced stage at the time of detection. Recognition of unusual presentations of SCLC can assist clinicians in early diagnosis and treatment, which could potentially prolong survival in these patients.

A NOT-SO-INCIDENTAL INCIDENTALOMA: A CASE OF STROKE IN A YOUNG WOMAN WITH PHEOCHROMOCYTOMA T. Ellman[1]; J. Tung[1]. [1]New York Presbyterian Hospital Weill Cornell, New York, NY. *(Tracking ID # 204871)*

LEARNING OBJECTIVES: 1. Recognize the importance of evaluating incidental adrenal lesions in a patient with severe hypertension and/or stroke. 2. Manage hypertension secondary to pheochromocytoma in the pre-operative phase.
CASE INFORMATION: A 48 year-old overweight woman with a past medical history significant for tobacco use presented to the ED after the gradual onset of headache, left arm numbness and weakness, and visual disturbances. On exam, the patient was found to have systolic blood pressures in the 200's, left-sided pronator drift, 1+ left sided reflexes with spread, and global sensory deficits. Laboratory data revealed new diabetes and neuroimaging showed a large acute right posterior temporal infarction. As part of the evaluation for acute stroke, the patient underwent an echocardiogram that revealed late passage of bubbles raising the possibility of an intrapulmonary shunt. She then underwent a CTA which showed no pulmonary AVMs but did reveal a left adrenal mass. This incidental finding prompted an abdominal MRI that confirmed a 4.4 cm enhancing left adrenal mass. PET CT revealed no other lesions. The patient's blood pressures were stabilized on an ACEI and she was discharged home with surgical follow-up. Plasma metanephrines and urine VMA returned elevated, and phenoxybenzamine was added to her regimen for presumed pheochromocytoma. She was instructed to begin a high sodium diet and scheduled for a laparoscopic left adrenalectomy. Pathology confirmed a diagnosis of pheochromocytoma.
IMPLICATIONS/DISCUSSION: Pheochromocytomas are rare and occur in less than 0.2 percent of patients with hypertension. The classic triad of symptoms includes episodic headache, sweating, and tachycardia. However, other signs and symptoms include hyperglycemia, orthostatic hypotension, papilledema, dilated cardiomyopathy, weight loss, increased ESR, psychiatric disorders, leukocytosis, and erythrocytosis. In at least 10 percent of patients the tumor is discovered incidentally as a result of imaging for other reasons. Adrenal incidentalomas that are >4 cm, enhance, secrete hormones, or are found in the appropriate clinical context should be worked up to exclude pheochromocytoma, adrenal cortical carcinoma, or metastatic lesions. In the case of pheochromocytoma, pre-operative medical therapy is aimed at volume expansion and controlling hypertension. There is no universally accepted method for medical preparation for resection of a pheochromocytoma, but combined alpha and beta adrenergic blockade is one approach. Phenoxybenzamine, the first line drug for alpha blockade, should be started at least 7 days prior to surgery with the goal of SBP of 90–120. Patients should begin a high sodium diet because of the catecholamine induced volume contraction and the orthostasis associated with alpha blockade. After adequate alpha blockade has been attained, beta blockade is started to control tachycardia. This patient presented with severe hypertension, stroke, and new-onset diabetes and was subsequently found to have a pheochromocytoma. She was treated pre-operatively with alpha adrenergic blockade but not beta blockade as tachycardia was not a prominent aspect of her clinical picture. We would expect her blood pressure and glycemic control to improve after her pheochromocytoma has been resected.

A PAIN IN THE NECK S. Whelton[1]; A. Carhill[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203847)*

LEARNING OBJECTIVES: 1) Identify the extra-pulmonary presentations of Mycobacterium tuberculosis 2) Identify the treatment for scrofulous tuberculosis 3) Recognize that an immuno-compromised state is an independent risk factor for development of scrofula
CASE INFORMATION: A 20 year-old woman from Honduras presented with a 4×3 cm mass on her left neck that had been gradually enlarging over the past three years. The mass was well defined, mobile, and non-erythematous. She had mild tenderness at the site, but was otherwise without complaints. She had no history of fevers, chills, night sweats, cough, or lymphadanopathy. She denied any known sick contacts or other risk factors for M. tuberculosis. She had been treated with oral antibiotics on multiple occasions, but had no improvement in her symptoms. Chest x-ray revealed no cavitary lesions or evidence of intrapulmonary processes and her HIV test was negative. However, a 14 mm induration developed after a PPD was placed. A subsequent fine needle aspiration sample revealed caseating granulomatous tissue that was later identified as Mycobacterium tuberculosis. She was placed in respiratory isolation and multiple sputum smears were negative for acid fast bacilli. The patient was ultimately diagnosed with scrofulous tuberculosis and started on multiple drug anti-tuberculosis therapy with outpatient monitoring at a tuberculosis clinic.
IMPLICATIONS/DISCUSSION: Tuberculosis remains a common infection, especially in patients with immune deficiency. Scrofula is an extra-pulmonary manifestation of Mycobacterium infection in the subcutaneous tissue that most often affects the submandibular, parotid, or supraclavicular lymph nodes. It has a bimodal distribution, with an incidence that is highest among adolescents and the elderly. Lymphadenitis is the primary manifestation of tuberculosis in five percent of the population and the cervical lymph nodes are the site of infection in two thirds of these cases. In the immuno-compromised population, cervical lymphadenitis represents up to one third of the total presentations. It typically presents as a firm, well defined, mobile nodule that is otherwise asymptomatic. The term cold abscess has been used to describe the mass, due to the lack of color or temperature changes which are usually found with a bacterial abscess. As the mass enlarges it may become soft due to liquefaction and can eventually form an ulcer. Surgical resection of these masses is associated with a high rate of recurrence and can lead to seeding and distant spread of the disease. Therefore, oral anti-tuberculosis therapy is the preferred method of treatment and should be initiated promptly. It is important for the general internist to be able to recognize the extra-pulmonary manifestations of Mycobacterium tuberculosis and initiate the appropriate treatment, because over the last 20 years a rise in the incidence of scrofulous tuberculosis has been noted in the United States. This is primarily due to a rise in immigration from endemic countries, the rising population of those infected with HIV, worsening urban social conditions, and the abandonment of rigid TB control programs.

A PATIENT WITH ANKLE SWELLING: A DIAGNOSTIC MYSTERY
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(Tracking ID # 204502)

LEARNING OBJECTIVES: 1. Recognize arthritis as a presentation of sarcoidosis 2. Learn to diagnose sarcoid arthritis
CASE INFORMATION: Case: A 33-year-old African American woman with a history moderate persistent asthma presented to her PMD complaining of gradually worsening bilateral ankle pain for two weeks. The pain was severe, significantly worse in her right ankle, and limited her abilities to walk and drive. She reported no fevers, fatigue, weight loss, recent infections, or injuries. Physical examination revealed swelling, redness (without warmth) and marked tenderness of her right ankle, most significantly around the medial malleolus. Her left lateral malleolus was also mildly erythematous, and without swelling. Range of motion in the right ankle was limited by pain. Otherwise, her joint and skin exam was unremarkable. She was initially prescribed high dose ibuprofen but after three weeks of therapy, her symptoms were still debilitating. She was then prescribed a trial of prednisone, 20 mg for one week, which produced some relief. Initial laboratory analysis found a normal CBC, and negative anti-CCP antibody and gonorrhea/Chlamydia PCR. Her ESR was 15 mm/h, CRP was 1.4 mg/dl, ANA titer was 1:40, and rheumatoid factor was 36.3 (0–25) IU/mL. Ankle x-ray showed no joint/bone abnormalities. She was then referred to rheumatology for diagnostic arthrocentesis to rule out crystalline arthropathy, but no fluid could be withdrawn. At that time ACE level was found to be elevated at 57 (8–52 u/l) and a chest radiograph demonstrated hilar adenopathy. A diagnosis of sarcoid arthritis was made. After four more weeks of prednisone, the patient's symptoms resolved.
IMPLICATIONS/DISCUSSION: We describe a case of sarcoidosis presenting with ankle arthritis. When evaluating a patient with bilateral ankle arthritis, the clinician should consider other causes such as rheumatoid arthritis, SLE, and Sjogren's, as well as viral infections like parvovirus. Reactive arthritis, secondary to a recent infection, e.g., Chlamydia, and psoriasis can also present with oligo-arthritis. OA is a consideration in older patients. **Incidence:** The incidence of stand-alone sarcoid arthritis is unclear since the diagnosis is infrequently made when patients present with articular complaints alone. More commonly sarcoidosis is diagnosed when other organs, such as the eye or lung, are affected. In 40% of cases the ankle joint is the joint involved. **Associations:** It is more common in people under the age of 40 and in non-smokers and is associated with HLA-B8, DQ2 and DR3. Symmetrical ankle arthritis at onset has been shown to have a high degree of sensitivity (95%) and specificity (92%) for sarcoid. When it occurs in concert with both hilar adenopathy and erythema nodosum it is termed Loefgren's Syndrome. **Diagnosis:** The diagnosis of sarcoid arthritis is based upon suggestive clinical, imaging and synovial fluid analysis. Synovial tissue biopsy finding of noncaseating granulomatous inflammation is supportive but not pathognomonic. ACE elevation occurs in only half of cases, which correlates with the fact that sarcoid arthritis is infrequently associated with significant lung involvement. **Prognosis and Treatment:** The prognosis of acute sarcoid arthritis is good and recurrences are uncommon. Treatment is often initially with NSAIDS. Other agents such as glucorticoids, colchicine and hydroxychloroquine may also be used. There are case reports of the beneficial effects of anti-TNF therapy for treatment of resistant sarcoid arthritis.

A PATIENT WITH REFRACTORY CELIAC SPRUE WITH RESPONSE TO ORAL CORTICOSTEROIDS
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(Tracking ID # 205184)

LEARNING OBJECTIVES: 1. Review differential diagnosis of continued diarrhea in a celiac sprue patient 2. Discuss management options in refractory celiac sprue
CASE INFORMATION: We present a 45-year old homeless Caucasian male with bipolar disorder and eighteen-year history of celiac sprue. Although he reported good control of his diarrhea for 15 years, he noted that he has had progressive, uncontrolled diarrhea in the past 6 months with a 10 kg weight loss. Exam revealed a markedly thin, pale, hypotensive, bradycardic male who looked older than stated age. Weight was 59 kg. An absence of subcutaneous body fat was noted as was 3+ pitting edema. Laboratory examination revealed anemia (hemoglobin : 11 mg/dl) with Vitamin B12 of 160 pg/ ml, Ferritin 4 mg/ dl, albumin <1.0 mg/dl with prealbumin 2.9 mg/dl. Alkaline phosphatase was 323 mg/ dl, Calcium 5.6 mg/dl, and Vitamins A D, E were nearly undetectable. Immediate assumptions were that he was unable to adhere to diet secondary to social issues and his bipolar disorder, and he was admitted for electrolyte and fluid replacement and strict gluten-free diet. After 3 weeks of unabated diarrhea, a workup including negative CT abdomen for lymphoma, negative colonoscopy for microscopic colitis, repeat duodenal biopsy and serology revealing ongoing antibody positivity, a trial of oral steroids was undertaken, which was transitioned to 9 mg budesonide daily. Diarrhea and electrolyte disturbances resolved in days, as did Vitamin deficiencies and edema over 4 weeks; his bipolar disease became stable on half of his prior medications. Azathioprine was added as a steroid-sparing agent.
IMPLICATIONS/DISCUSSION: The top consideration in patients with celiac sprue and ongoing diarrhea is overt or inadvertent compliance with their diet. Presence of ongoing seropositivity can also be a clue. However, a subset of patients that were once controlled sometimes develops refractory symptoms. Intestinal lymphoma is an important cause, and should be ruled out by CT. Microscopic colitis may also mimic refractory sprue and can only be diagnosed by biopsy. Concomitant lactose intolerance, irritable bowel, and pancreatic exocrine dysfunction should also be ruled out. Patients with "refractory" sprue often will respond to an oral steroid challenge. Physicians caring for patients with celiac sprue that fails to respond to diet should consider refractory sprue among the possible causes.

A RARE CASE OF HYPEREOSINOPHILIC SYNDROME PRESENTING WITH DYSPHAGIA
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(Tracking ID # 205667)

LEARNING OBJECTIVES: recognize dysphagia as a rare clinical presentation of hypereosinophillic syndrome
CASE INFORMATION: A 46 year old African-American male resident of Michigan without significant past medical history presented with progressive difficulty in swallowing for the past 2–3 months. Dysphagia was initially only with solids but later on involved liquids also. Patient denied any choking or reflux of food material. He also complained of intermittent retro-sternal pain and nausea but denied vomiting, hemetemesis or melena. He denied any fever, chills, rash, sore throat, change in bowel habits or urinary complaints. Patient also denied any recent medications including steroids, any significant change in diet or ingestion of any caustic substance. He had a weight loss of five pounds in 2 weeks. He denied any recent travel. He had 40 pack-years history of smoking and chronic alcohol abuse. He snorted cocaine occasionally. Family History was significant for brother with liver cancer. On physical examination, the patient was a well-built male in no acute distress. Blood pressure was 145/78 mm Hg with a pulse rate of 97 per minute and respiratory rate of 18 per minute. Rest of the examination was within normal limits except for poor oral hygiene. Laboratory work revealed an elevated white count of 57,400/uL with 47,700/uL (91%), eosinophils. All other lab work was within normal limits. Echocardiography and chest X-ray were normal. The HIV ELISA, Hepatitis A, B and C were negative. Esophagoduodenoscopy with biopsy was done. Esophageal biopsy showed eosinophilic esophagitis with patchy ulceration. Duodenal biopsy showed benign mucosa with increased eosinophilia in lamina propria and intraepithelial eosinophils suggestive of eosinophilic duodenitis. Patient was started on corticosteroids and responded well to therapy.
IMPLICATIONS/DISCUSSION: In one the NIH studies, fifty patients with the idiopathic HES were studied over 11 years. Involvement of the heart, skin, nervous system, lungs, and spleen (causing pericardial effusion, urticaria, transient ischemic attacks, pleural effusions, splenomegaly etc.) each occurred in 45 to 60 percent of cases; liver, ocular, and gastrointestinal involvement were less common (20 to 30 percent). The most common presentations of HES include fatigue, cough, breathlessness, muscle pains and fever. Esophageal and duodenal involvement (as in our case) is rare in HES. A hallmark of the HES is its great clinical heterogeneity and highly variable prognosis, ranging from paucisymptomatic disease that requires no treatment and is associated with prolonged survival, to a rapidly fatal disease course due to sudden, severe heart failure or acute leukemia. Our patient responded very well to glucocorticoid therapy and showed a very good prognosis. This case is unique because esophageal and duodenal involvement is rare in HES. Dysphagia is a rare presentation for HES

and it is uncommon to see this much amount of eosinophils (91%) in peripheral smears. This case study will help us to keep HES in list of differential diagnosis upon encountering a similar presentation of dysphagia with eosinophilia.

A RARE CASE OF WALLENBERG SYNDROME PRESENTING WITH CONTRALATERAL BODY HYPALGESIA WITHOUT INVOLVEMENT OF FACE A. Subedee[1]; R. Pradhan[1]; B. Lloyd[1]. [1]The Reading Hospital & Medical Center, West Reading, PA. *(Tracking ID # 205637)*

LEARNING OBJECTIVES: 1. To recognize the causes and various presentations of Wallenberg Syndrome. 2. To review infrequent and atypical variations in sensory loss based on anatomical location of the infarct in the Medulla Oblongata

CASE INFORMATION: A 57-year-old female presented with vertigo of 24-hour duration following one week of runny nose and occasional tinnitus without fever or hearing loss. Vertigo started suddenly, was continuous, and made the patient unable to sit upright. It was also associated with headache, some blurring of vision and several episodes of vomiting. She denied history of focal weakness, dysphagia, sensory abnormalities or history of head and neck trauma. Past medical history did not reveal any significant cardiac, ENT or neurological problems. On exam, the patient was alert and oriented and had axial lateropulsion to the left side. Blood pressure was 190/100 mmHg. She also had Horner's Syndrome on the left side. Both pupils were reactive to light and accommodation. There was no ophthalmoplegia but diplopia was present on central gaze. Nystagmus with fast component towards the right was also noted, most prominently on right gaze. Visual fields were normal. Remainder of the cranial nerve exam was normal including hearing and otoscopy in both ears. Motor exam was normal, however, she had dysdiadochokinesia and impaired finger-to-nose test on the left side. She also had impaired pain and temperature sensation on the right half of the body but face was spared completely. Dorsal column sensation was intact. Systemic exam was unremarkable for cardio-respiratory abnormalities. Non-contrast CT of brain was unremarkable. The patient was admitted for work-up of a posterior circulation stroke. MRI of her brain showed acute ischemic infarct in the left parasagittal aspect of lower medulla, in the distribution of a branch of posterior inferior cerebellar artery (PICA). Her clinical presentation and MRI were consistent with Wallenberg syndrome or Lateral Medullary Syndrome.

IMPLICATIONS/DISCUSSION: Wallenberg or Lateral Medullary Syndrome is usually caused by obstruction in PICA territory or by dissection of vertebral arteries. Rarely neoplasia of lateral medulla may also cause Wallenberg syndrome. It usually presents with ipsilateral Horner's Syndrome, ipsilateral cerebellar signs, hypalgesia of ipsilateral face and contralateral body, vertigo, nystagmus, diplopia, dysphagia, dysphonia and dysarthria. Pain and temperature sensation loss is variable depending on the exact location of the infarct. The most common variation has ipsilateral face and contralateral body hypalgesia. Involvement of lateral spinothalamic tract causes contralateral body hypalgesia whereas involvement of spinal trigeminal nucleus and trigeminothalamic tract cause ipsilateral and contralateral face hypalgesia, respectively. Five variations of sensory involvement are described based on face and body involvement. To our knowledge, this is the first case of complete sparing of the face. This may be explained on the basis of the involvement of left parasagittal caudal medulla which may have led to sparing of both spinal trigeminal nucleus and trigeminothalamic tract.

A RARE DIFFICULT TO FIND SOURCE OF SEPSIS N. Laiteerapong[1]; J. Bussell[1]; M. Levin[1]. [1]MacNeal Hospital, Berwyn, IL. *(Tracking ID # 205750)*

LEARNING OBJECTIVES: Mature cystic teratomas are a common ovarian neoplasm and the most common ovarian neoplasm in women under 20 years old. It is associated with many complications including torsion and rupture. Infected cystic teratomas have been reported rarely. This case adds to the small body of literature and suggests a source of infection that is not considered routinely.

CASE INFORMATION: A 24 year-old Hispanic female presented to the emergency room with complaints of fever for four days and crampy, sharp, lower abdominal pain with vomiting for two days. She also complained of a sore throat and was recently prescribed erythromycin. She denied any nausea or urinary symptoms. Her past medical history included morbid obesity. Her last menstrual period was four years ago. She had no significant family or social history or allergies. She was taking erythromycin and budesonide/formoterol inhaled. On exam, she was a severely morbidly obese woman (BMI 54). She was febrile (40.0 °C) and tachycardic to 135. Her blood pressure was 116/62 and oxygen saturation was normal. Throat exam revealed minor erythema of the posterior wall and pulmonary exam revealed bilateral wheezes. Her abdomen was generally tender without rebound or guarding. Laboratory findings were notable for a WBC of 6.7 K/mL, creatinine of 2.6 mg/dL, bicarbonate of 19 mg/dL, and anion gap of 19. Urinalysis was positive for WBC, epithelial cells, and bacteria. A rapid streptococcal test was positive. Blood cultures were negative. A CT abdomen indicated a large complex cystic lesion and small amount of fluid in the pelvis. There was no free air, but a tiny amount of air was noted in the pelvis not in a bowel loop. She was admitted with diagnoses of acute pharyngitis, acute kidney injury, and ovarian mass. She was hydrated and received levofloxacin for streptococcal pharyngitis and possible urinary tract infection. Gynecology was consulted. On hospital day two, she became acutely tachypneic with worsening abdominal pain and was transferred to the ICU. Repeat labs indicated an elevated WBC (16 K/mL) and 40% band forms. CA-125, CA 19-9, CEA, AFP and b-HCG levels were normal. She was started on vancomycin, piperacillin/tazobactam, and levofloxacin for possible sepsis from a urinary source or toxic shock syndrome. Urine culture was positive for Escherichia coli and Klebsiella pneumoniae. Blood cultures remained negative. She was taken for exploratory laparotomy four days later for persistent fevers. Intraoperatively, a right adnexal mass (17×25 cm) with 400 mL of pus ruptured, which grew an Escherichia coli. Her left ovary was consistent with polycystic ovarian syndrome. Final pathology revealed a right ovarian mature cystic teratoma.

IMPLICATIONS/DISCUSSION: This is a rare case of an infected mature cystic teratoma. This patient had a concomitant streptococcal pharyngitis that obscured her primary problem. Her severe morbid obesity hindered the accuracy of her physical examinations. Only six cases of mature cystic teratoma infections have been reported. Two cases involved gynecologic manipulation and one involved an ectopic pregnancy. The last three cases were of infections with schistosomiasis, brucellosis, and Salmonella typhi. This is the first reported case of an Escherichia coli-infected mature cystic teratoma. In a septic woman with fever and abdominal pain, an intra-abdominal source, including infected mature cystic teratoma, should be considered.

A RASH DECISION: A SURPRISING CAUSE OF SUBACUTE PRURITIC DERMATITIS IN AN ELDERLY WOMAN. L. Kalanithi[1]; J. Gilmore[1]; C.J. Lai[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 203506)*

LEARNING OBJECTIVES: 1) Consider bullous pemphigoid (BP) in the differential diagnosis of pruritic rash in elderly patients. 2) Recognize that steroid-sparing agents may be used in patients with BP.

CASE INFORMATION: A 95-year-old woman with dementia, hypertension and anxiety was hospitalized after a mechanical fall. Review of systems revealed a severely pruritic diffuse rash over the prior month, with worsened disorientation and falls while using hydroxyzine for pruritis. She denied sick contacts, travel, or new chemical exposures. Three weeks prior, she had been treated empirically for scabies with permethrin without improvement. Medications on admission were hydroxyzine, loratadine, nifedipine and lorazepam. Examination revealed disorientation and urticarial, erythematous plaques and papules over the torso and extremities. There were no obvious burrows. After a thorough workup, the fall was attributed to antihistamine use. Due to continued concern for scabies, permethrin was repeated. Dermatology was consulted and, on learning of the patient's advanced age and persistent pruritic plaques, had a high suspicion for bullous pemphigoid (BP) rather than scabies. Re-examination revealed two 1-cm tense unilocular bullae on the inner thighs. Skin scraping showed no evidence of scabies, and biopsy confirmed BP by histology and direct immunofluorescence. Off-label methotrexate (MTX) was recommended, but was deferred by the patient's family. Topical clobetasol provided good relief. After discontinuation of hydroxyzine, the patient's mental status returned to baseline. Following discharge, her primary care

physician started low-dose MTX and prednisone for palliation. Six weeks later, the rash and pruritis had resolved.
IMPLICATIONS/DISCUSSION: Because the rash's distribution and intense pruritis may suggest alternate diagnoses such as scabies, and because bullae may be absent, correct diagnosis of bullous pemphigoid (BP) can be elusive. Although overall incidence is 10 per million, incidence may be up to forty times higher in the elderly. Nearly two-thirds of BP cases occur in persons over age 80, possibly due to age-related increased autoreactivity. Urticarial plaques and/or subepidermal bullae develop subacutely, commonly affecting the trunk, flexor surfaces, groin and axillae. Biopsy provides definitive diagnosis, revealing immunoglobulin and C3 deposits along the dermal-epidermal junction. BP is often self-limited, but may last months to years if untreated. Though oral corticosteroids have been considered the treatment mainstay, topical steroids result in fewer complications, and steroid-sparing agents such as off-label methotrexate (MTX) or mycophenolate mofetil are alternatives for patients with moderate to severe disease. Case studies suggest that low-dose MTX may be more tolerable, practical and cost-effective than oral steroids in elderly patients. In summary, this is a 95-year-old woman with immunofluorescence-confirmed BP initially misdiagnosed as scabies. This case reminds internists to consider BP in elderly patients with pruritic rash, especially if the rash is not responding to scabies treatment, and to perform a thorough physical examination for bullae. In addition, steroid-sparing agents may be an appropriate therapeutic option for bullous pemphigoid.

A SENSITIVE SUBJECT: DESENSITIZATION TO INFLIXIMAB IN SARCOIDOSIS. S.K. Bechis[1]; R. Dantes[1]; S. Kesh[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204390)*

LEARNING OBJECTIVES: 1) Recognize that desensitization protocols can be very effective for patients with prior infusion reactions or presumed allergies to medicines. 2) Describe pre-medication and subsequent management of desensitization protocols.
CASE INFORMATION: A 44 year-old woman with a long history of sarcoidosis was admitted for progressive and refractory symptoms. She was initially diagnosed with cutaneous sarcoidosis at age 23 but her disease progressed to involve the lungs, joints, eyes, lymph nodes, pharynx, larynx, and over 60% of the skin. The patient was treated with prednisone (up to 200 mg daily) with some relief but then was given infliximab which dramatically improved her cutaneous and laryngeal involvement. She continued on this therapy, but after 18 months of treatment, she had an apparent allergic reaction including pruritis and chest tightness. Although an anti-infliximab IgE titer was equivocal, her physicians were uncomfortable continuing treatment, fearing life-threatening anaphylaxis. She was subsequently treated with hydroxychloroquine, adalimumab and etanercept without success. Given the severity of her disease, she was admitted to our hospital to undergo a 12-step rapid desensitization protocol to overcome her immune response to infliximab. The protocol involved premedication with diphenhydramine, famotidine and lorazepam followed by sequentially increasing doses of infliximab over 6 hours. The patient was monitored in the ICU, and during the protocol she experienced one episode of chest heaviness that improved when the infusion was paused. The protocol was then resumed 2 hours later and the infliximab administration was completed without further event. The patient was observed overnight and discharged to home with close follow-up. Over the next few days, her symptoms markedly improved, with decreased skin and joint pain.
IMPLICATIONS/DISCUSSION: Up to 10 percent of patients with sarcoidosis suffer from progressively worsening organ involvement and may not tolerate or respond to long-term (1 year) glucocorticoid treatment. In these patients, current evidence suggests that infliximab should be considered as a first-line treatment. However, patients can become sensitized to the drug and develop both immediate (within 24 hours) and delayed (1–14 days) reactions during future infusions that pose a risk of death. Typical signs and symptoms of acute reactions include fever, hypotension, pruritis, chest pain, or dyspnea. In contrast, delayed reactions manifest with arthralgia, myalgia, urticarial rash and malaise. Desensitization protocols are widely used for antibiotics such as penicillin, and several case reports describe their use for infliximab therapy in Crohn's disease and rheumatoid arthritis, but here we present a case of desensitization for infliximab treatment of sarcoidosis. Should an acute reaction occur, the first step is to slow or stop the infusion and administer diphenhydramine. For severe reactions, further medication with albuterol, famotidine, prednisone and epinephrine is warranted. The infusion can be resumed once the reaction resolves. As this case demonstrates, desensitization protocols can enable effective reintroduction of a medication that is crucial for successful treatment.

A SHOWERING EFFECT: RECURRENT PULMONARY EMBOLISM WITH NEW ONSET STROKE. J.A. Linek[1]; A.I. Schwarcz[1]; C.M. Rivera[1]. [1]Montefiore Medical Center of the Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 206088)*

LEARNING OBJECTIVES: 1. To review the EKG findings of acute pulmonary embolism. 2. To review the incidence of patent foramen ovale and the associated risk of stroke.
CASE INFORMATION: A 66 year-old woman presented with complaints of sudden severe lightheadedness and chest pain. She had a history of multiple deep vein thromboses (DVT) and pulmonary embolisms (PE). She was being treated with lifelong warfarin therapy but had been nonadherent for 2 to 4 weeks prior to her presentation. On physical exam, the patient was tachycardic to 105 beats per minute and tachypneic to 32 breaths per minute. Initial testing was significant for an INR of 1.1 and ST depressions and T-wave inversions in leads II, III, and avF on EKG. The patient was started on a heparin drip for management of unstable angina while ruling out an acute myocardial infarction; a contrast chest CT was deferred due to the possibility of cardiac catheterization and increased contrast dye load. The next morning, the patient complained of weakness in her right arm. A stat head CT revealed a left frontal lobe infarct. Laboratory work was significant for a peak troponin-t of 0.11 and an EKG that showed resolution of the earlier ischemic changes in the inferior leads but new, deep T-wave inversions in V1 through V4. A transthoracic echocardiogram showed mild to moderate right heart dilatation, paradoxical septal motion consistent with right ventricular overload, and mild to moderate right ventricular hypokinesis. A transesophageal echocardiogram showed a patent foramen ovale with an atrial septal aneurysm. Lower extremity duplex showed multiple acute DVTs, and CT angiogram of the chest also revealed multiple occluding PEs. Prior to restarting warfarin, a hypercoagulable workup was negative. A repeat EKG at outpatient follow up showed resolution of all changes to a normal EKG.
IMPLICATIONS/DISCUSSION: In a patient with acute PE, the most common EKG finding is sinus tachycardia. A classic pattern of "S1Q3 T3" has been described, although other etiologies of right heart strain can also result in this finding. Other patterns described in the literature include S1Q3, QR pattern in V1, right or left axis deviation, T-wave inversion in the right precordial leads, R&gt 5 mm or R/S&gt 1 mm in V1, ST elevation in III, ST depression or elevation in the right precordial leads, ST and T-wave changes in the left precordial leads, and p-pulmonale pattern. Our case illustrates a pattern that has not been established in the literature: ST depressions in the inferior leads, which mimicked an acute coronary syndrome. While possible etiologies include right heart strain secondary to PE and coronary arteriospasm, we are not able to exclude the possibility of a concomitant embolic coronary event. This case also illustrates that when a patient has manifestations of both venous and arterial emboli, the workup should include a search for a patent foramen ovale (PFO). PFOs are relatively common in the general population with a prevalence of about 29%. PFOs have been shown to be associated with cryptogenic strokes in all age groups. Potential mechanisms of stroke include paradoxical embolism from a venous source, direct embolization of thrombi formed within an atrial septal aneurysm, and formation of thrombus as a result of atrial arrhythmias. In select populations the risk of stroke has been shown to be higher in patients with a concomitant atrial septal aneurysm. Treatment modalities include surgical or percutanous device closure and anticoagulation or antiplatelet therapy.

A SIMPLE TREATMENT WITH DANGEROUS CONSEQUENCES A.A. Patel[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 203683)*

LEARNING OBJECTIVES: 1. Recognize the presentation of a sulfamethoxazole/trimethoprim drug reaction. 2. Describe how to manage and prevent future reactions.

CASE INFORMATION: A 38-year-old gentleman presented with fevers to 103°F, diffuse erythematous rash covering most of his body, frontal headache, abdominal bloating, nausea, vomiting, and diarrhea which had been worsening over the past week. Two weeks prior to admission, the patient had presented to urgent care clinic with complaints of swelling, pain, and redness of the left calf. He was diagnosed with cellulitis and treated with a 10-day course of sulfamethoxazole/trimethoprim. Physical exam was significant for blanching erythroderma over his chest, back, face, upper extremities and bilateral thighs with no blistering. On the left lower extremity, there was scaling, edema, and erythema over the original site of the cellulitis. Initial lab studies showed a white count of 1.3 K/UL (normal 4.0–10.0) with 18% bands (normal 0.0–6.0), hemoglobin of 11.4 g/dL (normal 13.0–17.0), and platelets of 109 K/uL (normal 150–400). Liver function tests were significant for an AST of 471 U/L (normal 5–40), ALT of 180 U/L (normal 10–60), alkaline phosphatase of 182 U/L (normal 42–121), and INR of 1.7. Subsequent evaluation for infectious etiology revealed an elevated antistreptolysin O titer of 608 IU/mL (normal 0–116) suggesting that the primary infection of the left lower extremity was due to streptococcus. However, there was no evidence of a toxin producing strain as blood cultures, nasal culture, rapid strep screen of the throat and MRSA PCR was negative. A diagnosis of sulfa allergy was made, and the patient's symptoms as well as his pancytopenia and abnormal liver function tests began improving once the sulfamethoxazole/trimethoprim was discontinued.
IMPLICATIONS/DISCUSSION: Sulfonamide-containing antibiotics are an unusual cause of allergic drug reactions. In particular, sulfamethoxazole/trimethoprim is well tolerated in the non-HIV-infected patient in whom adverse reactions occur in approximately 6–8% of individuals. The most common adverse reactions include nausea, vomiting, anorexia, fever, thrombocytopenia, dermatological reactions such as purities and urticaria, and Stevens-Johnson Syndrome. Life-threatening reactions include neutropenia, exfoliative dermatitis, and toxic epidermal necrolysis. Acute liver failure is rare and has only been reported in a few cases worldwide. The majority of symptoms appear within the first few days of therapy and usually resolve with discontinuation of the drug. Antimicrobial sulfonamides contain an arylamine group that becomes acetylated to form non-toxic metabolites that are excreted in the urine. However, the arylamine group can also undergo oxidation via the cytochrome P450 system to form reactive metabolites that initiate an immunologic reaction. There are no valid tests for evaluating a sulfonamide allergy, leaving a detailed history as the sole means of evaluating a patient with a reported sulfa allergy. Strategies for preventing recurrent reactions include using a different class of medication, test dosing, and desensitization. This case serves as a reminder that drug reactions can be severe and life threatening, and it is important to identify the characteristic symptoms and promptly discontinue the offending agent.

A STICKY SITUATION: MORE THAN JUST MENINGITIS. L.E. Kalanithi[1]; J.M. Babik[1]; J. Critchfield[1]; M. Mourad[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205015)*

LEARNING OBJECTIVES: 1. Recognize that atypical sites of Klebsiella infection may be part of a clinical picture of invasive Klebsiella pneumoniae liver abscess syndrome (KLA). 2. Describe the epidemiology of and host risk factors for KLA.
CASE INFORMATION: A 46-year-old Hispanic diabetic man presented to the emergency department complaining of four days of malaise and vomiting that progressed to headache and neck stiffness on the day prior to presentation. He had emigrated from Guatemala to the US, worked as a janitor, and had not traveled recently. On presentation, he was febrile, with confusion, nuchal rigidity and RUQ tenderness on exam. Laboratory studies were notable for bilirubin 2.6 mg/dL, AST 410 U/L, ALT 511 U/L. Cerebrospinal fluid studies were consistent with bacterial meningitis with WBC 2,100/mm3. CSF gram stain showed many PMNs and rare medium gram-negative rods. The patient was admitted with meningeal-dosed ceftriaxone and vancomycin. On hospital day #1, CSF and blood cultures grew GNRs, which speciated as Klebsiella pneumoniae on the subsequent day. Normal chest radiograph and urinalysis at the time of admission made hematogenous spread from a primary pneumonia or urinary tract infection unlikely. Given the rarity of community-acquired K. pneumoniae meningitis and bacteremia, a search for an alternative source was undertaken. The abnormal liver function tests prompted an abdominal CT, which revealed a 5-cm abscess in the right lobe of the liver. Immediate percutaneous drainage of the abscess was performed, and 10 ml of pus were aspirated, which also grew K. pneumoniae. Chest CT demonstrated findings consistent with septic emboli. Due to concern for invasive Klebsiella pneumoniae liver abscess syndrome, in which endophthalmitis may occur, an ophthalmologic consultation was obtained, despite lack of visual symptoms. An occult retinal abscess was diagnosed and treated with intravitreal ceftazidime. Follow-up abdominal CT revealed decreased size of the liver abscess, and serial ophthalmologic exams revealed resolution of the retinal abscess. The patient completed 8 weeks of ceftriaxone. One year later, he is in good health.
IMPLICATIONS/DISCUSSION: Clinicians in the United States (US) recognize Klebsiella pneumoniae as a common cause of nosocomial pneumonia and urinary tract infections and, more rarely, community-acquired infections in immunocompromised hosts. Community-acquired K. pneumoniae meningitis was almost unheard of until recently. Invasive Klebsiella pneumoniae liver abscess syndrome (KLA) is a community-acquired syndrome leading to metastatic infection, often meningitis (25%), endophthalmitis (60%), and lung abscess (40%). It is endemic in Taiwan and increasingly reported in the US. Host risk factors include Asian or Hispanic race and diabetes, which confers up to a 20-fold risk. Unlike patients with more common polymicrobial liver abscesses, patients with KLA tend to have no predisposing hepatobiliary abnormalities. The K. pneumoniae phenotype associated with KLA demonstrates hypermucoviscosity ("stickiness" demonstrated by a laboratory "string sign"), which may help it avoid phagocytosis and clearance. We report the case of a 46-year-old Hispanic diabetic man presenting with meningitis, found to have invasive K. pneumoniae liver abscess syndrome. Increased awareness of KLA may help clinicians anticipate metastatic infections in patients with unusual sites of K. pneumoniae infection, as with endophthalmitis in this case, before they result in long-term complications.

A STUNNED HEART: A CASE OF "REVERSE" TAKOTSUBO? N. Pathak[1]. [1]New York Hospital, Weill Cornell Medical Center, New York, NY. *(Tracking ID # 205861)*

LEARNING OBJECTIVES: 1. Recognize that elevated cardiac enzymes can have an etiology other than Acute Coronary Syndrome. 2. Diagnose and manage a patient with myocardial stunning in the setting of an acute illness.
CASE INFORMATION: 58 yo post-menopausal woman with history of HTN, hyperlipidemia, and chronic anemia transferred from an outside hospital for cardiac catheterization after developing chest pain during a colonoscopy. The patient reported severe crushing substernal chest pain that began a few minutes after the procedure was begun. An EKG performed during this episode was significant for ST depression in v2-v6, and serial troponin measurements peaked at 3.97 at which point the patient was transferred to the New York Hospital CCU. On arrival, she was found to have SBP 60's-70's, HR 110's; dopamine was started and she was taken emergently to the catheterization lab. The patient was found to have no evidence of coronary artery disease, but left ventriculogram showed an EF of 35%, an akinetic anterior basilar wall and inferior basilar wall, with normal apical wall motion. A TTE performed immediately post-catheterization confirmed the findings of an akinetic base and normally functioning apex, suggesting "reverse" takotsubo. The patient remained hypotensive requiring aggressive fluid resuscitation and dopamine. The following morning, repeat TTE showed an EF 55% with marked improvement in LV wall motion. The patient was found to be Clostridium difficile positive and metronidazole was begun. Within 4 days the patient was discharged from the hospital with normal LV function and a plan to complete antibiotic course for C. difficile infection.
IMPLICATIONS/DISCUSSION: The suspicion for ACS is relatively high in this post-menopausal woman with HTN and hyperlipidemia who presents with chest pain, EKG changes, and elevated Troponin. Though it was surprising to discover the absence of coronary artery disease in this patient, it was even more surprising to find the level of LV dysfunction and subsequent improvement within 24 hours, which likely reflects stunned myocardium in setting of sepsis. The pattern of LV dysfunction was interesting, as function at the apex was relatively preserved while wall motion at the base was significantly impaired,

suggesting "reverse" takotsubo cardiomyopathy. Though incredibly rare, the usual presentation of takotsubo cardiomyopathy is acute onset chest pain with associated EKG changes and elevated troponin level, in the absence of significant coronary artery disease as demonstrated by cardiac catheterization. TTE evaluation of the LV typically shows apical ballooning with a hyperdynamic base, appearing like an "octopus trap" from which the Japanese name "tako tsubo" originates. Though the etiology is unclear, proposed mechanisms include vasospasm, abnormalities of microvasculature, and abnormal response to catecholamines, which are increased during stress states (as there is commonly an antecedent emotional or physical stressor). Management is usually supportive as LV functions returns to normal within a few months. There are only a few case reports presenting findings consistent with "reverse" takotsubo, as seems to be more consistent with the patient presented above. The use of the term however, was controversial among the team, with most members preferring to refer to the findings simply as "myocardial stunning."

A SYNERGISTIC ASSOCIATION BETWEEN TAKAYASU'S ARTERITIS AND ANTIPHOSPHOLIPID SYNDROME A. Khan[1]; C.J. Fichtenbaum[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 203787)*

LEARNING OBJECTIVES: 1. To identify the typical presentations of Takayasu's arteritis (TA) and Antiphospholipid syndrome (APS) in a patient. 2. To recognize the possible synergistic association between APS and TA resulting in accelerated thrombosis which is unresponsive to standard treatment of either APS or TA. 3. To be aware of the utility of plasmapheresis in the treatment of this condition.
CASE INFORMATION: A 56 year old Caucasian man with past medical history of APS (1996), TA (2002) and chronic renal insufficiency (secondary to thrombotic microangiopathy), treated with coumadin and immunosupressants, presented to the emergency room with acute onset dyspnea and oliguria. Examination revealed oxygen saturation of 80% on room air and bibasilar crackles. Laboratory investigations showed an ESR of 130 mm/hr, CRP of 18.6 mg/dl, Hemoglobin of 8.8 g/dl, platelet count of 59×109/l (from a baseline of 116), blood urea nitrogen of 72 mg/dl and creatinine of 7.2 mg/dl (from a baseline of 3.5 mg/dl).Chest x-ray revealed pulmonary edema. Renal biopsy demonstrated findings consistent with stage IV renal failure (thrombotic microangiopathy with glomerulosclerosis, severe interstitial fibrosis and tubular atrophy). An abdomen MRA revealed new right renal artery stenosis. These findings suggested progression of TA and APS resulting in rapidly progressive renal failure, despite appropriate treatment. Subsequently hemodialysis was initiated, however the dialysis catheter clotted and platelet count further dropped to 30×109/L. The clinical picture was consistent with accelerated thrombosis and possibly catastrophic antiphospholipid syndrome. As a result, plasmapheresis was initiated resulting in improved renal function and resolution of accelerated thrombosis.
IMPLICATIONS/DISCUSSION: This case suggests a synergistic association between APS and TA resulting in accelerated thrombosis. Alternatively this could have been a novel immunological disorder mimicking both conditions which was unresponsive to standard treatment of either APS or TA.To our knowledge, the association of APS with TA is rarely described in literature.There are no reports of end stage renal failure in a patient with these coexisting conditions (APS and TA). Clinicians need to be aware of the possible synergistic association between APS and TA resulting in accelerated thrombosis which is unresponsive to standard treatment of either APS or TA.Initiation of timely and appropriate therapy to prevent accelerated thrombosis in these patients is of utmost importance.Plasmapheresis resulted in improvement in our patient's renal function and accelerated thrombosis.

A TALE OF CALCIUM, VITAMIN D AND SARCOIDOSIS T. Kristopaitis[1]; R. Monson[1]. [1]Loyola University Medical Center, Maywood, IL. *(Tracking ID # 204763)*

LEARNING OBJECTIVES: 1. Include sarcoidosis, though uncommon, in the differential diagnosis of PTH-independent hypercalcemia in the older adult. 2. Recognize that increased calcitriol levels play a key role in hypercalcemia associated with sarcoidosis. With successful treatment of sarcoidosis, vitamin D levels may decrease and require replacement therapy. 3. Recognize that mediastinal lymphadenopathy may not be visible on plain chest radiographs (CXR).
CASE INFORMATION: A 79-year-old white woman with hypertension and osteoporosis was hospitalized with 2 weeks of progressive weakness, anorexia and weight loss. Medications included hydrochlorothiazide, calcium carbonate 600 mg twice daily, and alendronate plus vitamin D 70 mg/2800 units weekly. Physical exam was notable for lethargy without focal neurologic deficts. Lung exam was normal. There was no hepatosplenomegaly or lymphadenopathy. Laboratory evaluation revealed elevated total calcium (Ca) of 14.7 mg/dL and acute renal failure. Additional laboratory data included suppressed parathyroid hormone (PTH) level (<3 pg/mL), undetectable parathyroid hormone related protein, and normal serum and urine protein electrophoresis. 25-hydroxy Vitamin D (25- OH Vit D) level was low (10 ng/mL) and 1–25 dihydroxy vitamin D (1,25-OH Vit D) was within the normal range (50 pg/mL). CXR was normal. The patient's mental status, renal failure and hypercalcemia improved with IV hydration. The hypercalcemia was initially attributed to combined calcium supplementation and thiazide diuretic use. Over the next month, her serum Ca rose to 13.8 mg/dL. A repeat 1,25-OH Vit D level was elevated (78 pg/mL) and serum ACE level was high. While repeat CXR showed no changes, CT of the chest demonstrated bulky mediastinal lymphadenopathy. Mediastinal lymph node biopsies revealed non-caseating granulomas. Uveitis was present and sarcoidosis was diagnosed. Corticosteroid therapy was initiated with resolution of hypercalcemia and decrease in vitamin D levels. Secondary hyperparathyroidism due to vitamin D deficiency developed and was successfully treated with ergocalciferol 50,000 units weekly.
IMPLICATIONS/DISCUSSION: The differential diagnosis of hypercalcemia in older adults is generally limited to a small group of diseases that includes primary hyperparathyroidism and hypercalcemia related to either malignancy or medications. This case reinforces that sarcoidosis develops in this population. Although hypercalcemia occurs in less than 10% of patients with sarcoid, it may be the presenting manifestation. Elevated serum Ca levels in the setting of granulomatous disease are caused by unregulated production of 1,25-OH Vit D by activated macrophages. This case captured the increasing levels of 1,25-OH Vit D before sarcoid was diagnosed. The effects of corticosteroid therapy - decreasing vitamin D and normalizing serum calcium - were demonstrated, along with an expected accompanying rise in PTH in the setting of 25-OH Vit D deficiency. While it is often thought that calcium and vitamin D therapy are relatively contraindicated in sarcoidosis because of the predisposition to develop hypercalcemia, it may become appropriate. While sarcoidosis is one of the most common causes of intrathoracic lymphadenopathy, it was not seen on several CXRs in this case. If it had been, the diagnosis might have been entertained earlier in the course. CT has much higher yield in detecting enlarged mediastinal lymph nodes which may not be visualized on plain radiograph.

A TALE OF MULTIPLE LESIONS B. Rimel[1]; F. Teran[2]; N. Van Sickels[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203851)*

LEARNING OBJECTIVES: 1. Discuss the reliability of non-invasive tests in the diagnosis of CNS lesions. 2. Identify differential diagnosis of multifocal neurological deficits in HIV patients
CASE INFORMATION: 44yo female with AIDS (CD4 count one month ago: 40 cells/mm3) presented to the Emergency Department with several weeks' history of right-sided weakness and double vision. She had no prior history of neurologic events. Upon further questioning she also noted difficulty with speech and a right-sided headache for the same amount of time. Her physical examination was notable for a left 6th cranial nerve palsy, right sided facial droop, right arm and leg hemiparesis, and ataxia with finger to nose testing R>L. Initial imaging consisted of a head CT with 1.2 cm low attenuation in the left parietal region with no edema or mass effect. Follow-up MRI revealed multiple pontomedullary, cerebellar and cerebral white matter lesions, all but one of which did not enhance with gadolinium contrast injection. Her labs one month prior to presentation revealed a positive serum IgG for Toxoplasma gondii. CSF and Blood cultures were negative. Further CSF studies revealed negative PCR for JC Virus, a negative cryptococcal antigen, and negative fungal cultures. Given the presentation as well as the appearance of the lesions on MRI a MS panel was sent. It showed elevated CSF IgG and myelin basic protein, as well as 3 oligoclonal

bands. The patient clinically improved, and was subsequently started on pulse-dosed steroids. Several days into her hospital course the CSF EBV PCR returned positive.
IMPLICATIONS/DISCUSSION: The immunosuppressed patient with multiple neurologic deficits poses a diagnostic challenge for the Internist. Infectious, neoplastic, ischemic, and autoimmune processes can all be at play. Our patient has advanced HIV infection with a CD4 count <50 cells/mm3, which calls into question infectious processes such as brain abscesses, toxoplasmosis, and progressive multifocal leukoencephalopathy (PML), as well as neoplastic processes such as primary CNS lymphoma. White matter lesions that are demyelinating in appearance are suggestive of PML, or even autoimmune processes such as multiple sclerosis and sarcoidosis. The gold standard for diagnosis is a brain biopsy, however this is an invasive procedure with a mortality of 3.1% and may be non-diagnostic in up to 50% of patients. Outcomes are even worse in AIDS patients with CD4 counts <50cells/mm3. Therefore, non-invasive testing and management have become routine, especially in people with AIDS. Patients with multiple lesions and positive toxoplasma antibodies are routinely treated empirically with follow-up imaging to ensure resolution. CSF studies are also helpful in this process. The EBV PCR has almost 100% sensitivity for primary non-hodgkins CNS lymphoma, however the specificity ranges from 79–98%. Similarly, CSF analysis is used to detect JC Virus DNA – which is the causative agent in PML. This test is only positive in 70–90% of non-HAART treated patients with PML, so a negative test doesn't rule out the diagnosis in the right clinical setting. Finally, while a positive IgG index, myelin basic protein, and oligoclonal bands are consistent with a diagnosis of multiple sclerosis, these tests are non-specific and primarily suggest demyelination, and infection must be ruled out before MS can be diagnosed.

A TRAVELER WITH A FEVER A. Lenhart[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205448)*

LEARNING OBJECTIVES: 1. To review the differential diagnosis of travelers with a fever. 2. To review the common signs and symptoms of Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF).
CASE INFORMATION: A 32-year-old woman presented with a one week history of fever, malaise, and rash that developed during the final week of a 4 week trip to the Philippines. Her symptoms began with nonspecific URI symptoms, followed by fevers to 40C, along with malaise, myalgias, arthralgias, nausea, vomiting, and loose stools. Six days after her symptoms began, she noted a red lacy rash on her legs and back. The following day she developed epistaxis, prompting a visit to the emergency department. Past medical history was unremarkable. In the emergency department, she was afebrile and normotensive. Exam was notable only for petechiae over her lower extremities and upper arm (where a blood pressure cuff had been placed). Her laboratory data demonstrated sodium of 133, platelet count of 71,000, albumin of 2.7, with an AST of 1462, ALT of 750, and alkaline phosphatase of 162. Both a chest x-ray and an ultrasound of her right upper quadrant were normal. Multiple serologies were sent including tests for EBV, CMV, HIV, hepatitis A, B, and D, parvovirus, salmonella (typhi and paratyphi), Bordetella pertussis, leptospirosis, rickettsiae and ehrlichiosis, and were all negative. Blood smear for parasites was negative, as were blood, stool and urine cultures. She was treated supportively with IV fluids. At the time of discharge she was stable. After discharge, testing for dengue IgM came back positive.
IMPLICATIONS/DISCUSSION: The differential diagnosis for patients returning from a tropical climate with a fever is broad, and includes bacterial, viral and parasitic etiologies. Potential bacterial causes are leptospirosis and typhoid fever. Viral causes include dengue, EBV, CMV, HIV, West Nile, and Chikungunya. The most common parasitic etiology is malaria. In our patient, illness began while traveling in a dengue endemic area. In addition to her travel history, high fevers subsequently followed by rash and the development of petechiae and thrombocytopenia made dengue high on the differential. Dengue is a flavivirus endemic in the tropics. It is the most common cause of fever in patients returning from South Central Asia, the Caribbean, and Central America. Dengue presents with symptoms ranging from a nonspecific viral illness to a life threatening hemorrhagic form. Common symptoms include high fevers, headache, retro-orbital pain, severe arthralgias, and myalgias, along with nonspecific URI-like symptoms, nausea, vomiting and diarrhea. A maculopapular rash can also be present in patients once their fever has abated. Hemorrhagic manifestations include petechiae, gum bleeding, and epistaxis. Our patient likely had dengue hemorrhagic fever (DHF), which is diagnosed with the triad of hemorrhagic manifestations, plasma leakage as demonstrated by hypoproteinemia or pleural effusions or ascites, and a platelet count less than 100,000. The mortality from DHF stems from loss of plasma rather than hemorrhage. Poor prognostic signs include a drop in platelet count and an increase in the hematocrit by 20%, as that indicates significant plasma loss. Treatment is supportive.

A TRULY NERVE RACKING SYNCOPE - CAROTID SINUS SYNDROME IN HEAD AND NECK MALIGNANCY S. Nataraj[1]. [1]University of Connecticut, Sturbridge, MA. *(Tracking ID # 205993)*

LEARNING OBJECTIVES: 1. To recognize carotid sinus dysfunction as an important cause of syncope in patients with head and neck tumors 2. To understand the role of SSRI selective serotonin reuptake inhibitors (SSRI) as one of the therapeutic options in this setting.
CASE INFORMATION: An 81 year old male with underlying type -2 diabetes, hypertension, coronary artery disease and recent left facial squamous cell carcinoma presented to the hospital with recurrent episodes of syncope. His facial squamous cell carcinoma had been treated with surgical resection followed by radiotherapy and 6 cycles of chemotherapy with carboplatin and taxol. He was found to be hypotensive on admission with a BP of 78/52 mmHg and a heart rate of 78 per minute. His preliminary work up including carotid dopplers, echocardiogram and cardiac telemetry was unremarkable. His hypotension responded to 3–4 liters of normal saline. His blood, sputum and urine cultures were negative and a co-syntropin stimulation test showed an adequate response. Attention was then directed towards a possible paraneoplastic syndrome secondary to his facial malignancy , autonomic neuropathy secondary to taxol or carotid sinus compression causing hypotension and syncope. A CT of the head and neck area confirmed a heterogenous mass extending from the left parotid area and mandible abutting the left carotid sinus. The diagnosis was confirmed as carotid sinus compression secondary to the mass causing a vasodepressor type of response. He was treated with florinef and fluoxetine with successful resolution of his syncope.
IMPLICATIONS/DISCUSSION: Carotid sinus syndrome is an important entity to recognize and is seen in upto 30% of elderly patients with unexplained syncope. It can present as recurrent dizziness or true syncope. Its highest associations are with male sex, increasing age, hypertension, coronary artery disease, dementia with lewy body disease, and concurrent beta blocker therapy. There are 4 types of responses; a cardio inhibitory type seen in 70% of cases that is vagally mediated causing bradycardia or asystole, a vaso depressor type seen in 20% of cases, where there is a fall in sytolic BP >50 mm hg without bradycardia like our patient, a cerebral type presenting as convulsions or unconsciousness because of decreased circulation to the ipsilateral cerebral hemisphere and a mixed response. The mechanism of carotid sinus syndrome in head and neck tumors involves direct infiltration of the glossophayngeal or vagal nerve, permanent depolarisation of axons close to the carotid sinus, radiation fibrosis or lymph node enlargement and compression of the sinus. Tilt table test and carotid sinus massage can be used to demonstrate the response and confirm the diagnosis. Florinef has been used effectively in these patients to treat the hypotension. SSRIs have been used in conjunction with florinef and have demonstrated a favorable response. SSRI increase intra-synaptic serotonin concentrations causing a down regulation of post synaptic serotonin receptor density and therefore block the vasodepressor response. This is especially useful in mixed type of patients where a pacemaker hasn't been beneficial. Carotid sinus syndrome should not be missed in patients with head and neck cancers presenting with syncope since specific treatment options are available based on the type of response.

A UNIQUE CASE OF METFORMIN-INDUCED LACTIC ACIDOSIS (MILA) A. Alfred[1]; A.J. Deshmukh[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 205878)*

LEARNING OBJECTIVES: 1)Raise awareness of the potential for metformin-induced lactic acidosis, especially in patients with renal

insufficiency. 2)Review the ongoing debate on the true incidence and clinical impact of metformin-induced lactic acidosis.
CASE INFORMATION: A 42-year-old African American gentleman with a history of hemodialysis-dependent, end-stage renal disease (ESRD) who presented with complaints of nausea, vomiting, abdominal pain and confusion for the past 4 days. On exam the patient was found to be oriented only to self, tachypneic and in moderate distress. He had mild to moderate epigastric tenderness, but the rest of the exam was within normal limits. His initial basic metabolic panel showed an anion gap metabolic acidosis with sodium 129 mEq/L, bicarbonate 8 mmol/L, chloride 82 mmol/L, anion gap 38, BUN 70 mg/dl, and creatinine 8.6 mg/dl. His arterial blood gas showed a pH of 7.11, CO2 26 mmHg and bicarbonate of 8 mmol/L, and his lactate was severely elevated at 8.2 mmol/L. Other laboratory and imaging studies disclosed no cause for his lactic acidosis. On further questioning, he had been mistakenly taking metformin 500 mg BID for the past 3 weeks, thinking it to be one of his anti-hypertensive medications. He underwent emergent hemodialysis along with sodium bicarbonate infusions, and his metabolic acidosis was successfully corrected.
IMPLICATIONS/DISCUSSION: Metformin and phenformin belong to a class of anti-hyperglycemic drugs (biguanides) that have been widely used in the control of type 2 diabetes mellitus over the past 40 years. Though biguanides significantly improved both morbidity and mortality in diabetic patients, lactic acidosis has been a major side effect of concern. This adverse effect was particularly problematic with phenformin (incidence of 60/100,000 patient years) which led to its eventual discontinuation in 1977. Numerous studies and case reports have been published in the past about the incidence of metformin-induced lactic acidosis (MILA). While renal insufficiency, severe dehydration, shock and heart failure have been identified as potential risk factors for the development of MILA, a recent comprehensive meta-analysis of 274 studies from 1959 – 2005 concluded that the incidence of lactic acidosis in diabetic patients is not altered by metformin use (6.3/100,000 person years in metformin group vs. 7.8/100,000 person years in non-metformin group). Despite these recent findings, many clinicians continue to voice grave concerns for prescribing metforming to patients with renal insufficiency. This case helps reinforce the fact that though the incidence of lactic acidosis among patients using metformin might be very low, we should still take all the necessary precautions while prescribing it, especially to patients with risk factors.

A WEAK CHIEF COMPLAINT, BUT A STRONG DIAGNOSIS

J. Fouche[1]. [1]Tulane, New Orleans, LA. *(Tracking ID # 203904)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of hypomagnesemia 2. Identify the causes of hypomagnesemia
CASE INFORMATION: A 40-year-old woman with a history of "electrolyte abnormalities" presented with diffuse myalgias. She noted associated dizziness and weakness, characterized by generalized body cramping. She had occasional heart palpitations accompanied by mild nausea and vomiting. She stated that she has been told before that she has had "problems with her electrolytes," and that she had been instructed to take extra doses of magnesium and calcium when she started to feel this bad. She also had a history of membranous glomerulonephritis, for which she was well controlled with steroids. She was mildly hypotensive with a normal heart rate. She had normal oxygenation and no fever. She had 4/5 strength in her lower extremities without sensory deficits.. The remainder of her examination was normal. She had a potassium of 3.3 mEq/l, a calcium of 5.8 mEq/l,, a magnesium of 1.4 mEq/l,, and a phosphorus 4.5 mEq/l,. Her hypocalcemia was initially treated with Calcitrol and subsequently with oral calcium supplements. The potassium was repleted with Potassium Chloride. Despite initial treatment, her serum calcium level fluctuated throughout hospitalization and eventually normalized at 10 mEq/l. Prior to discharge, she reported her heavy alcohol abuse, currently drinking two pints of vodka daily. She was diagnosed with hypoparathyroidism secondary to alcohol induced hypomagnesemia.
IMPLICATIONS/DISCUSSION: Weakness and myalgias are common presenting complaints encountered by the general internist. While most causes are benign, due to viral or exertional etiologies, the internist must be vigilant for electrolyte abnormalities. Of the electrolytes, calcium, magnesium and potassium are the most important in maintaining the myocyte action potential, and thus the most common etiology of electrolyte-induced weakness. Significant hypocalcemia should prompt a suspicion of PTH deficiency, whether acquired or inherited. Once excluded, however, the diagnosis of hypo-magnesemia should be entertained. Magnesium is an important co-factor in the ionized calcium feedback to the parathyroid through a cAMP signaling pathway; hypomagnesemia prevents the parathyroid from recognizing and correcting the serum hypocalcemia. Hypomagnesemia is present in thirty percent of alcoholic patients admitted to the hospital. Eighty percent of the total magnesium is filtered at the glomerulus, with 20% filtered at the proximal tubule.. Peptide hormones such as parathyroid hormone, calcitonin, glucagon, and arginine vasopressin enhance magnesium absorption in the distal tubule. Aldosterone does not alter basal magnesium uptake but it does potentiate hormone-stimulated magnesium entry in tubular cells by increasing hormone-mediated cAMP formation. Ethanol appears to induce direct tubular (particularly thick ascending limb) dysfunction that is reversible in four weeks after abstinence. Alcoholic patients also have other factors contributing to hypomagnesemia such as dietary deficiency, acute pancreatitis and diarrhea. Prolonged depletion of magnesium inhibits PTH biosynthesis and secretion by interfering with its signal transduction. This usually occurs with severe hypomagnesemia (<1 mg/dl), but can occur even in near normal or low normal serum magnesium levels. Magnesium also causes peripheral PTH resistance. The mechanism of resistance is not completely understood. Treatment of hypocalcemia resulting from hypomagnesemia involves administering Calcium Gluconate acutely if severe hypocalcemia or evidence of cardiac impairment (i.e. arrhythmias). THe general internist must recognize the importance, however, of repleting magnesium either before or concurrently with calcium and potassium repletion. Failure to do so will result in a failure to adequately replete the calcium and potassium. Cessation of Alcohol Abuse is imperative in these patients as continuation of alcohol abuse will lead to recurrence of symptoms even in the presence of calcium supplementation.

ACETAMINOPHEN TOXICITY: MORE THAN JUST THE LIVER

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LEARNING OBJECTIVES: 1. To recognize acetaminophen toxicity as a cause of pancreatitis in the absence of typical etiologies. 2. To recognize that acetaminophen-induced pancreatitis can occur even in the absence of massive overdoses.
CASE INFORMATION: A 69-year-old woman presented with nausea, vomiting, crampy epigastric pain, decreased oral intake, and diarrhea of two days' duration. She denied hematemesis, hematochezia, melena, or fever. Her medical history was significant for hypertension, arthritis, ulcer disease, hyperlipidemia, and distant cholecystectomy. Her outpatient medications included acetinominophen/oxycodone, simvastatin, and quinapril. The patient reported taking up to six tablets of acetinominophen/oxycodone daily for her arthritis. She denied recent alcohol use. Physical examination was significant for a blood pressure of 150/90 and a pulse of 107. The patient was afebrile but ill-appearing. Sclerae were anicteric. The abdomen was soft with epigastric tenderness, hypoactive bowel sounds, and no organomegaly. The remainder of the exam was unremarkable. Admission labs were significant for AST 555, ALT 396, INR 2.3, lipase 23, and acetaminophen level 98. Her lipase level peaked at 3882 on day 2 and her transaminases peaked in the 2000 s by day 4. Triglyceride level was 164. Her lactate peaked at 3.2 and her coagulation studies worsened during the first 4 days. CT of the abdomen was consistent with acute pancreatitis. She was transferred to the ICU as her mental status and abdominal pain worsened. With infusion of acetylcysteine and supportive care, her lipase levels and transaminases soon normalized and her mentation improved. She was discharged home on day 10.
IMPLICATIONS/DISCUSSION: Although the hepatic toxicity of acetaminophen is well-documented, acetaminophen-induced pancreatitis has only been described in a series of case reports and letters. The patient's epigastric abdominal pain was atypical for fulminant hepatitis alone and was suggestive of another abdominal process. She had no evidence of recent alcohol abuse, and her lipid profile was not indicative of a triglyceride-induced pancreatitis. CT imaging was also suggestive of pancreatic inflammation. While other case reports of acetaminophen-induced pancreatitis were related to large amounts of acetaminophen or with concurrent alcohol use, our case suggests that chronic use of acetaminophen without a massive overdose can also lead to acetamin-

ophen-induced pancreatitis. This phenomenon has been reported both in the presence and absence of fulminant hepatic injury. The mechanism of this phenomenon is not well-characterized but is thought to be secondary to a vascular insult or enzymatic process, possibly prostaglandin-related, or a change to an environment that favors autoactivation of trypsin, causing an activation cascade of other digestive enzymes. Other case reports have associated pancreatic toxicity with administration of acetaminophen in conjunction with codeine or didanosine, but the role of oxycodone in acetaminophen-induced pancreatitis remains unknown. Although quite rare, acetaminophen-induced pancreatitis has been described in several case reports and should be recognized as a possible diagnosis in a patient who presents with pancreatitis in the absence of other typical etiologies. This case also illustrates that acetaminophen-induced pancreatitis can occur even with therapeutic rather than toxic doses of acetaminophen, especially when used chronically or in conjunction with other pain medications.

ACUTE CHEST SYNDROME AND ACUTE APLASTIC CRISIS IN A JEHOVAH'S WITNESS S.S. Leung[1]; A. Gallagher[1]; P. Dicpinigaitis[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 204840)*

LEARNING OBJECTIVES: · Recognize that an increase in the severity of anemia can be a sign of developing life-threatening complications such as aplastic crisis during sickle cell crisis · Review interventions available in the management of life-threatening anemia when transfusion is not an option

CASE INFORMATION: A 31 year-old African-American male, Jehovah's Witness, with history of sickle cell and beta thalassemia disease initially presented to the ER nine days prior to admission with low-grade fever and flu-like symptoms. He was treated with amoxicillin/clavulanate. Five days later, he developed cough, arthralgia, and diffuse pain involving the chest, abdomen and back. On arrival, BP was 139/67, pulse 106, respiration rate 28, and temperature 98.3F. The patient was lethargic; respirations were shallow with the use of accessory muscles. Oxygen saturation via pulse oximetry was 92% while breathing 100% oxygen through a non-rebreather mask. Pertinent laboratory findings included WBC 23.9, Hb 5.4 (decreased from 9.6 nine days prior), Hct 16.3, reticulocyte count (RC) 2.8%, indirect bilirubin 1.0, LDH 959. CXR demonstrated right perihilar and lower lobe infiltrates. Multiple induced sputum culture specimens were negative. A diagnosis of acute chest syndrome was made. The patient eventually required intubation and mechanical ventilation for hypoxemic respiratory failure. His wife declined erythrocyte transfusion. His RC dropped to 0.9% and aplastic crisis was suspected. The patient was started on high-dose darbepoetin alfa, cyanocobalamin and intravenous iron. Blood drawn was minimized. The next day, Hb was 5.3, Hct was 14.2, LDH 2623 and indirect bilirubin 2.0. The patient developed worsening pulmonary infiltrates bilaterally, consistent with acute respiratory distress syndrome. Echocardiogram showed left ventricular hyperkinesis and right ventricular hypokinesis with apical hyperkineisis (McConnell's sign). Eventually, the patient's family agreed to exchange transfusion. Parvovirus B19 IgM and EBV IgM were positive. The RC started to rise on hospital day 6, 15 days after his initial ER evaluation. The patient recovered fully in two weeks.

IMPLICATIONS/DISCUSSION: An increase in the severity of chronic anemia can be a sign of a developing, life-threatening complication such as aplastic crisis with splenic sequestration. Many infections can cause partial suppression of erythrocyte production, thus exacerbating a crisis. Aplastic crisis with very low reticulocyte count, affecting exclusively the erythrocyte cell line, is usually seen in children and is associated with parvovirus B19 infection. This case demonstrates that parvovirus B19 infection should be considered as a contributing factor to severe sickle cell crisis. Managing Jehovah's Witness patients with life-threatening anemia is challenging. Acute reduction of hemoglobin concentration (<5 g/dL) may cause inadequate oxygen delivery and severe tissue hypoxia. Optimal management includes minimizing blood loss from phlebotomy, maximizing oxygen delivery and minimizing oxygen consumption. Oxygen delivery is defined as the product of cardiac output and the arterial oxygen content. Mechanical ventilation with provision of high inspired fraction of oxygen and muscle paralysis are indicated in life-threatening anemia to maximize oxygen delivery and minimize oxygen uptake. High-dose erythropoeitin and iron are additional therapeutic options, but will not provide an acute beneficial effect.

ACUTE GENERALIZED PARALYSIS IN A 38 YEAR OLD MALE Y. Bhusal[1]; A. Feliz Ortiz[1]; N. Phifer[1]. [1]Moses Cone Health System, Greensboro, NC. *(Tracking ID # 204026)*

LEARNING OBJECTIVES: Differentiate thyrotoxic periodic paralysis (TPP) from other causes of acute onset generalized weakness. Recognize TPP as a potentially lethal but easily treatable condition if identified in a timely manner.

CASE INFORMATION: A 38-year-old Hispanic male with a PMH of a recent left thumb laceration and currently on doxycycline, presented to the emergency department with bilateral weakness and parasthesias of his proximal limbs. On the night of admission after he had dinner and ice cream, he began to have cramps, weakness and parasthesias of the lower extremities. By midnight he could not get out of bed. His family history was negative for myopathic syndromes and he did not have any other acute illness. He was not on any medication that could cause hypokalemia. His vital signs were stable and the only findings were a marked proximal muscle weakness of the upper and lower extremities. Neurologic exam was otherwise normal. His initial serum potassium was noted to be <2 mEq/L (range 3.5–5.1 mEq/L), magnesium of 1.6 mg/dL (1.5–2.5 mg/dL) and phosphorus of 4.8 mg/dL (2.3–4.6 mg/dL). He had a TSH of <0.004 mIU/mL (0.35–5.5 mIU/mL), T3 9.9 pg/ml (2.3–4.2 pg/ml) and free T4 2.44 ng/dl (0.89–1.80 ng/dl). Urinary potassium and sodium were 26 mEq/L and 62 mEq/L respectively. EKG showed U waves and Mobitz type I block. Other routine labs were within normal limits. He was supplemented with potassium and magnesium and his potassium improved to 4.5 mEq/L over the next 12 hours. Patient had improvement in the weakness and parasthesias within hours and weakness had completely resolved within 12 hours of admission. He was started on propranolol and a subsequent thyroid radioactive iodine uptake study was consistent with Graves' disease. Patient opted for treatment with methimazole. He has not had further episodes of paralysis.

IMPLICATIONS/DISCUSSION: This is a typical presentation of an unusual manifestation of Graves' disease. Asian, American Indian and Hispanic hyperthyroid males are more susceptible to TPP. These episodes may be triggered by a heavy carbohydrate meal or rest after strenuous physical activity. It has been postulated that thyroid hormone increases Na-K-ATPase activity, driving potassium into cells. Potassium is sequestered in the muscles, decreasing the potassium in the extracellular space. The resulting hypokalemia hyperpolarizes the cell membrane, making it harder to depolarize and leading to weakness or paralysis. The patient's weakness and hypokalemia resolved quickly with repletion of 150 mEq of potassium indicating there was a shift rather than depletion. Patient has not had further episodes of paralysis after starting treatment for hyperthyroidism. In summary, TTP is a potentially lethal but easily treatable disease if recognized in a timely manner.

ACUTE LEAD TOXICITY FROM OCCUPATIONAL EXPOSURE L.R. Thronson[1]; E. Pletnikoff[1]; K. Le[1]; V. Van Hee[2]. [1]University of Washington, Seattle, WA; [2]Harborview Medical Center, Seattle, WA. *(Tracking ID # 205547)*

LEARNING OBJECTIVES: 1. Appreciate the value of the occupational history. 2. Recognize the frequently nonspecific presentation of lead toxicity. 3. Understand the importance, both to the individual patient and from a public health perspective, of prompt diagnosis and intervention.

CASE INFORMATION: A 37-year-old man presented to clinic with one week of nausea, vomiting, low back pain and poor concentration. Several of his co-workers at a local shooting range had similar symptoms. All had been working on a project involving long shifts manually separating lead fragments from the shooting range sand. Although he had been provided a filter mask, it became easily clogged, and he had to remove it frequently in order to breathe comfortably. Objective examination revealed only mild lumbar paraspinous tenderness and mild diffuse abdominal tenderness. CBC, complete metabolic panel, and urinalysis were within normal limits. Whole blood was sent out for lead level, and he was instructed to stay home from work until the results were available. Several days later, the value returned at 83.5 mcg/dL (reference range is less than 10 mcg/dL). The patient was contacted, and he confirmed that his symptoms persisted despite removal from exposure. Dimercaptosuccinic acid, an oral chelator, was started immediately. A week later, his lead level had declined to

69.0 mcg/dL, and his symptoms had nearly resolved. Levels continued to decline steadily even after he completed two weeks of chelation therapy. One month after diagnosis, his symptoms were entirely gone. Because lead toxicity is a reportable condition, the State Department of Health was involved immediately and initiated an investigation of the patient's workplace. All other employees of the gun shop were evaluated, and two were found to have elevated blood lead levels between 40 and 60 mcg/dL. Safety measures, including workplace ventilation and personal protective equipment, were evaluated and improved. The patient is happily back at work without any further problems.
IMPLICATIONS/DISCUSSION: With changes in building practices and stricter regulation of occupational exposure, the incidence of both acute and chronic lead toxicity has declined over recent years (1, 2); however, this case demonstrates the occasional persistence of inadequate safety measures and resultant health effects. Acute lead toxicity is a treatable condition, and with timely and appropriate therapy, serious effects can be prevented and even reversed. The most important intervention, and frequently the only one needed, is removal from lead exposure until blood lead levels decrease. Oral chelation therapy, which is generally well-tolerated, is indicated for symptomatic patients with significantly elevated blood lead levels. Changes in workplace environmental controls and appropriate personal protective equipment are critical to prevent ongoing lead toxicity in both the patient and his or her coworkers. Most symptoms, signs and laboratory tests are non-specific, and frequently the occupational history is the only clue to the correct diagnosis. Prompt identification of lead toxicity, particularly before cumulative exposure puts the patient at risk for chronic conditions such as neuropathy and hypertension, is crucial. References: 1. Roscoe, et al. Adult blood lead epidemiology and surveillance–United States, 1998–2001. MMWR Surveill Summ 2002 Dec 13;51(11):1–10. 2. Adult blood lead epidemiology and surveillance–United States, 2003–2004. MMWR Morb Mortal Wkly Rep. 2006 Aug 18;55(32):876–9.

ACUTE RENAL INFARCTION PRESENTING AS SEVERE FLANK PAIN AND HYPERTENSIVE URGENCY S. Reddy[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205418)*

LEARNING OBJECTIVES: 1) Recognize the risk factors and clinical manifestations of renal infarction 2) Familiarize clinicians with the diagnosis, options and indications for treatment to prevent permanent renal dysfunction
CASE INFORMATION: A 51 year-old white male presents with right sided abdominal pain starting approximately one day prior to admission. He describes the pain as a constant cramping sensation in his right flank that radiates posteriorly associated with nausea and vomiting. He describes no fevers, chills, chest pain, shortness of breath, dysuria or hematuria. He had one similar episode several years ago with left sided pain that was determined to be secondary to a renal infarction. He states he had an extensive workup at that time with no conclusion on an etiology. His past medical history was only significant for hypertension and hyperlipidemia as well as his history of a left renal infarct. He had a 30 pack year smoking history, but otherwise a negative social history as well as a noncontributory family history. On examination, he was found to have a blood pressure of 203/117. The rest of exam was only significant for an abdominal exam with right lower quadrant tenderness to palpation, no CVA tenderness or guarding. Labs revealed a slight leukocytosis, but were otherwise normal including a normal UA and renal function. A CT of the abdomen showed bilateral acute renal infarcts. His hospital course included acute management of his blood pressure as well workup for causes including an echo which did not reveal any LV thrombus, a CT angiography which did not reveal aortic dissection and a renal CT angiogram showing thrombosis of the right renal artery. The patient received pain management as well as initiation of anticoagulation and was discharged in stable condition including normal renal function
IMPLICATIONS/DISCUSSION: Acute renal infarction is an often overlooked and delayed diagnosis. It is generally missed while more common diagnoses such as appendicitis, pyelonephritis, etc. are entertained. Causes include renal artery disease, embolic events and hypercoagulable disorders. Clinical presentation generally involves severe flank pain and hypertensive urgency that is caused by increased rennin levels. In addition, many patients present with renal dysfunction especially when there is bilateral disease. Treatment is generally conservative unless embolic disease is confirmed requiring anticoagulation and sometimes even thrombectomy. Prompt diagnosis and management of acute renal infarction is essential to prevent permanent renal dysfunction.

ALLERGIC BRONCHOPULMONARY ASPERGILLOSIS – WHEN TO SAY IT'S NOT ASTHMA G. Gulati[1]; A. Donato[1]. [1]The Reading Hospital and Medical Center (TRHMC), West Reading, PA. *(Tracking ID # 206040)*

LEARNING OBJECTIVES: Learn to identify patients with steroid-dependent asthma that may actually have Allergic Bronchopulmonary Aspergillosis (ABPA)
CASE INFORMATION: A 19 year-old female with past medical history of poorly- controlled asthma presented with a one week history of shortness of breath and cough productive of greenish- brown sputum. History revealed recurrent bouts of asthma requiring oral steroids and three episodes of pneumonia requiring antibiotics. She had presented to the Emergency department and received a 5-day course of prednisone 10 days prior to this visit. On physical examination her vitals were stable except tachycardia. She had a peak flow of 220 l/min against a personal best of 400. Physical exam was otherwise remarkable for decreased breath sounds and expiratory wheezing. Preliminary laboratory data showed a leukocytosis of 17000 CMM without eosinophilia, however she was noted to have intermittent eosinophilia on 4 separate occasions in the prior year. Chest X ray and CT scan of chest were performed which showed patchy peripheral opacities in the lungs and left lower lobe consolidation. A sweat chloride test was negative. Serum immunoglobulins Ig G, A and M and HIV antibodies were within normal limits. Serum IgE levels were elevated at 1822 IU/ ml. Aspergillus fumigatus IgG were 48.6 mg/ L (normal<80.1). Considering our strong clinical suspicion for ABPA in a poorly-controlled asthmatic with bronchiectasis, eosinophilia and elevated IgE, we started the patient on oral prednisone and itraconazole. A follow- up CT scan was obtained in 3 months which showed resolution of the patchy opacities and areas of consolidation.
IMPLICATIONS/DISCUSSION: Asthma is a common medical problem affecting approximately 5% of the general population. Allergic bronchopulmonary aspergillosis constitutes between 0.25 and 11% of these. A differential diagnosis of the difficult to control asthmatic includes gastroesophageal reflux disease, allergic bronchopulmonary aspergillosis, sinusitis, cardiac asthma, restrictive lung disease, sleep apnea, vocal cord dysfunction, cystic fibrosis, localized obstruction, carcinoid syndrome and chronic infections. ABPA should be suspected more in a patient who comes in with recurrences of asthma exacerbations requiring steroids, multiple episodes of pneumonia, and findings of progressive disease including central bronchiectasis and lung fibrosis. Physicians taking care of or managing patients with refractory difficult to treat asthma should be able to recognize ABPA and initiate appropriate therapy in a timely manner to avoid disease progression.

AMOEBIASIS PRESENTING AS LIVER ABSCESS AND ACUTE APPENDICITIS SIMULTANEOUSLY G. Gupta[1]; B. Da Rocha Lima[1]; P. Hasley[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204162)*

LEARNING OBJECTIVES: 1). To recognize that amoebic abscesses may be concurrent with appendicitis in adults; 2). To recognize that amoebic liver abscesses can occur in in the absence of travel and immigration history.
CASE INFORMATION: A 42 year old heterosexual monogamous male with a history of hepatitis C presented with a 4-day history of fever, nausea, diffuse abdominal pain and non-bloody diarrhea. A resident of New York, the patient had no travel history outside the country. Physical exam demonstrated a distended and diffusely tender abdomen with no guarding or rebound. Laboratory tests revealed a WBC count of 20,000 with 85% neutrophils, ALT 186, AST 258, alkaline phosphatase 160 and gGTP 110. An abdominal CT scan was notable for a 6×7 cm 'abscess-like' lesion in the liver. The patient was started empirically on ampicillin/sulbactam and gentamicin, and a pigtail catheter placed in the right upper quadrant, showed drainage of purulent fluid. All cultures including those from stool and abscess fluid were negative. Despite this, he remained febrile and the abdominal pain worsened. A

repeat abdominal CT obtained three days later was consistent with acute appendicitis and a 14×11 cm liver abscess. Anti-Entamoeba histolytica antibodies were elevated at 12.88 (normal<1.10). The patient underwent laparoscopic appendectomy. Histopathology revealed acute necrotizing amoebic appendicitis. He was treated with oral metronidazole and paromomycin. Subsequently, he improved and the hepatic abscess resolved on repeat imaging.

IMPLICATIONS/DISCUSSION: Amoebiasis is a parasitic disease caused by E. histolytica. While the overall prevalence of amebiasis is 4% in the USA, certain high-risk groups (immigrants, homosexual men and institutionalized populations), have a higher incidence of infection. In 1993, out of 2790 cases of amoebiasis reported in the US, 51% were reported in recent migrants. Patients can also contract the disease from consumption of food imported from an endemic area or from handling of contaminated food by asymptomatic carriers in immigrant-rich areas. Fatal complications such as bowel perforation, intussusception and metastatic abscess formation can occur if adequate therapy is not initiated early. Liver abscess is the most common complication, occurring in 3–10% of patients with intestinal amebiasis. Amoebic appendicitis with invasion of the mucosa is extremely uncommon. It is possible, though, that the diagnosis is under-reported because of limited awareness of the disease. Patients who present with symptoms and signs localized to the right upper or lower quadrant, particularly those who have recently traveled to amebiasis-endemic areas, should undergo clinical tests for amebiasis, including a serologic test for Entamoeba and examination of stool specimens. Prompt diagnosis and treatment with surgery in complicated cases, and therapy with metronidazole are fundamental to preserve a patient's life since mortality rates remain extremely high when untreated. A luminal amoebicidal agent (paramomycin or diloxanide furoate) is instituted after the patient has been treated with metronidazole in order to eradicate the protozoan from the gut.

AN AIRTIGHT CASE: AN ETHIOPIAN WITH ABDOMINAL PAIN AND PNEUMOPERITONEUM T.A. Woreta[1]; L.S. Feldman[1]; R.W. Stewart[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205582)*

LEARNING OBJECTIVES: GI TB has varied clinical manifestations that can mimic other conditions. Thus, clinicans should always consider it in the differential diagnosis of patients from countries where TB is endemic or who are immunocomprised to prevent the morbidity and mortality associated with delayed diagnosis and treatment.

CASE INFORMATION: A 74-year-old recent Ethiopian émigré presented with a 7-day history of abdominal pain that had worsened over the past 24 hours. She also complained of nausea, vomiting, and diarrhea. Her family reported that she had a chronic cough and poor appetite for several years. Her physical exam was most notable for abdominal tenderness and guarding. A CT scan of her abdomen revealed pneumoperitoneum, a moderate amount of ascites, and diffuse small bowel thickening. She was taken emergently to the operating room for an exploratory laparotomy that revealed a moderate amount of turbid ascites and a carcinomatosis-like studding of the entire small bowel, large bowel, and mesentery. A 10 cm cecal mass was found to be the cause of the bowel perforation. A right hemicolectomy with end Brooke ileostomy was performed. Final pathology of multiple specimens revealed florid necrotizing granulomatous inflammation. The positive auramine-rhodamine stain for acid fast bacilli (AFB) on portions of the omentum and colon led to the diagnosis of gastrointestinal tuberculosis (TB). The patient was empirically started on four drug therapy with rifampin, isoniazid, pyrazinamide, and ethambutol. HIV and PPD tests were negative. An induced sputum sample was negative for AFB. The patient, who was quite cachectic, gradually improved clinically and was discharged to a nursing home for a six-month course of anti-TB medications.

IMPLICATIONS/DISCUSSION: Tuberculosis remains a significant cause of morbidity and mortality worldwide. GI TB is one of the most common forms of extra-pulmonary TB. It can involve the intestines, peritoneum, lymph nodes, and solid organs such as the liver and spleen. Since patients may present with non-specific signs and symptoms that mimic other conditions such as malignancy and inflammatory bowel disease, GI TB is often a diagnostic challenge. The most common clinical signs and symptoms reported in a case series were ascites, abdominal pain, fever, anorexia, and weight loss. Patients may present with an acute abdomen and intestinal obstruction or perforation. Due to the insidious nature of the disease, patients typically have symptoms for several weeks to months before presentation. Abdominal ultrasound and CT scan can aid in the diagnosis of GI TB and often reveal ascites, peritoneal thickening or nodules, bowel wall thickening, and lymphadenopathy. Definitive diagnosis is made from histology and AFB smears and/or culture of specimens obtained via invasive techniques such as colonoscopy, laparoscopy, or laparotomy. Histology of frozen sections typically reveals granulomatous inflammation with central caseous necrosis. After receiving standard treatment with anti-TB therapy for 9–12 months, greater than 80% of patients completely recover. Our case illustrates that physicians must maintain a high degree of suspicion for the diagnosis of GI TB in patients from endemic countries as well as in immunocompromised patients. Given the varied clinical manifestations of the disease and the fact that it may mimic other conditions, the diagnosis is often delayed or missed, leading to increased morbidity and mortality from inappropriate treatment.

AN ANCIENT REMEDY WITH A DANGEROUS SIDE EFFECT: THE CASE OF THE HOREHOUND TEA R.J. Zimmer[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205255)*

LEARNING OBJECTIVES: 1) Explore and broaden the differential diagnosis for hypoglycemia 2) Recognize white horehound as an unusual cause of hypoglycemia

CASE INFORMATION: A 71 year old female with a history of type 2 diabetes, hypertension, chronic renal insufficiency, and coronary artery disease presented to the emergency department with a one day history of confusion and lightheadedness. Physical examination was remarkable for an elevated blood pressure of 177/78 and severe fatigue. At the time of presentation a blood glucose level was 33. The patient had been taking only glipizide for her diabetes and denied taking additional doses of this medication. She had not had any recent dosing changes and had not started any new medications. Infectious workup was negative, however on further questioning, the patient had been having productive cough over the preceding 2 days and had been drinking horehound tea to help ameliorate her symptoms. Chest radiography was negative. Insulin, C-peptide, and sulfonylurea levels were within normal limits. The patient required multiple ampules of 50% dextrose and was then given a continuous dextrose infusion in order to correct her hypoglycemia, which resolved over the next 24 hours. The patient was subsequently discharged home in stable condition. Her hypoglycemia was attributed to the horehound tea that she had been drinking for her upper respiratory tract infection.

IMPLICATIONS/DISCUSSION: White horehound (Marrubium vulgare L.) has been used as an expectorant since ancient Egyptian times and has been used in many cultures for respiratory ailments. It is still present in European herbal cough remedies and in herbal teas used for upper respiratory tract infections. White horehound has also been used to treat diabetes, as studies in animals and humans have shown that it lowers blood glucose levels. Caution has been advised in patients with diabetes who may consume horehound tea with other oral antiglycemics, as the combination can lead to precipitous hypoglycemia. This case illustrates the importance of careful history taking and including herbal ingestions as part of a broad differential diagnosis in uncovering the etiology of a common and serious condition. Clinicians should be aware of white horehound as a lesser known herbal precipitant of hypoglycemia, and they should carefully counsel diabetic patients about potential medication interactions with herbal remedies.

AN ATYPICAL PRESENTATION OF NONKETOTIC HYPEROSMOLAR SYNDROME (NKHS) G.G. Laud[1]; S. Akerman[1]; D. Spevack[1]. [1]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205755)*

LEARNING OBJECTIVES: 1. Recognize the importance of glycemic control in patients with Implanted Cardiac Defibrillators 2. Recognize an atypical presentation of NKHS

CASE INFORMATION: A 43 year old woman with non-ischemic cardiomyopathy diagnosed 2 years ago, with a biventricular pacemaker with implanted cardioverter defibrillator (BiV-ICD) was admitted for

firing of her ICD. The patient reported that she has been feeling weak a few days prior to admission and felt her ICD fire a number of times on the day of admission. She was admitted to the cardiac care unit. On physical exam her vital signs were stable. The patient appeared somnolent. She had dry mucus membranes and the rest of her exam was unremarkable. EKG showed normal sinus rhythm at 97 beats per minute with peaked T waves, with no ST segment changes. Laboratory findings were significant for sodium 133, potassium 5.7, chloride 88, bicarbonate 24, glucose 821, and albumin 4.3. An ABG showed a pH of 7.4 and serum osmolality was 358. The urinalysis was negative for ketones and both urine and blood cultures showed no growth. Upon interrogation of the ICD it was determined that the device was oversensing the T waves as additional QRS complexes. As a result, the shocks originated secondary to sensing the patient was tachycardic. Based on the clinical and laboratory findings, the patient had undiagnosed diabetes and was presenting with Nonketotic Hyperosmolar Syndrome (NKHS). Her hemoglobin A1C was measured at 12% and upon aggressive hydration and intravenous insulin administration the patient improved clinically. The electrolyte abnormalities resolved and no ICD intervention was necessary.

IMPLICATIONS/DISCUSSION: We present a unique case of T wave oversensing that was the triggering symptoms which subsequently led to the diagnosis of NKHS. Upon review of the literature, only one reported case of T wave oversensing in hyperglycemia was found. In that case the patient was a known diabetic and the authors demonstrated the correlation between T wave sensing and serum glucose levels. In both cases, when the patient had established proper glucose control, the ICD began to appropriately sense once again. Most patients who present with NKHS have an already established diagnosis of diabetes (usually Type II), but in approximately 30% of cases NKHS is the initial presentation. It is a life-threatening complication of diabetes carrying a mortality rate of approximately 15%. Pathogenesis most often begins with an insidious physiologic stress such as infection, trauma, or myocardial infarction. This stress causes a reduction of circulating insulin, which in an already insulin deficient diabetic, leads to a hyperglycemic hyperosmolar metabolic state. Elevated serum glucose causes an osmotic shift of fluid outside the intravascular space leading to an osmotic diuresis, usually manifested by polyuria, prerenal azotemia, and pseudohyponatremia. NKHS usually presents with normal serum potassium levels; our patient's potassium level may have been elevated due to her profound volume depletion, but more likely is due to intracellular myocyte release secondary to her ICD activation. This case highlights the importance of tight glycemic control in diabetic patients, as well as introducing an atypical presenting sign/symptom in NKHS.

AN EXCEPTIONAL CASE OF PANCREATITIS...OF THE STOMACH.

L.M. De Leon[1]; E.R. Feller[1]. [1]Brown University, Providence, RI. *(Tracking ID # 204486)*

LEARNING OBJECTIVES: 1. Recognize the diverse clinical spectrum and diagnostic difficulties of GI ectopic pancreas. 2. Establish diagnostic criteria for heterotopic pancreas based on clinical, radiologic, and histologic findings.

CASE INFORMATION: Ectopic or heterotopic pancreas (HP) is defined as pancreatic tissue outside the pancreatic parenchyma without vascular or anatomical connection to the gland. HP consists of normal pancreatic tissue, almost always with excretory ducts and acini, and can occur anywhere in the GI tract. We describe the exceptional association of recurrent abdominal pain due to gastric pancreatic heterotypia causing histologically-confirmed pancreatitis of the stomach. We report this case to alert clinicians to the spectrum and diagnostic difficulties of this rare cause of unexplained abdominal pain. A 54-year-old man was admitted for a 4–5 day history of dull, moderate intensity, right upper quadrant pain associated with nausea and low-grade fever. He described a similar, undiagnosed, extensively evaluated episode one year prior to this admission that had revealed submucosal gastric thickening. Physical examination was unremarkable except for mid-abdominal tenderness to palpation, without signs of peritoneal irritation. CBC, liver chemistries, serum amylase and lipase were normal. CT scan showed extensive mesenteric inflammation adjacent to a low density thickening of the gastric wall. The pancreas was normal. Ultrasound of the gallbladder was normal. Upper GI endoscopy was interpreted as a submucosal polypoid lesion or extrinsic impression on the stomach; biopsy was negative. Repeat CT revealed a soft tissue mass measuring 4.3cmx3.6 cm at the site of prior inflammation, suspicious for gastric adenocarcinoma. Endoscopic ultrasound found an oval, irregular, intramural lesion which was aspirated. Cytologic findings were non-diagnostic. Surgical gastric antral resection with Bilroth I anastomosis was performed with a pre-op diagnosis of gastric adenocarcinoma or lymphoma. Histology revealed ectopic pancreatic tissue including excretory ducts, acini, and islet cells within the muscularis propria. Fibrosis and dilated ductal structures containing proteinaceous material were evidence of chronic pancreatitis. Also noted was an adjacent acute and organizing abscess related to focal acute pancreatitis. The patient's pain resolved. One-year follow-up upper GI endoscopy and CT scan were negative.

IMPLICATIONS/DISCUSSION: Symptomatic heterotopic gastric pancreas is rare, whereas histologic documentation of clinical pancreatitis is exceptional. HP can occur anywhere from the esophagus to the anus, producing symptoms that are non-specific and mimic more common digestive disorders. Clinical features in the absence of pancreatitis may include acute, recurrent, or chronic abdominal pain; GI bleeding of varying magnitude; abdominal fullness; nausea; or gastric outlet obstruction. As in our patient, delayed, missed or inaccurate pre-op diagnosis is common when HP location is non-mucosal. Non-specific endoscopic and imaging findings frequently suggest other digestive disorders, especially since the pancreas itself is not inflamed nor are serum amylase and lipase elevated. Isolated cases of pancreatic adenocarcinoma and insulinoma have been reported. Symptomatic gastric ectopic pancreas should be considered in selected patients with unexplained abdominal pain, especially when recurrent and associated with a non-mucosal gastric lesion.

AN INTERESTING PRESENTATION OF INFECTIVE ENDOCARDITIS

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LEARNING OBJECTIVES: 1. Recognize Neisseria elongata as a cause of infective endocarditis. 2. Learn to recongnize uncommon clinical presentation, diagnosis and treatment infective endocarditis.

CASE INFORMATION: A 47-year-old gentleman was admitted for a 30-minute history of sudden onset right sided weakness and numbness. Ten days prior to presentation he developed malaise, fatigue, low grade fevers, arthralgias and frontal headaches of variable intensity. He did not have any similar symptoms in the past. He denied any tick or insect bite or recent travel. On presentation his vital signs were within normal limits. Physical examination showed splinter hemorrhages on the left second digit, scleral icterus and a holosystolic murmur in the cardiac apex suggestive of mitral regurgitation. He had no focal deficits on his neurologic exam. Laboratory studies on admission were significant for a white blood cell count of 13 K/uL with 83% neutrophils, ESR 30 mm/hr CRP 9.8 mg/dl. Magnetic resonance imaging of his brain revealed hyperintense lesions in the right frontal operculum, anterior left frontal lobe, medial and posterior right temporal lobe, which were consistent with multiple subacute infarcts suggestive of an embolic episode. All blood cultures drawn on admission grew gram negative rods within a day, and he was empirically started on piperacillin-tazobactam. A transesophageal echocardiogram demonstrated moderate mitral regurgitation and mobile masses on the posterior mitral valve leaflet and in the left ventricular outflow tract on the chordal apparatus confirming infective endocarditis. The gram negative rods on initial blood cultures were eventually identified as Neisseria elongata, and his antibiotics were changed to ampicillin based on sensitivity results. During his hospital course he had no further embolic or cardiac events and repeat blood cultures were negative. He was discharged with a plan to complete 6 weeks of antibiotics and follow-up in cardiology clinic.

IMPLICATIONS/DISCUSSION: Infective endocarditis (IE) is increasingly seen in patients with no obvious risk factors. IE is also caused by unusual organisms and has atypical presentations, including embolic events. Neisseria elongata is a normal commensal organism of the nasopharynx which can cause serious infections, including infective endocarditis. Endocarditis usually occurs in young- to middle-aged adults with predisposing conditions, such as prosthetic valves and previous dental procedures. Infection results in acute febrile endocarditis with very large vegetations and often causes severe cardiac and

systemic complications including acute congestive heart failure, myocardial abscess and embolic phenomenon. The presence of Neisseria elongata in the blood should raise the suspicion of infective endocarditis. The organisms are sensitive to a wide array of antibiotics but surgical valve replacement is required in half of the patients. High index of suspicion, early diagnosis and treatment influences prognosis and incidence of complications.

AN UNCOMMON CAUSE OF NON INFECTIOUS CELLULITIS - WELL'S SYNDROME P.K. Reddy[1]; F. Irani[1]; U. Mukkamalla[2]. [1]ST. Vincent Mercy Medical Center, toledo, OH; [2]University of Miami/Jackson Memorial Hospital, miami, FL. *(Tracking ID # 206049)*

LEARNING OBJECTIVES: 1. Well's syndrome is a rare, uncommon, inflammatory diagnosis that can mimic acute cellulitis and is responsive to steroids. 2. Rapidly progressive cellulitis, not responding to standard antimicrobial therapy should prompt a clinician to consider alternative diagnoses.
CASE INFORMATION: A 41 year old, otherwise healthy, Caucasian woman was admitted with a five day history of gradually worsening, intensely pruritic rash on her elbows, palms and soles. She noted that the rash had started as raised red areas and gradually progressed to painful blister formation. She denied any fever, malaise, arthralgias, or weight loss. Two weeks ago, she had been to Florida on vacation, where she reported being bitten by a spider on the left arm. She denied any illicit drug use. Her sexual and family history was non contributory. On examination, a papulo-pustular rash was noted on her palm, soles, shins and elbows, bilaterally. Superficial, indurated, violaceous, ulcerative lesions on an erythematosus base were also noted on the elbows and lower extremities. There was no fever, lymphadenopathy or arthritis. The remaining physical examination was unremarkable. A complete blood count demonstrated a hemoglobin of 13.3 gm/dl (12.0 – 16.0) and a WBC of 11.1 k/UL (3.5 – 11.0) with an ESR of 12 mm/hour (0–20). The differential count revealed significant Eosinophilic at 13% (1–4%). A liver and renal profile was normal. Intravenous doxycycline was initially on a presumptive diagnosis of gonorrhea with no response. An extensive serological work up including HIV, hepatitis, VDRL, rickettsia, mycoplasma, coxsackie and varicella were all negative. Urine, blood and genital cultures were negative. A skin biopsy of the thumb lesion demonstrated diffuse infiltration of the dermis with eosinophils and sub epidermal bullae, which were most consistent with a diagnosis of eosinophilic cellulitis. Immunofluoroscence examination revealed nonspecific granular C3 deposition along the blister base, at the dermal junction. There was no evidence of immunoglobulin deposition. The patient was started on a course of oral steroids and antihistamines. Regression of the lesions was noted at one week follow up. The steroids were gradually tapered with a repeat follow up at two weeks in the dermatology clinic.
IMPLICATIONS/DISCUSSION: Eosinophilic cellulitis or Well's syndrome is an idiopathic, rare, recurrent, inflammatory dermatosis. It may be rapidly progressive and can clinically resemble acute cellulitis, thus posing diagnostic difficulties. This case highlights the importance of considering alternative diagnoses in a rapidly progressive cellulitis, not responsive to standard anti-microbial therapy. Eosinophilic cellulitis, although uncommon, may be a diagnostic consideration in these cases. It is generally responsive to steroid therapy. Diagnostic features, treatment options and posited pathogenetic mechanisms of Well's syndrome are discussed.

AN UNCOMMON CAUSE OF SHORTNESS OF BREATH A. Rahman[1]; V.O. Kolade[1]. [1]University of Tennessee College of Medicine, Chattanooga, TN. *(Tracking ID # 203859)*

LEARNING OBJECTIVES: 1) Recognize subtle presentation of metformin-associated lactic acidosis 2) Emphasize the importance of stopping metformin with early signs of adverse effects
CASE INFORMATION: A 53 year-old Caucasian female non-smoker presented with a chief complaint of worsening shortness of breath for one week, as well as nausea, vomiting, and diarrhea for the same duration. Dyspnea was associated with mild dry cough and subjective low-grade fever. She denied any orthopnea, paroxysmal nocturnal dyspnea, abdominal pain, hematochezia, or hemoptysis. Her past medical history includes newly-diagnosed diabetes mellitus, hypertension, and transient ischemic attack. Home medications included metformin, valsartan, omeprazole, aspirin, pravastatin, fluoxetine and zolpidem. Metformin was started three weeks prior at a dosage of 500 mg twice daily by mouth. Physical examination revealed an averagely built afebrile female in respiratory distress with mild tachycardia and mild tachypnea. A thorough physical examination was normal, including vesicular breath sounds on auscultation of the chest. Laboratory investigation revealed normal WBC count and differential, very mild anemia, HCO3 17 mmol/L, Glucose 243 mg/dL, Anion gap 16, and lactic acid 5.96 mmol/L. Serum creatinine was 1.2 mg/dL, which was elevated from baseline of 0.7 mg/dL. Room air arterial blood gas showed pH 7.38, PaCO2 28 mm Hg, PaO2 65 mm Hg. Urine drug screen was positive for benzodiazepine - which the patient was taking at home. Blood culture and sputum Gram stain and culture were negative. Chest X-ray and cardiac enzymes including troponin were normal; BNP was 146 pg/ml. Electrocardiogram, echocardiogram and stress thallium scan were normal. Computerized tomography with contrast was negative for pulmonary embolism and proximal deep venous thrombosis. Metformin was stopped, and the patient's shortness of breath, nausea, vomiting and diarrhea resolved in 3 days. There was no recurrence of symptoms on follow-up over 6 months.
IMPLICATIONS/DISCUSSION: Metformin is a biguanide antihyperglycemic. It acts by decreasing gastrointestinal glucose absorption and hepatic gluconeogenesis; it increases intestinal lactate production and peripheral insulin-related glucose uptake. Common adverse effects are nausea, vomiting and diarrhea. Lactic acidosis is a serious but rare adverse effect of metformin. The incidence of metformin-associated lactic acidosis is 6.3 per 100,000 patient years. Predisposing conditions include renal insufficiency, liver disease, hemodynamic instability, advanced age, metformin overdose, alcoholism, and concurrent use of radiocontrast media. Mortality has been estimated at 50%; death is more closely related to associated comorbidities than to arterial lactate level or plasma metformin concentration. The mechanism of metformin-associated lactic acidosis is incompletely understood. Treatment is mainly supportive with correction of acidosis and eliminating the cause of lactic acidosis. Hemodialysis or CRRT can effectively correct acidosis and remove lactate. Tachypnea in metformin toxicity is most often due to respiratory compensation and usually does not require endotracheal intubation. Gastrointestinal symptoms are reported to occur earlier than severe lactic acidosis. It has been highly recommended to stop metformin with the onset of gastrointestinal symptoms. Our case represents a subtle presentation of metformin-associated lactic acidosis and underscores the importance of vigilance for adverse drug effects.

AN UNUSUAL CASE OF ATRIAL FIBRILLATION WITH RAPID VENTRICULAR RESPONSE G.F. Lewis[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205472)*

LEARNING OBJECTIVES: Assess and manage complications of prosthetic valves Recognize the implications of inadequate anticoagulation with mechanical valves
CASE INFORMATION: 41yo WF presented to outside ER with SOB. Symptoms began with chest tightness, shortness of breath, and nonproductive cough. Initial ineffectiveness of OTC medications led to evaluation by general internist who prescribed inhaled steroid, methylprednisolone taper, and azithromycin. With treatment patient reported improvement but not symptom resolution. Ten days after onset patient presented to OSH emergency department where evaluation revealed atrial fibrillation with ventricular rate 231. Basic labs were unremarkable; rate improved to 130 s with amiodarone and diltiazem. At this point patient was transferred to our tertiary care center. Record review revealed a history of congenital aortic stenosis with valve surgeries concluding with a St. Jude aortic valve at age 12. Since that time patient had been without anticoagulation or complications. Common causes of new onset atrial fibrillation were excluded. TTE demonstrated peak aortic valve gradient 60 mmHg, mean 39 mmHg, non-quantifiable aortic regurgitation, and normal bileaflet motion of prosthetic valve. Fluoroscopy produced imperfect images but consensus interpretation was prosthesis failure. Treatment options were thrombolysis (25% risk major complication, 25% treatment failure) versus open valve replacement (25% mortality). Given the importance of differentiating clot from pannus a cardiac CT with gated images of the aortic valve was obtained which showed the posterior leaflet fixed in the open position due to

thrombus on the posterior leaflet and aortic ring. The patient elected thrombolysis and received tPA. After thrombolysis an echocardiogram demonstrated peak aortic gradient 29 mmHg, mean 22 mmHg. Fluoroscopy confirmed restoration of normal bileaflet motion. The patient suffered no untoward consequences and remained in rate-controlled atrial fibrillation with therapeutic INR at the time of discharge.

IMPLICATIONS/DISCUSSION: New onset atrial fibrillation is a common cardiac condition faced by general internists. Differential diagnosis should always include hypertension, ischemia, valvular disease, hyperthyroidism, infection, alcohol, drugs, medications, and pulmonary disease. Given the history of our patient there was heightened suspicion of valvular disease causing new onset atrial fibrillation. Considerations included mechanical valve failure and clot or pannus formation. Mechanical valve failure is rare with St. Jude valves. Mechanical valve obstruction occurs in 0.1–5.7% per patient-year, with 77% caused by thrombus, 11% by pannus, and 12% both. Of patients with valve thrombosis, 70% have subtherapeutic INR at presentation. Our patient was known not to be anticoagulated, raising the likelihood of thrombosis. Adequate anticoagulation reduces the risk of thrombosis to that of bioprosthetic valves, 0.03% annually. Other common complications with mechanical valves include embolization, bleeding, endocarditis, paravalvular leak, hemolytic anemia, and reoperation. Overall complication rate with appropriately managed prosthetic valves is 3% per year. Given the risks of reoperation and thrombolysis differentiating clot from pannus was vital. Combination of TTE and fluoroscopy has 85% accuracy in diagnosing valve failure but cannot differentiate clot from pannus. TEE is typically used to differentiate the two but cardiac CT presents a viable and potentially underused option.

AN UNUSUAL CASE OF BACK PAIN AND HYPERCALCEMIA IN AN ADOLESCENT

M. Mandic[1]; D. Zalenski[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205963)*

LEARNING OBJECTIVES: 1. To identify "red flags" for back pain in adolescents 2. To recognize the multi-organ manifestations of severe hypercalcemia 3. To describe the clinical manifestations of rhabdomyosarcoma

CASE INFORMATION: An 18-year-old female with congenital left lower extremity lymphedema and an atrophic right kidney, presents to the emergency room with fatigue and constant back pain. She was diagnosed with acute low back strain and given acetaminophen and hydrocodone. Over the next 48 hours her back pain improved, however, nausea and vomiting began. During a second emergency room visit she received hydration and was told that her symptoms were secondary to the analgesic. On the day of admission she was brought to the emergency room with severe nausea, vomiting, dehydration and fatigue. On review of systems, she reported a mild decrease in her mental functioning, mild epigastric pain, frequent urination, and easy bruising in the last month. Physical exam was remarkable for hypertension, dry mucous membranes, minimal epigastric and left flank tenderness. She had large ecchymotic areas on both trochanteric regions and knees, as well as petechiae and moderate non-pitting edema of the left lower extremity. She was found to have severe thrombocytopenia, mild anemia, hypercalcemia with calcium of 16.6 mg/dl, renal failure and an elevated lipase of 1500 U/L. CT scan of chest, abdomen and pelvis revealed a 3.5×2.5 cm mass in the right presacral region and innumerable small lytic lesions throughout the trabecular bone of the chest, spine and pelvis. The bone marrow biopsy demonstrated an extensive infiltrate of neoplastic cells proven to be rhabdomyosarcoma.

IMPLICATIONS/DISCUSSION: Back pain that is unremitting and accompanied by other systemic signs requires early evaluation including imaging and laboratory studies. The "focused" evaluation for back pain must address these potential clues. This patient had three clinical encounters as her symptoms progressed. Hypercalcemia is a less common in adolescent patient population. The symptoms and signs associated with hypercalcemia are typically independent of the etiology. In fully developed clinical picture patients may experience polyuria, polydipsia, dehydration, anorexia, nausea, muscle weakness, and mental status change. Many of these symptoms were present in our case at the initial encounter. Our patient had pancreatitis, a rare manifestation of severe hypercalcemia. While in rhabdomyosarcoma (RMS) bone involvement is frequent late manifestation, it is rarely seen at an initial presentation. RMS is the most common soft tissue tumor of childhood. However, the annual incidence in children and adolescents is only 4.9 cases per one million population. The presenting symptoms of RMS vary. The factors that influence the clinical presentation include the site of origin, the age of the patient, and the presence of distant metastases. The most common areas affected are the head and neck, the genitourinary tract, and the extremities. Fewer than 25 percent of patients have overt distant metastatic disease at diagnosis, and over one-half of these have only a single site of metastatic involvement, typically lung. Other sites of distant metastatic involvement include bone marrow, and bone, while visceral involvement and brain metastases are not common. Hypercalcemia secondary to malignancy, although rare, can be seen in adolescents. Hence, persistent back pain especially accompanied with systemic signs in an adolescent validates an extensive early evaluation.

AN UNUSUAL CASE OF CAVITARY PULMONARY LESIONS

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LEARNING OBJECTIVES: · Recognize pulmonary thromboembolism as a cause of cavitary pulmonary lesions. · Manage a patient with cavitary pulmonary infarction secondary to pulmonary thromboembolism.

CASE INFORMATION: A 60-year-old woman with history of chronic obstructive pulmonary disease and pulmonary embolism (PE) diagnosed eight months prior to admission presented with one day of progressively increasing shortness of breath and productive cough. She denied fevers, chills, night sweats, hemoptysis, or weight loss. Her medications included warfarin, however patient had a history of non-compliance. A CT angiogram of the chest revealed multiple acute and chronic PE's. Three lung nodules were also noted, the largest of which was a 2×3 cm cavitary lesion located in the right upper lobe. This lesion, which was also apparent on a portable chest radiograph on admission, was not visible on a radiograph obtained five months prior. The patient had been admitted to an outside hospital two weeks prior with similar complaints and had a bronchoscopy which revealed methicillin-resistant Staphylococcal aureus (MRSA). A CT guided needle aspiration of the right upper lobe cavitary lesion did not produce an aspirate. Throughout the admission, the patient remained afebrile and had a normal white blood cell count. Her blood and sputum cultures were negative. Coccidiomycosis serologies and histoplamosis urine antigen tests were negative. She was anticoagulated and her respiratory status returned to baseline on hospital day two. The new pulmonary cavitary lesion was then attributed to liquefactive necrosis of a pulmonary infarct, a rare complication of pulmonary embolism. She was discharged home on warfarin therapy.

IMPLICATIONS/DISCUSSION: The differential diagnosis for cavitary pulmonary nodules is extensive. Common etiologies include bacterial abscesses, fungal and mycobacterial infections, malignancies, and septic emboli. Bland (aseptic) thromboemboli are a rare cause of cavitary pulmonary infarctions (CPIs). Only about 10% of all PE's result in infarction (1). In a study of 550 cases of pulmonary infarcts, only 4.2% were found to cause sterile cavitations (2). Pulmonary infarction usually causes a coagulative necrosis that heals with a contracted scar (3). However, large infarcts may undergo a liquefactive necrosis that results in a cavity. Patients with pulmonary infarctions often present with pleuritic chest pain and hemoptysis (4). These infarctions are typically thought to occur when the pulmonary circulation is already inadequate, as in patients with underlying heart or lung disease, and adequate collateral blood flow cannot be provided to the site of the embolism. Though it was not the case for the patient described above, sterile CPIs can be associated with fever, leukocytosis, and purulent sputum. This makes it difficult to distinguish them from infected CPIs caused by septic emboli. Also, sterile CPIs may undergo secondary bacterial infection which might mask the original embolic etiology of the cavity. Therefore pulmonary embolism must be considered in the differential for a CPI, even if the patient presents with an infectious clinical picture. 1) Wilson JE III et al. Clin Notes Respir Dis 1981; 19:3–13 2) Levin L et al. Dis Chest 1948; 14:218–32 3) Mitchell RN. Robbins and Cotran: Pathologic Basis of Disease, 7th ed. Elsevier Saunders, 2005. www.mdconsult.com. University of California Library Services. 2 January 2008. 4) Stein PD et al. Chest 1997; 112:974–979

AN UNUSUAL CASE OF CONTACT DERMATITIS SECONDARY TO CELL PHONE USE. M.P. Kaliyadan[1]; A.G. Kaliyadan[2]. [1]Howard University, Silver Spring, MD; [2]The Reading Hospital and Medical Center, West Reading, PA. *(Tracking ID # 205900)*

LEARNING OBJECTIVES: Isolated contact dermatitis of the face in the setting of patients with an underlying nickel allergy may be related to cell phone use. General practitioners recognizing this complication in patients early can improve outcome with treatment and avoid need for further referral.
CASE INFORMATION: A 14-year-old African American female with past medical history significant for urticaria and known nickel allergy presented with complaint of a new papular eruption involving the left side of the face, left earlobe and auricle of the left ear which was first noted approximately one week prior to presentation. The patient also had a second periumbilical rash which was present and untreated for a period of two years and was thought to be secondary to skin contact from a metal button on her jeans. The rash located on the face measured three centimeters in diameter and was noted to have a purplish hue also involving the ear. The position of the rash on the face was peculiar due to its relative isolation and asymmetry. Patient denied any recent change in laundry detergent, soaps, cosmetics or new exposure to pets. Given the location of the facial rash and known nickel allergy this rash was determined to be secondary to a cell phone related contact dermatitis. The cell phone casing most likely contained nickel, which caused the patient's unusual isolated rash on the face and ear which involved points of skin contact with the cell phone. A treatment regimen included wearing of jeans with plastic buttons instead of a metal clasp along with application of locoid lipocream for the rashes. With regards to the cell phone dermatitis, it was recommended that the patient use a head set with plastic casing to avoid direct contact of the cell phone on the face. Patient agreed to the above treatment plan and rash improved at her one month followup.
IMPLICATIONS/DISCUSSION: Allergic contact dermatitis may be difficult to distinguish from other rashes, especially after it has been present for an extended period of time. With continued improvements in versatility, technology and affordability, cellular phone usage has increased exponentially over the years. Many chrome-plated objects, especially trendy new cell-phones, contain a significant amount of nickel located in the casing, buttons and battery. In the setting of a localized rash involving the face and auricle of the ear, practitioners should be aware of contact dermatitis in a growing population of patients with underlying nickel allergy. Early recognition of cell phone associated dermatitis can improve patient outcome with treatment and allow for primary care management of this dermatological sequela.

AN UNUSUAL CAUSE OF CHEST PAIN IN A YOUNG WOMAN P. Mehta[1]; S.J. Grethlein[1]. [1]SUNY - Upstate Medical University, Syracuse, NY. *(Tracking ID # 203789)*

LEARNING OBJECTIVES: Chest pain may occur due to a wide variety of pulmonary or cardiac causes in a patient with systemic lupus erythematosus (SLE). Cardiac disease in patients with SLE may present as pericardial, myocardial, valvular, and coronary artery involvement.
CASE INFORMATION: We present the case of a 20-year-old African American woman with a past medical history of systemic lupus erythematosus (SLE) and Devic's disease who presented to us with a history of chest pain. She had initially presented with complaints of intractable nausea, vomiting, left sided numbness, tingling, weakness and ataxia. On work-up, she was found to have lesions in her medulla and cervical spinal cord and an elevated titer of ANA (1/1250) in speckled pattern and was diagnosed with SLE. She was started on immunosuppressive therapy with mycophenolate mofetil and oral steroids. The steroids were tapered off and the patient was continued on mycophenolate. The patient now presented with a history of chest pain, localized retrosternally and on evaluation was found to have 2 right atrial masses one measuring 1.4×2.2 cm and the other measuring 0.9×1.2 cm, probable mobile myxomata attached to the lateral wall of the right atrium. She underwent an extensive workup for a possible hypercoagulable state but had a normal coagulation profile, normal antithrombin IIIA, protein C and S activity, negative cardiolipin IgG and IgM antibody, normal homocysteine level, negative molecular genetic evaluation for prothrombin 20210G and Factor V Leiden mutation. Her cardiac MRI after one month revealed that one of the masses had decreased in size relative to the echocardiogram performed 6 weeks ago. The masses were thought to be a hematoma, tumor or vegetation. The patient was evaluated by cardiothoracic surgery and followed up with echocardiograms but there was no further decrease in the size of the masses over the next 2 months. The patient underwent cardiac surgery for excision of the masses. Both the cardiac masses on pathology were found to be organizing mural thrombi. The patient has been doing well since her surgery with no new masses on follow up echocardiograms.
IMPLICATIONS/DISCUSSION: Most mural thrombi are reported in patients with structural heart disease and indwelling cardiac catheters or pacer wires. A few case reports of SLE with antiphospholipid antibody syndrome (APLA) as a cause of spontaneous cardiac thrombi exist in literature but our patient had a negative workup for hypercoagulable state. We present this case to emphasize the importance of keeping a high clinical suspicion for thrombotic disease in patients with SLE and the possibility of other unknown factors contributing to a hypercoagulable state. We continue to monitor our patient closely for the development of any further procoagulant features to prevent any new complications.

AN UNUSUAL PRESENTATION OF PRIMARY HYPERPARATHYROIDISM S.L. Liu[1]; C. Mcdonald[2]; K. Myers[3]. [1]Department of Medicine, University of Western Ontario, London, Ontario; [2]Division of Endocrinology & Metabolism, Department of Medicine, University of Western Ontario, London, Ontario; [3]Division of General Internal Medicine, Department of Medicine, University of Western Ontario, London, Ontario. *(Tracking ID # 205980)*

LEARNING OBJECTIVES: 1. Recognize the sequelae of chronic, undiagnosed hypercalcemia. 2. Recognize the nonmalignant causes of lytic bone lesions
CASE INFORMATION: A 42-year old man presented to the emergency room feeling unwell, with a 4–6 month history of bony leg pain, fatigue and a 22-lb weight loss. He had multiple prior walk-in clinic and emergency room visits for leg pain, and was prescribed analgesics which only provided minimal relief. Originally from Sudan, he had recently returned from a visit 2 weeks prior. While there, he sought medical attention, and had plain film x-rays of the legs done. He was told that there were abnormalities on the x-rays, but did not know the details. Past medical history was significant for renal calculi 3 years ago. He was a non-smoker, did not consume alcohol, and did not take any medications. Family history was non-contributory. Physical exam was unremarkable. Initial bloodwork showed a serum calcium of 3.37 mmol/L, albumin 37, sodium 138, potassium 4.2, chloride 109, bicarbonate 24, phosphate 0.61, magnesium 0.63, urea 9.0 and creatinine 101, haemoglobin 125. X-rays of the hands showed subperiosteal bone resorption consistent with osteitis fibrosa cystica, while x-rays of the tibia showed a 4.3×1.2×1.4 cm cortical-based lucency in the posterior proximal tibial diaphysis. He was given 60 mg pamidronate IV and admitted to hospital for hydration, analgesia and further investigation, then discharged home 2 days later, with a serum calcium of 3.09 mmol/L. He was seen in follow-up as an outpatient 2 weeks later, and at that time, intact PTH levels had returned elevated at 195 pmol/L, and 25-hydroxyvitamin D was 46. Other outpatient investigations included a 24-hr urine for calcium that was elevated at 9.0 mmol/L, and a bone scan which revealed diffuse uptake consistent with a superscan appearance, as well as a brown tumour in the right tibia, corresponding to the x-ray finding. The main suspected diagnosis was primary hyperparathyroidism due to parathyroid adenoma, however, given the severity of his presentation and his serum intact PTH level, parathyroid carcinoma was also a consideration. Due to his severe hypercalcemia, with bony pain and history of renal calculi, he was referred to Otolaryngology for parathyroid resection. Preoperatively, he had a parathyroid ultrasound which showed a 4 cm heterogeneous-appearing soft tissue mass just inferior to the left lobe of the thyroid, and a parathyroid sestamibi scan with increased uptake in the area corresponding to the soft tissue mass on ultrasound. He underwent a parathyroidectomy, which revealed a large 13 g gland in the left lower aspect of the thyroid. Pathology was consistent with a parathyroid adenoma.
IMPLICATIONS/DISCUSSION: More commonly, primary hyperparathyroidism presents as asymptomatic hypercalcemia. In our case, the diagnosis was made late, and our patient presented with a symptomatic brown tumour and osteitis fibrosa cystica, despite a known past history

of renal calculi. This illustrates the possible clinical sequelae of chronic, undiagnosed hypercalcemia, and highlights the importance of recognizing primary hyperparathyroidism as a cause of chronic or subacute bone pain. In addition, it demonstrates that serum calcium and PTH levels are not always predictive of etiology. Parathyroid carcinoma should still be considered as a differential diagnosis in cases of severe hypercalcemia and a markedly elevated PTH.

AN UNUSUAL PRESENTATION OF SOFT TISSUE SARCOMA
S. Nekkanti[1]; C.K. Mamillapalli[1]; P. Manandhar[1]; Q. Khan[1]. [1]Marshfield Clinic, Marshfield, WI. *(Tracking ID # 205969)*

LEARNING OBJECTIVES: 1. To consider soft tissue sarcoma in the differential diagnosis of patients with fever of unknown origin. 2. To discuss the pathogenesis of systemic inflammatory syndrome in soft tissue sarcoma
CASE INFORMATION: An 88year old female presented to her primary care physician with weakness, fever and chills of three months duration, she also described fatigue and ten pound weight loss. She denied recent travel, sick contacts, tick bites and animal contact. Significant physical examination findings include temperature of 101.1 F; rest of the examination was unremarkable. Initial laboratory work up showed white cell count 16,000 /uL, hemoglobin 10.9 mg/dl, platelet count 334000/uL and chest x-ray was normal. Multiple blood cultures were negative. At follow up appointment in 1 week, patient reported worsening of symptoms; repeat investigations showed worsening white cell count 33500/uL, hemoglobin 8.1 mg/dl and platelet count 774000/uL, ESR110 mm/hr and CRP 14.6 mg/dl. For persistent hematological abnormalities bone marrow aspiration and biopsy was done which showed reactive hyper cellular marrow. She was seen by rheumatologist and ANA, ANCA panel were negative, temporal artery biopsy did not show arteritis. CT scan of the chest, abdomen and pelvis did not reveal any significant abnormalities. As a work up for underlying occult malignancy PET scan was done, which revealed a large 8×8×10 cm soft tissue sarcoma involving the medial aspect of the proximal right thigh paralleling and involving the right adductor longus muscle and diffusely increased activity in axial and appendicular skeleton suggesting reactive bone marrow. CT guided biopsy of the lesion showed high-grade soft tissue pleomorphic sarcoma with prominent inflammatory component. Patient underwent complex wide surgical resection of tumor. Post operatively significant improvement in symptoms, inflammatory markers, and hematological abnormalities is noted. She underwent adjuvant radiation therapy.
IMPLICATIONS/DISCUSSION: Soft tissue sarcomas are a rare group of malignancies of musculoskeletal origin, and are mostly found in appendicular sites. Presentation of soft tissue sarcoma with inflammatory response syndrome has been reported mostly in association with liposarcoma, leiomyosarcoma, malignant fibrous histocytoma [MFH]. New WHO classification of sarcoma considers MFH consistent and synonymous with undifferentiated pleomorphic sarcoma. Mechanism of inflammatory response and hematological alteration is associated with elevation of cytokines like interlukein2, 6, 8,VEGF, M-CSF, TNFr1 and TNFr2. Constitutional symptoms associated with this cytokine release are fever, night sweats, weight loss, fatigue and lassitude, apart from local symptoms associated with pressure effect. Hematological alterations mostly described in literature are leucocytosis [neutrophilia], thrombocytosis and anemia. The frequency of these abnormalities is reported in about 40% of soft tissue sarcomas, but in majority of these cases malignancy is concurrent with these abnormalities. Presentation in our patient is atypical in that, she had systemic inflammatory symptoms and laboratory abnormalities for many months, prior to the diagnosis of malignancy. PET scan is diagnostic, and biopsy is required to establish diagnosis.

AN UNUSUAL TREATMENT FOR A COMMON DISEASE
V. Ivanova[1]; T.J. Cheema[2]; T. Haddad[1]. [1]AGH, Pittsburgh, PA; [2]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204865)*

LEARNING OBJECTIVES: 1. Identify predisposing conditions for hypertriglyceridemia-induced pancreatitis (HTIP). 2. Outline difficulties in HTIP treatment and the importance of recurrence prevention.
CASE INFORMATION: A 43-year-old morbidly obese female with type 2 diabetes mellitus (DM), hypothyroidism, and no history of alcohol intake, presented with severe abdominal pain, nausea, and vomiting. Abdominal exam revealed epigastric tenderness without rebound, guarding, or ecchymosis. Relevant laboratory values were as follows: lipase, 7955U/L; amylase, 138U/L; triglyceride (TGL), 1050 mg/dl; HbA1C, 9.3%; TSH, 1.7mcU/ml. An abdominal ultrasound showed no cholelithiasis. CT of the abdomen showed mild inflammation in the pancreatic head. The patient was diagnosed with HTIP. She was treated with nil per os, IV hydration, and pain management, but showed no signs of improvement. On Day 3, she developed hypoxia and had a PaO2 of 65 mmHg on 100% face mask. Chest x-ray showed bilateral patchy infiltrates. The patient was then intubated and transferred to the MICU. Her TGL level at the time of MICU transfer had increased to 1184 mg/dl; thus, insulin infusion was initiated for lipoprotein lipase (LPL) activation to decrease TGL level, but no improvement was noted. After 36 hours of insulin infusion, a heparin drip was added, and over the next 2 days, chest x-ray infiltrates improved as the TGL level decreased to 446 mg/dl. The patient was then extubated, and gemfibrozil, niacin, omega-3 fatty acid treatment was initiated. On discharge, tight blood glucose control, a lipid-restricted diet, and the importance of weight loss were emphasized.
IMPLICATIONS/DISCUSSION: Etiologies of acute pancreatitis include cholelithiasis (30%-60% of cases), alcohol (15%-30% of cases), and hypertriglyceridemia (HT; 1.5%-4%). In HTIP, serum TGL level is usually >1000 mg/dl. Of the 5 types of hyperlipidemia, adults usually have type I or V in combination with lipid-raising conditions, including obesity, insulin resistance, DM, hypothyroidism, pregnancy, nephrotic syndrome, alcohol, and certain medications. The majority of patients who develop HTIP: 1) have poorly controlled DM and a history of HT; 2) are alcoholic with HT; or 3) have drug- or diet-induced HT. Our patient falls into the first category with coexisting DM and hypothyroidism. The goal of treatment is to reduce serum TGL level. Insulin stimulates LPL which is a rate-limiting enzyme in TGL-rich particle metabolism. LPL is synthesized in parenchymal tissue cells and transported to the luminal side of the capillary endothelium. LPL regulation is tissue- and nutritional-state dependent. In the fed state, LPL is activated in adipocytes, and fatty acids (FA) are esterified and stored. In the fasting state, LPL is activated in cardiac, skeletal muscles where FA are used for oxidation. In cases resistant to insulin drip, as observed with the present case, heparin infusion should be considered, as it stimulates production of LPL, increases dissociation of LPL from vascular endothelial cells, enhances LPL-chylomicrone binding, delays removal of free LPL by liver, and increases rate of fat oxidation. The main accent after acute phase recovery should be on prevention of HTIP recurrence. The goal is to keep TGL <200 mg/dl by adhering to a fat-reduced diet, weight loss, use of TGL lowering agents. Additionally, concomitant disorders such as hypothyroidism and DM should be effectively treated. Try to avoid use of pro-HT medications (estrogen, HCTZ, isotretinoin, tamoxifen, beta blockers).

ANION GAP ACIDOSIS FROM HYPERURICEMIA DUE TO SPONTANEOUS TUMOR LYSIS IN METASTATIC ADENOCARCINOMA
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LEARNING OBJECTIVES: 1. Recognize hyperuricemia as an unusual cause of anion-gap metabolic acidosis. 2. Recognize untreated solid tumors as a rare but potential cause of tumor lysis syndrome.
CASE INFORMATION: A 78-year-old female with past medical history of hypertension and recent GI bleed presented with fatigue, bilateral flank pain, and jaundice. Concern for choledocholithiasis prompted transfer for consideration of ERCP. Admission labs revealed cholestatic indices and elevated transaminases, as well as anemia (9.6 gm/dL), an INR of 1.4, and acute renal failure (creatinine 2.2 mg/dL). Abdominal ultrasound demonstrated multiple nodular hepatic lesions without biliary duct dilatation. Left renal hydronephrosis was also noted. Noncontrast abdominal CT revealed calculi at the ureterovesical junction. Ureteral stenting and aggressive saline hydration resulted in improved renal function, but worsening anion-gap metabolic acidosis (AGMA). The acidosis persisted despite minimal elevation in BUN and lactate, and no other obvious toxic or metabolic causes typically assocaited with AGMA. Ureteral calculus was identified as monosodium urate and a serum uric acid level was markedly elevated at 21.3 mg/dL. Lactate dehydrogenase (LDH) was also notably elevated (2380 units/L). Urinary alkalinization and allopurinol resulted in stabilization of uric acid levels

and improved AGMA. Biopsy of the hepatic lesions revealed poorly differentiated necrotic adenocarcinoma most consistent with a colorectal primary (no previous history of this). The finding of necrotic tumor cells and elevated LDH suggested spontaneous tumor lysis syndrome (STLS), in addition to pre-renal and post-renal components as etiologies of the renal insufficiency. The patient considered systemic chemotherapy, but unfortunately had progressive disease and expired one month following discharge.

IMPLICATIONS/DISCUSSION: AGMA is an entity associated with several common conditions such as uremia, diabetic ketoacidosis, and lactic acidosis as well as toxic ingestions such as methanol, isoniazid, iron, ethanol, or salicylates (commonly referred to by the mnemonic "MUDPILES"). However, severe hyperuricemia is an unusual and under recognized cause of AGMA. Tumor lysis syndrome (TLS) is a metabolic complication of malignancy. TLS is characterized by hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia, as well as renal failure and acidosis secondary to rapid lysis of tumor cells. TLS is often seen in hematologic malignancies or in patients with a large tumor burden following cytotoxic chemotherapy. Rare cases are reported in patients without prior cytotoxic treatment. Spontaneous tumor lysis syndrome (STLS) is generally seen in hematologic malignancies and rarely do patients with solid malignancies develop STLS. Review of the literature revealed a summary of only five prior case reports of patients with solid tumors developing STLS. Risk factors for STLS include high tumor burden, high necrotic content of tumor cells, preexisting renal failure and high LDH. Though not commonly observed, STLS should be considered in patients with acute renal failure and acidosis in the setting of malignancy.

ANOMALOUS ORIGIN OF THE LEFT CORONARY ARTERY: "TRAPPED IN A TIGHT SPOT" T.B. Smith[1]; A.R. Hercules[1]; M. Fallert[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205692)*

LEARNING OBJECTIVES: 1. To discuss the need for adequate diagnosis of hemodynamically significant coronary anomalies. 2. To explain the mechanism of sudden death in one type of coronary anomaly and the role of CT angiography in its diagnosis and subsequent management.

CASE INFORMATION: A 47 year old male with no significant past medical history presented to our ER with syncope. The patient had been having classic angina like episodes with exertion over the previous 4 months. Physical examination was essentially normal except for bradycardia. CBC and chemistry panels were remarkable for mild anemia and hypokalemia. Initial EKG was concerning for bradycardia with a ventricular rate of 43 and anterolateral ST segment elevations. Myocardial infarction was ruled out based on normal serial cardiac enzymes. The patient underwent an exercise stress test and developed 3 mm ST elevations in V1-V3, exercise limiting anginal chest pain and hypotension, 8.8 minutes into the Bruce protocol. Myocardial perfusion scan demonstrated ischemia involving the territory of the Left Main Coronary Artery. Cardiac catheterization showed an anomalous origin of that vessel. Subsequent CTA identified an aberrant LMCA originating from the right sinus of Valsalva coursing between the main Pulmonary artery and the descending Aorta. Given his elevated risk of sudden cardiac death the patient was referred for CABG.

IMPLICATIONS/DISCUSSION: Chest pain is a common chief complaint seen by all internists. Although infrequent, anomalous origin of the coronary arteries is an important cause of such complaints. In some cases, when these abnormalities are hemodynamically significant, sudden cardiac death can ensue. On many occasions the premorbid diagnosis of this condition has been made in a fortuitous manner and the superiority of various imaging techniques has been debated. In the presented case, one such anomaly was detected and CT angiography proved useful in its diagnosis and management. Coronary artery anomalies are detected in approximately 1% of patients undergoing coronary angiography. Although the majority are not hemodynamically significant, multiple series have shown that the anomalous origin of the LMCA from the right sinus of Valsalva portends the worst prognosis. This condition is second only to Hypertrophic Obstructive Cardiomyopathy as causes of sudden cardiac death in young patients and athletes. The risk of sudden cardiac death during exercise increases if the anomalous artery courses between the aorta and pulmonary trunk. Angina, congestive heart failure, syncope and myocardial infarction have also been reported. Sudden cardiac death in these patients is thought to be related to the oblique takeoff of the anomalous artery, causing a slitlike orifice in the aortic wall capable of collapsing in a valve like manner. The coronary artery is compressed due of aortic root distension during early diastole. Exercise induced expansion of the pulmonary artery and aortic root may further compress the coronary lumen increasing the propensity for exercise related death. The ability to adequately identify not only the origin,but also the course of an abnormal coronary artery, is crucial in determining subsequent management. Traditional imaging modalities are limited because they present 2 dimensional views which may identify an abnormal origin, but not clearly project the anatomical path. CTA with the ability to reconstruct 3D images is therefore a preferred choice not only for diagnosis but also for surgical planning if necessary.

ANTIBIOTICS WON'T TREAT THIS PNEUMONIA C. Murphy[1]; S. Bertisch[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205838)*

LEARNING OBJECTIVES: 1) Recognize a rare cause of respiratory failure in previously healthy adults. 2) Review differential diagnosis of eosinophilic lung diseases.

CASE INFORMATION: A 41 year-old female smoker with a history of asthma, on no medications, presented to our ED with cough, shortness of breath and right-sided chest pain. CXR showed diffuse patchy opacities and she was treated with azithromycin. Four days later, she returned to the ED in hypoxic respiratory failure and she was emergently intubated. Repeat CXR showed widespread bilateral diffuse airspace opacities. She was afebrile and normotensive. WBC count was 15.5 with a left shift and 0.4% eosinophils. She was treated with broad-spectrum antibiotics and given 20 mg solumedrol q6 hrs. Bronchoalveolar lavage (BAL) was performed and the lavage fluid contained 12% eosinophils. On day 1, she spiked a fever to 102.9. CT Chest showed a diffuse bilateral alveolar and interstitial process with upper lobe predilection consistent with possible eosinophilic pneumonia. Cultures including bacterial, viral and fungal cultures, and testing for pneumocystis returned negative. IgE was 228 KU/L. On day 3 high dose solumedrol (125 mg q6 hrs) was initiated for possible acute eosinophilic pneumonia. The patient rapidly improved and on day 5, CXR showed near complete resolution of infiltrates and she was successfully extubated. She was discharged home on 60 mg of prednisone on day 7. Unfortunately, she was lost to follow up.

IMPLICATIONS/DISCUSSION: Pulmonary eosinophilia is the result of infiltration of the lung tissue by eosinophils, which typically constitute less than 2% of the cells in BAL fluid. Pulmonary eosinophilias can be divided into secondary, due to external factors such as drugs, dust, or microorganisms, or idiopathic in which an unknown factor elicits an immunologic reaction. The types of idiopathic pulmonary eosinophilia include: acute eosinophilic pneumonia (AEP), chronic eosinophilic pneumonia (CEP), and eosinophilic granuloma. As in our case, AEP usually presents with acute respiratory failure of less then one week of evolution. It is associated with infections, vaccinations, hypersensitivity to drugs or other inhaled agents (e.g., fine airborne dust in American soldiers in Iraq), and systemic idiopathic eosinophilic disorders. Patients with AEP are most commonly between 20–40 years old and usually present with progressive cough, dyspnea, fever, and pleuritic chest pain. Proposed diagnostic criteria for AEP include: 1)acute febrile illness; 2) hypoxemic respiratory failure; 3) diffuse opacities on chest radiograph; 4) BAL eosinophilia >25%; 5)absence of known causes of eosinophilic pneumonia. The differential diagnosis of AEP includes ARDS, acute lung injury and acute interstitial pneumonia. However, unlike ARDS and ALI, AEP is not associated with multiorgan failure and has a high percentage of eosinophils on BAL. Unlike AEP, CEP has an insidious onset and most often occurs in middle-aged women with a history of asthma. It is also associated with alveolar eosinophilia (usually >40% in BAL), high IgE level, and pulmonary infiltrates on CXR. It rarely causes respiratory failure. Glucocorticoids are the mainstay of therapy for both AEP and CEP. With a history of asthma and a BAL with 12%, this patient did not meet criteria for either AEP, but the steroids given prior to BAL may have reduced her eosinophil count. Given the acuity and severity of her presentation, and her dramatic response to steroids, AEP was the most likely culprit.

APPEASING THE MASSES J. Vansant[1]; L. Parikh[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203891)*

LEARNING OBJECTIVES: 1. Identify the differential diagnosis of a brain mass in a patient with AIDS. 2. Identify alternative methods of diagnosis when a lumbar puncture is contraindicated.
CASE INFORMATION: A 43 year-old man with HIV presented with a two-week history of worsening altered mental status. He had become increasingly confused, with recent slurring of his speech. He subsequently developed right-sided weakness and difficulties with coordination and gait. He denied fever, vision changes, and seizures. He had no neck pain or stiffness. His vital signs were normal. His speech was slow and slurred. Strength testing was 4/5 in the right upper and lower extremities. Finger to nose and rapid alternating movements were impaired. The remainder of his examination, including a fundoscopic examination, was normal. Lab values revealed a CD4 count of 7 cells/mm3. Neuroimaging revealed a two centimeter ring-enhancing mass in the left basal ganglia. The surrounding edema was sufficient to cause a midline shift and right-sided subfalcine herniation. Because of the midline shift, a lumbar puncture was contraindicated. The appearance was concerning for primary central nervous system (CNS) lymphoma, tuberculoma, neurosyphilis, toxoplasmosis, or abscess. Despite being a single lesion, the location in the basal ganglia and ring-enchancement was suspicious for toxoplasmosis. Toxoplasmosis IgG titers were positive. In an attempt to circumvent a brain biopsy, he was empirically treated for toxoplasmosis with the addition of high-dose corticosteroids for two weeks. The brain imaging was repeated two weeks earlier, with dramatic improvement in the size of the mass. The herniation had resolved.
IMPLICATIONS/DISCUSSION: Altered mental status and neurologic deficits are common presenting complaints in patients with end-stage HIV. The diagnosis of a CNS space-occupying lesion in a patient with AIDS can be challenging. Infectious agents such as Toxoplasma gondii, Mycobacterium tuberculosis, Cryptococcus neoformans, Treponema pallidum, and primary CNS lymphoma can produce lesions that are radiographically indistinguishable on neuroimaging studies.1 Making the diagnosis even more difficult is the contraindication to lumbar puncture (LP) in many of these patients. When an LP is contraindicated, the best imaging available should be used to characterize the lesion. Compared to CT, an MRI with contrast is superior. The number of masses and the location may be clues to the diagnosis. For example, Toxoplasma has a predilection for the basal ganglia and can present with multiple brain masses. A chest x-ray should be performed to search for evidence of active tuberculosis. Serum serologies for treponemal antibodies, toxoplasma antibodies (IgG), cryptococcal antigen, and Epstein-Barr Virus antibodies should also be performed. If CNS lymphoma seems likely, a positron emissions tomography (PET) scan may distinguish the mass from infectious etiologies. If the toxoplasma IgG antibody is positive and there is no other clear alternative diagnosis, a trial of empiric therapy with sulfadiazine plus pyrimethamine can be used to potentially avoid brain biopsy and its attendant risks. A significant decrease in size on repeated neuroimaging after 10–14 days of treatment suggests the diagnosis. Otherwise, brain biopsy is warranted.

ASBESTOS: INSULATING YOU FROM THE CORRECT DIAGNOSIS
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LEARNING OBJECTIVES: 1. To recognize that a focal, fungal pneumonitis can present as a pleural-based lung mass, mimicking mesothelioma. 2. To avoid premature closure and misdiagnosis of mesothelioma in a patient with known asbestos exposure, prior to a definitive tissue diagnosis.
CASE INFORMATION: A 79-year-old male Navy veteran with a history of asbestos exposure, COPD, hypertension, and ulcerative colitis presents in primary care for evaluation of worsening dyspnea on exertion over two weeks. At home, the patient notes shortness of breath, with oxygen desaturation to 70% after walking 20 feet. He denies fevers, chills, cough, increased sputum production, chest pain, or weight loss. The patient stopped smoking 20 years ago. He uses albuterol twice daily with minimal relief of his symptoms, and is compliant with all other medications including inhaled mometasone and formoterol. On physical exam, the patient's temperature is 97 degrees Fahrenheit, with an oxygen saturation of 92% on five liters supplementation via nasal cannula. He has no lymphadenopathy, and his neck veins are flat. Auscultation of the chest reveals crackles in his right lung base, but no wheezing or stridor. There is no dullness to percussion or use of respiratory accessory muscles. His cardiovascular exam discloses normal heart sounds, without murmurs, rubs, or gallops. Laboratory studies reveal a white blood cell count of 7.8, with no left shift. Chest x-ray demonstrates a large, pleural-based soft tissue mass. At this point, the patient is told he may have mesothelioma, and a thoracic CT is ordered. The CT shows diffuse interstitial lung disease and a right upper-lobe mass that is irregularly shaped and appears inflamed. CT-guided needle biopsy is negative for malignancy; the histopathology is consistent with pneumonitis. The biopsy sample grows out Aspergillus fumigatus on fungal culture. A course of voriconazole results in resolution of the infiltrate on subsequent imaging. The patient's symptoms return to baseline, and he is relieved that he doesn't have mesothelioma, as initially suspected.
IMPLICATIONS/DISCUSSION: Exposure to asbestos is one of the most studied occupational safety hazards in modern history. That asbestos is a human carcinogen is well-known not only in the medical field, but also among the general public. Its penumbra in popular culture is strongly tied to mesothelioma, presumably because this cancer is caused solely by asbestos exposure. The reverse, however, is not true: asbestos exposure can result in several other syndromes, and the compromised lung is vulnerable to bacterial and fungal superinfection. When a focal infectious pneumonitis is located adjacent to the pleura, it may lead clinicians to mistakenly suspect mesothelioma. Complications from asbestos exposure range in severity from benign pleural plaques and effusions to asbestosis, lung cancer and mesothelioma. As this case shows, distinguishing patients based on initial presentation and radiological findings represents a formidable diagnostic challenge. Both sets of patients may present with dyspnea, cough, and fatigue, and for both groups, radiological findings may include pleural-based mass and effusions. Thus, physicians should proceed with a methodical, stepwise approach to the diagnosis of patients presenting with a history of asbestos exposure and pulmonary symptoms. Physicians should resist the pop culture reflex to link asbestos to a diagnosis of mesothelioma in the absence of a tissue diagnosis.

AUTOIMMUNE HEPATITIS-PRIMARY BILIARY CIRRHOSIS OVERLAP SYNDROME: AN EXAMPLE OF SEQUENTIAL DEVELOPMENT
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LEARNING OBJECTIVES: 1) In the setting of Primary Biliary Cirrhosis, clinicians must continue to screen for sequential patient development of Autoimmune Hepatitis [AIH] - Primary Biliary Cirrhosis [PBC] Overlap Syndrome 2) Treatment for PBC and AIH-PBC Overlap Syndrome differ 3) AIH-PBC Overlap Syndrome can lead to progressive liver disease and cirrhosis despite immunosuppressive therapy
CASE INFORMATION: We present a case of Autoimmune Immune Hepatitis [AIH]-Primary Biliary Cirrhosis [PBC] Overlap Sydrome in a 59 year old woman, in which a diagnosis was made 2 years after the initial diagnosis of PBC. She was originally evaluated for detectable anti-mitochondrial antibody titers of 1:160. ANA and smooth muscle ab titers were not detectable. A liver biopsy was consistent with PBC and showed focal interface hepatitis and focal noncaseating granulomatous inflammation with giant cells in the ducts. The patient's liver associated tests normalized with ursodeoxycholic acid (UDCA) treatment, dosed at 13 mg/kg. Two years later, she developed weakness, jaundice, and pruritis, and was found to have increased liver enzymes [LFTs] (AST 298, ALT 506, Alk Phos 115, and Tot Bili 2.4). A repeat liver biopsy was performed revealing chronic hepatitis (grade 3/4) and periportal fibrosis (stage 2/4) indicative of both PBC and AIH, with increased inflammatory activity and increased fibrosis compared to the previous biopsy. An ANA titer was detectable at 1:40. Because of the new diagnosis of AIH-PBC Overlap Syndrome, the patient was treated with a high dose prednisone taper and maintained on 15 mg of prednisone and 75 mg of mercaptopurine [6-MP] daily. 6-MP was discontinued after concerns over bone marrow suppression. Because of persistently elevated LFTs (AST 59, ALT 54, Alk Phos 98), a repeat liver biopsy was performed one year later. It showed continued features of AIH-PBC Overlap Syndrome and established cirrhosis (4/4). Slides specifically revealed chronic autoimmune hepatitis with moderate activity (3/4) and 20 portal tracts infiltrated by inflammatory cells, predominately lymphocytes, with marked extension of the inflammatory cells into the immediate adjacent parenchyma.

IMPLICATIONS/DISCUSSION: AIH-PBC Overlap Syndrome is a rare autoimmune liver disorder occurring in only 10% of patients diagnosed with PBC. Upon initial diagnosis, the syndrome usually presents with co-existing biochemical and histological features indicative of both PBC and AIH. The case illustrates the importance of continual screening for potential AIH-PBC Overlap Syndrome in patients with PBC. Although AIH-PBC Overlap Syndrome most often presents upon initial diagnosis of autoimmune liver disease, PBC patients can develop the disease in a sequential manner, sometimes years after initial PBC diagnosis. Liver associated tests in patients with PBC should be followed on a regular basis, and if the tests become markedly elevated, AIH-PBC Overlap Syndrome should be suspected. Treatment for the two diseases is different: PBC requires only UDCA, while AIH-PBC Overlap Syndrome requires more intense immunosuppresion, most often with prednisone and azathioprine. Without increased immunosuppressive treatment, AIH-PBC Overlap Syndrome more rapidly progresses towards liver cirrhosis and liver failure. Despite treatment, AIH-PBC Overlap Syndrome can still progress to cirrhosis.

BACK PAIN AND FACIAL DIPLEGIA, THE MANIFESTATIONS OF UNRECOGNIZED CLINICAL ENTITY M. Pongruangporn[1]; J. Sagum[1]; S. Han[1]; R. Gulati[1]; W. Tae[1]; H. Friedman[1]. [1]Saint Francis Hospital, Evanston, IL. *(Tracking ID # 205367)*

LEARNING OBJECTIVES: To reconize the uncommon presentations of Guillain-Barré syndrome

CASE INFORMATION: Sixty year old female presented with 1 week history of mid back pain. It was described as worsening deep aching non-radiating pain of 5/10 in severity. She denied any weakness, numbness or fever. She took Tylenol and NSAIDs which did not relief her pain; so, she went to the ER. She had stable vital signs and her physical examination was unremarkable. She was given a morphine injection without any improvement. Spine MRI showed no significant spinal stenosis. One day later, she complained of facial numbness, loss of sense on the tip of tongue and she could not smile. She was noted to have severe tenderness on her back at T10 region. Neurological examination was normal except for bilateral facial palsy. Three days later she developed leg weakness and gait instability. Examination revealed muscle weakness of all extremities proximal more than distal, no sensory deficits with a decrease in reflexes in upper extremities and absent reflexes in lower extremities. MRI of the brain was unremarkable while CSF analysis showed cytoalbuminologic dissociation. Nerve conduction velocity showed increased latency and low amplitude of motor and sensory nerve which was consistent with a mixed sensorimotor axonal neuropathy. The diagnosis of Guillain-Barré syndrome was made. She was treated with immunoglobulin in a dose of 0.4 g/kg daily for 5 consecutive days. On the third day of treatment there was a dramatic improvement in her back pain and muscle strength including her facial weakness.

IMPLICATIONS/DISCUSSION: Guillain-Barré syndrome (GBS) can be promptly diagnosed when its presentation is ascending weakness and areflexia. However, it can be a diagnostic dilemma when it is manifested as severe back pain and facial diplegia. Acute severe mid back pain can resemble other diseases entities such as herniated disc which could lead to misdiagnosis. The pain that is common in GBS is deep aching and its severity is not related to the prognosis of the disease. The etiology of the back pain in GBS could be due to muscles paralysis or by traction of inflamed nerve root. In this case, our patient also had facial diplegia which is a rare presentation of GBS but it is an important clue in the diagnosis. Other differential diagnosis of facial diplegia includes Lyme disease, sarcoidosis and diabetes mellitus. The diagnosis of GBS could be confirmed by the typical CSF analysis and NCV finding. Plasma exchange therapy and IVIG have proven to be effective for treatment of GBS.

BACK TO 'BAC' J. Sterett[1]; L. Richey[2]; C. Chakraborti[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203890)*

LEARNING OBJECTIVES: 1. Recognize baclofen withdrawal as a potential cause of acute changes in mental status. 2. Identify the pathophysiology underlying baclofen withdrawal 3. Recognize the complications and treatment of baclofen withdrawal.

CASE INFORMATION: A 73-year-old man with a history of a left-sided stroke, chronic spastic paresis, and hypertension presented with a change in mental status. His wife reported that the patient began to have worsening visual hallucinations, confusion, and agitation over the previous three days. He was unable to provide a history, and wife noted no new falls, medications, or signs of infection. Upon initial assessment the patient was moderately hypertensive but all other vital signs were normal. On physical examination no new focal neurological deficits were appreciated. He was calm but confused. The rest of his physical exam was consistent with his previous examinations. Lab studies revealed a normal complete blood count, urinalysis, urine toxicology screen, serum volatiles, TSH, and comprehensive metabolic profile. An infection workup, including chest radiographs, urinalysis, and blood cultures, was negative. A CT of his head showed chronic ischemic changes consistent with his past stroke, but no acute changes. On detailed questioning regarding medications, the patient's wife reported that the patient was compliant with all of his home medications. However, four days prior to admission, he had run out of baclofen abruptly, normally taken three times per day for chronic spastic paresis. The patient was admitted to the hospital and restarted on his home regimen of baclofen. Over the next three days his mental status gradually improved. By discharge, the patient's wife reported that he was back to his baseline mental status.

IMPLICATIONS/DISCUSSION: Baclofen is a widely prescribed antispasmodic drug that inhibits spinal reflexes and reduces muscle spasms by activating the inhibitory GABAB receptor. The sudden cessation of baclofen therapy can cause a release of neurotransmitters onto supersensitized receptors. This disinhibition can lead to autonomic dysregulation including tachycardia, hypertension, agitation, delusions, hallucinations, and delirium similar to other GABA-ergic withdrawal syndromes, e.g. benzodiazepine. Most patients who experience baclofen withdrawal are on chronic therapy for at least 5 months, as with our case. The initial treatment strategy should be the immediate readministration of baclofen. Benzodiazepines and antipsychotics can be used to control seizures and hallucinations. These patients often experience rebound muscle spasticity. Dantrolene and other antispasmodics may be used if baclofen fails to remit the muscle spasticity. Given the risk of spasm-induced rhabdomyolysis, maintaining appropriate hydration and close monitoring of serum electrolytes, creatinine kinase, and renal function is essential. Vigilance should be maintained to monitor for autonomic instability. Symptom resolution usually occurs within 3 days. Baclofen withdrawal should be considered in the differential diagnosis of a patient with new onset changes in mental status or autonomic instability after abrupt cessation of baclofen therapy. This case emphasizes the importance of an accurate and thorough medication history for all patients presenting with mental status changes.

BACK TO THE HEART OF THE MATTER R. Arnaout[1]; D.E. Wright[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 204828)*

LEARNING OBJECTIVES: 1) Appreciation of the complications of left ventricular aneurysm – an uncommon but potentially devastating condition 2) Recognizing the presentation of Chagas disease, rarely encountered in North America 3) Recognizing the importance of the left lateral decubitus position for the cardiac exam

CASE INFORMATION: A 47 year-old Guatemalan man with a history of peptic ulcer disease and abdominal pain presented to our hospital with 5 weeks of progressive lower abdominal and flank pain, worse on the right. He reported 15 years of intermittent abdominal pain and had had an upper endoscopy showing duodenal ulcers and a normal colonoscopy in 2003. He had been treated for ***Helicobacter pylori***. He described the recent pain as far worse than his previous pain, calling it "a biting feeling like my insides are disintegrating." The patient had no history of surgery or endovascular intervention. He denied ever having chest pain, but recalled one brief episode of lightheadedness and palpitations three months prior to admission that self-resolved. He had no other medical problems, took no medications, and had no allergies. He smoked but denied using alcohol or drugs. On physical exam he had a heart rate of 57 bpm and blood pressure of 134/64 mm Hg. He had a normal jugular venous pressure, heart rate, S1 and S2, and no extra sounds. In the left lateral decubitus position, his PMI was prominent in the left axilla. His abdomen was diffusely tender to palpation, without bruits. He had bilateral costovertebral angle tender-

ness. His neurological and extremity exams were normal. The EKG showed sinus bradycardia with T- wave inversions in leads I, III, aVF, and V4-V6, and biphasic T waves in lead V3. The patient had normal labs, urinalysis, and a normal abdominal ultrasound. An abdominal CT scan, however, showed wedge-shaped cortical hypodensities in both kidneys consistent with renal infarcts. A transthoracic echocardiogram showed an ejection fraction of 58% and left ventricular apical aneurysm with 1.0 cm×0.8 cm thrombus, as well as a patent foramen ovale. The patient was started on IV heparin. A hypercoagulability workup was negative. Diagnostic cardiac catheterization was negative for coronary artery disease. Cardiac MRI showed mild concentric left ventricular hypertrophy and the focal aneurysm. A repeat transthoracic echocardiogram six days after starting anti-coagulation no longer showed thrombus. The patient was discharged on warfarin. His ***Trypanosoma cruzi*** titer was later found to be positive.

IMPLICATIONS/DISCUSSION: Chagas disease is caused by the parasite ***T. cruzi*** and affects over 8 million people. Consequences of chronic Chagas disease are diverse, including gastrointestinal and cardiovascular effects. Anti-parasitic treatment is usually given in the acute phase, aimed at preventing chronic disease, however it is sometimes considered after the acute phase. After further screening, the Centers for Disease Control decided to treat this patient's Chagas disease. This case reminds U.S. physicians of the clinical manifestations and consequences of Chagas' disease, a condition usually encountered in Latin America. The case also highlights the common and rare causes of left ventricular aneurysm and its potentially devastating effects. Finally, it serves to emphasize the utility of the left lateral decubitus position in the cardiac physical exam.

BEWARE OF POLYPHARMACY! SMOKY TEA COLORED URINE DEVELOPING SUDDENLY IN A KIDNEY TRANSPLANT RECIPIENT. A. Gupta[1]; I. Lee[1]. [1]Temple University Hospital, Philadelphia, PA. *(Tracking ID # 204853)*

LEARNING OBJECTIVES: 1. To recognize the potential of myopathy and rhabdomyolysis due to interaction of statins with immunosuppressive agents. 2. To assess the appropriate statin type and dose for use in solid organ transplant patients.

CASE INFORMATION: A 38 year old Puerto Rican male, with a history of hypertension, dyslipidemia, end stage renal disease, status post living related kidney transplant in Puerto Rico nine years ago, was admitted to the hospital with chest pain. Further testing revealed non-ST-elevation myocardial infarction. He underwent coronary catheterization with stenting of the left anterior descending artery. The patient was initially started on simvastatin 40 mg/day a week prior to the admission and was increased to 80 mg/day before catheterization. The patient's transplant medications included cyclosporine, mycophenolate mofetil, and prednisone. Three days post-catheterization, the patient developed low grade fever, smoky urine and rise in serum creatinine from baseline of 2.5 mg/dl to 3. Blood and urine cultures were sterile. Urinalysis revealed monomorphic red blood cells and granular casts. Two days later, the patient complained of generalized muscle aches and weakness. Serum creatine kinase (CK) levels were 192,000 U/L. A clinical diagnosis of statin-related rhabdomyolysis most likely precipitated by interaction of simvastatin with cyclosporine was made. Simvastatin was discontinued. The patient was given alkalized intravenous fluids and physical therapy. He did very well, muscle weakness improved markedly over the next week, serum creatinine returned to baseline and CK levels trended down.

IMPLICATIONS/DISCUSSION: Statin-related myopathy has been reported in 0.1% of patients receiving statin monotherapy. In as much as 50% of cases of statin-related rhabdomyolysis, a drug-drug interaction is suspected. Many drugs act as inhibitors or substrates of enzymes involved in the metabolism of statins via cytochrome P450 pathways. Transplant patients are at particular risk for myopathy and rhabdomyolysis as combinations of statins and calcineurin inhibitors, especially cyclosporine, often result in markedly increased levels of statin. Cyclosporine increases serum levels of pravastatin by five to twenty three-fold, lovastatin by up to twenty-fold, atorvastatin by six-fold, simvastatin by three-fold and fluvastatin by two-fold. Statin therapy offers considerable benefit to transplant recipients who are at high risk for worsening dyslipidemia and cardiovascular events in the post-transplant period. Cardiovascular mortality continues to be a major cause of death in renal graft recipients and statin therapy has been shown to improve survival. Risks can be minimized by prescribing lower doses as well as choosing statins that have been studied extensively in transplant recipients. No case of rhabdomyolysis has been reported with concomitant use of fluvastatin with cyclosporine and is often preferred in kidney transplant recipients. In heart transplant patients receiving cyclosporine, recommended statin dosages are up to 10 mg/day of simvastatin, 20 mg/day of lovastatin, or 40 mg/day of pravastatin. Despite obvious benefits on mortality, statins should be prescribed and dosed carefully in the transplant population.

BEWARE OF THE SEEMINGLY STABLE SICKLE CELL PATIENT L. Wasson[1]; J. Bhutto[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203902)*

LEARNING OBJECTIVES: 1) To highlight the serious complications that can result from sickle cell disease 2) To be recognize hepatobiliary complications of sickle cell disease 3) To understand the clinical presentation and pathophysiology of hepatic sequestration/reverse sequestration

CASE INFORMATION: A 27-year-old woman with sickle cell disease presented with acute bilateral leg, abdominal, and chest pain accompanied by nausea, non-bloody vomit, and a productive cough. The woman stated that the pain was consistent with her usual pain crisis for which she was hospitalized once yearly. The patient had never had a blood transfusion reaction or sickle cell disease complications including acute chest syndrome, stroke, renal failure, and myocardial infarction. The patient was oxygenating 92% on room air, was afebrile, had crackles at the left lung base, had a normal electrocardiogram, and had stable cardiomegaly on chest radiograph. Approximately twenty-four hours after initiation of supportive pain crisis treatment the patient experienced increasing chest pain and shortness of breath with corollary changes on electrocardiogram. Repeat chest radiograph showed the interval development of a prominent infiltrate. The patient was transferred to the intensive care unit for exchange transfusion and close monitoring of presumed acute chest syndrome symptoms. Because of precipitously increasing oxygen requirements, elective intubation was initiated. In the midst of intubation, the patient's systolic blood pressure dropped from 150 to pulseless electrical activity. Despite aggressive recuscitation, the patient died. Autopsy showed hepatomegaly with diffuse microsteatosis and cardiomegaly. Death due to hepatic sequestration/reverse sequestration was declared.

IMPLICATIONS/DISCUSSION: Sickle cell disease pain crisis has many potential complications. Though trained to quickly recognize acute chest syndrome, stroke, and priapism, providers must also consider rarer, less-easily recognized complications even when symptoms are consistent with uncomplicated pain crisis. Hepatobiliary complications of sickle cell disease include acute sickle hepatic crisis, sickle cell intrahepatic cholestasis, benign hyperbilirubinemia, hepatic infarction, and Budd-Chiari syndrome. Hepatic sequestration and its rare progression to reverse sequestration may also occur. Patients with hepatic sequestration usually present with non-specific right upper quadrant pain and hepatomegaly. Pathophysiologically, hepatic sequestration results from red blood cells becoming sequestered in the liver. Acute anemia, hepatomegaly, shock, and sometimes death ensue. Hepatic sequestration can be followed by reverse sequestration in which the viable sequestered cells are presumed to be released back into the circulation causing a spontaneous and rapid rise in hemoglobin. Hypervolemia, hypertension, heart failure, and intracerebral hemorrhage results. Treatment consists of early identification and intervention with exchange transfusion. Because markers are non-specific and sequelae are rapid, early diagnosis and treatment is challenging. Careful monitoring of blood pressure, liver function tests (particularly for Tbili greater than 13), blood counts, hemoglobin, hemoglobin S, and plasma viscosity is recommended.

BICKERSTAFF BRAINSTEM ENCEPHALITIS: A RARE VARIANT OF GUILLIAN-BARRE SYNDROME K. Arnaout[1]; G. Abou Dagher[1]; S. Rancour[1]; M. Younes[1]; E. Kawar[1]; A. Lukowski[1]. [1]Henry Ford Hospital, Detroit, MI. *(Tracking ID # 205618)*

LEARNING OBJECTIVES: 1- Identify the clinical features and the physical findings of Bickerstaff Brainstem Encephalitis (BBE) 2- Review the diagnostic workup and treatment of BBE

CASE INFORMATION: A 79-year-old woman presented with a twenty-four hour history of numbness in her hands, generalized weakness and slurred speech. Symptoms progressed into mental status and hypoxia requiring endotracheal intubation. Review of systems was positive for a two week history of a viral upper respiratory tract infection. Neurological examination revealed confusion, bilateral ptosis, fixed gaze paralysis, and areflexia. Motor strength was 3/5 in the upper extremities and 4/5 in the lower extremities. Laboratory tests revealed leukocytosis and normal electrolytes. Acetylcholine receptor antibody was negative. Chest X ray was normal. Infectious and connective tissue disease workup was negative. Computerized tomography of the head followed by MRI of the brain showed no acute intracranial process. A lumbar puncture was remarkable for cytoalbuminemic dissociation with protein of 111 mg/dL and no WBC. Cerebrospinal fluid cultures were negative. MRI of the cervical spine ruled out myelopathy. Electromyography revealed a severe axonal sensory peripheral neuropathy. A diagnosis of Bickerstaff brainstem encephalitis (BBE) was considered and an anti-GQ1b ganglioside antibody assay was positive at a titer of 1:12800. The patient was treated with a five day course of intravenous immunoglobulin and improved clinically. Six months after hospitalization, she was performing at baseline with a normal neurological exam.
IMPLICATIONS/DISCUSSION: Bickerstaff brainstem encephalitis (BBE) is a clinical syndrome consisting of ophthalmoplegia, ataxia, areflexia, altered mental status, and hemisensory loss. The etiology of BBE is not entirely established, yet most experts classify it as a variant of Guillain-Barre syndrome (GBS). An IgG antibody to ganglioside GQ1b is positive in both GBS and BBE suggesting a common pathogenesis, as part of the "GQ1b antibody syndrome". Our case demonstrates the classic features of this rare syndrome. Before making a diagnosis of BBE, a number of diseases such as Wernicke's encephalopathy, vascular disease of the brainstem, botulism, myasthenia gravis, brainstem tumor, pituitary apoplexy, acute disseminated encephalomyelitis, multiple sclerosis, vasculitis, and lymphoma must be excluded. A systematic review of treatments for BBE found no randomized controlled trials concerning therapeutic options. Observational studies suggest that BBE usually recovers completely. Randomized controlled trials are needed to establish the value of immunotherapy and other treatments.

BIG FAT PAIN IN THE GUT M. Jammal[1]; E. Wasson[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]Olive View - UCLA Medical Center, Sylmar, CA. *(Tracking ID # 204966)*

LEARNING OBJECTIVES: Recognize that chylomicron syndrome can present with severe abdominal pain even in the absence of pancreatitis.
CASE INFORMATION: A 44 year old Latino male with Type 2 Diabetes, distant nephrolithiasis, and alcohol use was admitted for refractory left flank pain involving the left upper and lower abdominal quadrants for 8 months. Initially, pain occurred in intermittent episodes lasting hours, but progressed to constancy. He had no urinary, stool, or constitutional symptoms. Moderate alcohol use was stopped 2 months prior without reduction of the pain. He had been evaluated by multiple emergency departments. In total, 8 negative CT studies were performed. Discharge diagnoses of nephrolithiasis and alcohol gastritis/pancreatitis were made, though no stones were ever visualized and lipase was always normal. He was unemployable due to unremitting pain. Temperature was 36.5, BP 120/72, Pulse 89, O2 Sat 98% RA. Abdomen was soft and non-distended with guarding and tenderness in all quadrants. The left lower back was diffusely tender without CVA tenderness. Remaining exam was normal. CT of his abdomen was repeated in the ED revealing fatty liver infiltration. The hematology labs revealed mild normocytic anemia and normal leukocyte and thrombocyte counts. Serum was "grossly lipemic." AST, ALT, alkaline phosphatase, total bilirubin as well as lipase were normal. Random glucose was 295 mg/dL without ketonemia. Routine chemistry panel was noncontributory. Hemoglobin A1c was 10.6. TSH and calcium were normal. Serum triglycerides exceeded the upper limit of our assay (>4,500 mg/dL). The chylomicron syndrome was diagnosed and high dose intravenous morphine was started. Triglyceride lowering measures included insulin administration. He was also started on gemfibrozil, extended release niacin, and omega-3-fatty acids supplements. The patient required high dose narcotics until hospital day 8 when the triglycerides first fell below 1000 mg/dL. He was discharged on the same triglyceride-lowering regimen and low potency oral opioids. The patient was pain-free on clinic follow-up for the first time in several months. Fasting LDL was 119, HDL 30 (initially 8), and triglycerides 460 mg/dL.
IMPLICATIONS/DISCUSSION: Physicians should be aware of the chylomicron syndrome, a hyperviscosity state which can occur when triglyceride levels exceed 1000 mg/dL. In most cases, an acquired dyslipidemia (diabetes, alcohol abuse, hypothyroidism, or dietary indiscretion) is superimposed on a primary dyslipidemia (usually mixed or familial). Most physicians are aware that hypertriglyceridemia can cause pancreatitis. We postulate that the **lack** of pancreatitis in the present case contributed to the delay in diagnosis which suggests a physician knowledge gap. Severe pain can be secondary to sluggish mesenteric blood flow and can mimic "bowel angina." Insulin rapidly lowers triglycerides via insulin dependent lipolysis. Insulin should be used first line when hypertriglyceridemia is complicated by hyperglycemia. Fibrates and niacin preparations have achieved 35 to 50% reductions of triglycerides independently. Fish oil is useful but requires high doses and is frequently not tolerated. Dietary fat reduction and aerobic exercise has demonstrated 10–20% reduction of triglycerides in men. The triglyceride treatment target is less than 500 mg/dl. The negative imaging results were very useful in prompting a broader differential which included chylomicron syndrome.

BILATERAL EMBOLIC STROKES AFTER CARDIOVERSION S. Kadam[1]; M. Rao[1]; L. Samkoff[1]; S. Kulshrestha[2]. [1]University of Rochester, Rochester, NY; [2]Rochester General Hospital, Rochester, NY. *(Tracking ID # 203781)*

LEARNING OBJECTIVES: Recognize the importance of anticoagulation before and after cardioversion for atrial fibrillation.
CASE INFORMATION: An 85 years old right-handed white female presented with 1-day duration of generalized weakness, transient right hemianopsia and confusion. Past medical history was significant for hypertension and atrial fibrillation (AF) on chronic anticoagulation. She had undergone an elective cardioversion 4 days prior to admission. At that time her INR was 2.2. Following cardioversion she opted to discontinue Coumadin. Physical exam revealed BP of 130/60 and a regular heart rate of 90/min. Limited neurological exam revealed confusion due to delirium, normal visual field, intact cranial nerves, grossly diminished motor strength and deep tendon reflexes, gait instability due to dizziness and a negative Babinski sign. Limb ataxia and intentional tremors were present bilaterally. On admission the INR was 1.8 . CT scan on admission was negative for acute hemorrhage or infarct. MRI brain showed bilateral infarcts in multiple vascular distributions suggestive of embolic etiology. MRA brain and neck revealed normal carotid and intra-cranial circulation without occlusive thrombus or significant stenosis. Trans-esophageal echocardiogram (TEE) was negative for intra-cardiac thrombus or patent foramen ovale but showed Spontaneous Echo Contrast (SEC) and enlarged left atrium (LA). Holter monitoring was negative for any recurrent AF. Her confusion resolved and she recovered to her baseline functional status the following day. Coumadin was initiated on day 5 days following with the goal INR of 2–3
IMPLICATIONS/DISCUSSION: This case highlights the risk of embolic stroke in AF immediately following cardioversion, specifically in a patient with inadequate anticoagulation. 1. Age is the strongest risk factor for stroke in AF patients. Ageing is associated with enlargement of LA and left atrial appendage (LAA) that are associated with decreased blood-flow velocity. This increases the rate of micro-thrombi and SEC formation. SEC is the smoke like echo signal seen in LAA and it is an independent predictor for stroke in AF. 2. Cardioversion is indicated when AF is symptomatic or results in hemodynamic instability. The success of cardioversion is very low in elderly patients with AF because of structural and electrophysiological abnormalities in LA. Our patient was also at a high risk of AF recurrence due to her age and hypertension thus limiting the benefit of cardioversion. 3. Anticoagulation for 3 weeks prior to and 4 weeks after cardioversion is necessary and patients must be educated about this. Once sinus rhythm is established, the flow velocity increases and there is a high risk of systemic embolization of these micro-thrombi leading to strokes. Our patient assumed that since her AF resolved after cardioversion and she could discontinue anticoagulation. 4. Quality of life is affected by chronic anticoagulation therapy in elderly because of repeated blood testing for INR and minor bleeding complications. This may result in non-compliance. 5. TEE prior to cardioversion is not recommended by American College of

Cardiology because of known benefits of anticoagulation prior-to and after cardioversion.

BLACK ESOPHAGUS: A RARE CAUSE OF UPPER GASTROINTESTINAL BLEEDING R. Medina, M.D.[1]; S. Dea, M.D.[1]. [1]Olive View-UCLA Medical Center, Sylmar, CA. *(Tracking ID # 205532)*

LEARNING OBJECTIVES: 1. Recognize a rare cause of upper GI bleeding. 2. Understand the prognosis and treatment of black esophagus.
CASE INFORMATION: A 62 year old man with a history of diabetes, alcoholic cirrhosis and prior upper GI bleeding was brought to the hospital for hematemesis and melena for the past two weeks. Two months prior to his current presentation the patient was admitted for GI bleeding and found to be anemic. During that hospitalization upper endoscopy showed gastritis, which was attributed to his alcohol use, and minimal esophageal varices that were too small to treat. After transfusions, the patient was discharged with a hemoglobin of 11.3 mg/dL. At current presentation the patient's blood pressure was 157/39 and his pulse was 118. His hemoglobin on presentation was 4.6 mg/dL. Other significant laboratory tests were BUN 106, Cr 3.55, NH3 152 and lactic acid 4.5 mg/dL. A central line placement attempt was subsequently aborted after the patient had an episode of apnea with hypotension and he was intubated for airway protection. While in the ER he was fluid resuscitated and transfused 3 units PRBCs. He was also started on pantoprazole and octreotide drips. Once stabilized the patient was transferred to ICU for management of his GI bleed. Emergent endoscopy showed deep necrotic mucosal changes consistent with acute esophageal necrosis. Post-endoscopy he was made NPO and IV pantoprazole was continued. He was later able to transition to oral intake and oral omeprazole. The patient course was further complicated with MRSA bacteremia, aspiration pneumonia and renal failure requiring permanent hemodialysis, but he was eventually able to be transferred to a long-term care facility.
IMPLICATIONS/DISCUSSION: Acute esophageal necrosis (AEN) or "black esophagus" is an uncommon endoscopic finding of extensive circumferential black discoloration of the esophageal mucosa. Usually the distal third of the esophagus is involved, which can extend proximally but almost always abruptly ends at the Z-line of the gastroesophageal junction. Previously, the entity was mostly an autopsy finding and the first endoscopic description was in 1990, yet the incidence of the disease remains low ranging from 0.1 to 0.2% in clinical trials. In one review, less than 90 cases have been reported in the literature, making the diagnosis very uncommon. Differential diagnosis of a black or darkened esophagus includes melanosis, melanoma, pseudomembranous esophagitis and coal dust ingestion. The most common clinical manifestation of AEN is bleeding of the UGI tract. The mechanism of disease is not clear but a state of ischemia leading to necrosis is the leading theory. It has been proposed that hypotension leads to a low flow state to both the segmental and intramural arteries, resulting in ischemia. Other conditions that have been associated with AEN include infection, gastric outlet obstruction, and use of broad spectrum antibiotics. In one review of 46 cases the average age was 65 years old with patients having at least one comorbid condition including duodenal ulcer, malignancy, diabetes, and massive gastroesophageal reflux. The disease has a high mortality rate but seems to be more related to the patients underlying illness rather than presentation of black esophagus. Treatment can range from supportive care to intravenous proton pump inhibitors, sucralfate, and avoidance of oral intake. Usually there is no further sequelae but complications include esophageal stricture, mediastinal abscess, and esohageal stenosis.

BRAIN OF RINGS J.D. Kelly[1]; A. Kolpakchi[1]; R. Khan[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 204965)*

LEARNING OBJECTIVES: 1. Include intracranial tuberculomas in the differential diagnosis in immigrants from endemic countries with multiple ring-enhancing brain lesions. 2. Realize that majority of patients with intracranial tuberculomas do not have pulmonary manifestations.
CASE INFORMATION: A 39-year-old Cambodian gentleman with no past medical history presented a 2- month history of severe and intractable headache. The pain was left-sided and was not associated with photophobia, phonophobia, nausea, vomiting, and neurological deficits. Patient denied fever, chills, night sweats, cough, weights loss, recent TB exposure, and prior history of headaches. He emigrated from Cambodia to the U.S. five years ago. He was evaluated at an outpatient clinic, and due to the intractability of the headache, a computed tomography (CT) of brain was performed revealing multiple ring-enhancing lesions. Patient was admitted for further evaluation. Physical examination was unremarkable with a normal neurological exam. HIV was negative. PPD skin test was positive (>15 mm). On the MRI of the brain, more than fifty 5–10 mm ring-enhancing lesions were detected throughout both cerebral hemispheres, extending into the right side of the pons. In search for a primary source, a CT of chest demonstrated a miliary lung pattern with mediastinal lymphadenopathy. Lung biopsy result showed non-caseating granulomatous disease, which was thought to be a peripheral section of caseating disease. Excisional brain biopsy, perfomed after the lung biopsy, ultimately revealed caseating granulomatous disease with histological findings of acid-fast bacilli consistent with mycobacterium tuberculous. He was initiated on anti-tuberculosis therapy and corticosteroids.
IMPLICATIONS/DISCUSSION: Intracranial tuberculomas are rare in the U.S. with an incidence of less than 0.5% but account for over 5% of the developing world's intracranial masses. Majority of patients with intracranial tuberculomas present with fever and headache and do not have pulmonary symptoms. About 1/3 of patients presented with altered mental status, and miliary pattern on chest radiograph was found in about 20% of patients. Some patients had negative PPD skin test. Intracranial tuberculomas usually manifest in a single or few lesions. Disseminated intracranial tuberculomas of more than 40 lesions are extremely rare with only a few case reports found in the literature. While CT is an initial imaging modality utilized to identify ring-enhancing brain lesions, MRI is more sensitive and can quantify lesions. Excisional brain biopsy is the gold standard for diagnosis. Majority of patients require at least 24 months of antituberculous therapy for complete resolution of tuberculomas. Larger tuberculomas (maximal size, >4 cm) size resolve more slowly than smaller tuberculomas (<4 cm), and serial contrast-enhanced CT scans guide therapy duration. Corticosteroids during initiation of antituberculous therapy prevent paradoxical worsening of tuberculomas. If diagnosed and treated early, prognosis is good with more than 40% patients with complete full recovery. However, patients with initial clinical symptom of altered mental status and/or military lung pattern on x-rays carry a poor prognosis. Hence, intracranial tuberculomas should be considered in patients from endemic areas who present with headache and multiple ring-enhancing brain lesions.

BREAST CANCER DISCOVERED BY MYOCARDIAL PERFUSION IMAGING A. Kapetanos[1]; J.L. Hadam[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204903)*

LEARNING OBJECTIVES: 1) To describe a case of breast cancer that was not detected with standard screening. 2) To outline the screening recommendations for breast cancer.
CASE INFORMATION: A 60 year-old African American female without significant past medical history presented to our medicine clinic for a follow-up visit. She was last seen 2 years prior, at which time she was evaluated for complaints of shortness of breath and dyspnea on exertion with a negative stress test; at that time screening mammogram was reported as BIRADS 1. Currently the patient was without complaints; a complete interim history and physical, including breast examination were unremarkable. Screening mammography was ordered, the result of which again was BIRADS 1. The patient returned to clinic 2 months later complaining of dyspnea on exertion of 2 weeks duration. History, physical exam, and initial workup including complete blood count, thyroid stimulating hormone level, chest x-ray, and electrocardiogram did not indicate an etiology. A non-contrast CT-Chest was also unremarkable. A repeat stress test showed no ischemic changes or dysrhythmias and the perfusion portion showed a normal EF and LV function without evidence of ischemia, however, an extra-cardiac focus anterior to the apex of the heart was noted. A CT-Chest with contrast revealed a 3.7×3.1 cm left breast mass. The patient was referred for biopsy, which revealed a high-grade infiltrative ductal carcinoma: ER negative, Her-2/neu negative, and PR positive. A partial mastectomy was performed, with clear margins and negative nodes.

Adjuvant irradiation and 4 cycles of AC were followed by Anastrozole therapy. The patient has been disease free since.
IMPLICATIONS/DISCUSSION: False-negative radiographic mammography examinations can occur in 20% to 40% of women with breast cancer. Most of the false-negatives are actually cancers that are visible in retrospect. Some factors associated with false negatives are denser breasts and less/absent microcalcifications. The American Cancer Society recommends yearly mammograms and clinical breast exam (CBE) starting at age 40, and solely CBE every three years for women in their 20 s and 30s, with optional breast self-exam for women starting in their 20s. High-risk women (BRCA mutation, first-degree relative of BRCA carrier but untested, lifetime risk of 20–25% or greater as defined by calculated models that are largely dependent on family history, radiation to the chest between the ages of 10 and 30 years, Li-Fraumeni syndrome and first-degree relatives, Cowden, and Bannayan-Riley-Ruvalcaba syndromes and first-degree relatives) should get an MRI and a mammogram every year. Women with moderate increased risk (lifetime risk 15–20% as defined by calculated models that are largely dependent on family history, history of lobular carcinoma in situ or atypical lobular hyperplasia, atypical ductal hyperplasia, heterogeneously or extremely dense breast on mammography, women with a personal history of breast cancer, including ductal carcinoma in situ) should discuss the benefits of MRI with their physician. Mindful history taking is important in stratifying an individual's risk of breast cancer, and ordering appropriate adjunctive screening tests. A free tool for calculating a patient's risk is available on the National Cancer Institute's website.

BRONCHIAL CARCINOID TUMOR A. Nahata[1]; S. Kwok[2]. [1]University of Illinois at Peoria, Peoria, IL; [2]OSF St Francis Medical Center, Peoria, Peoria, IL. *(Tracking ID # 205585)*

LEARNING OBJECTIVES: 1. Presentation of a carcinoid tumor 2. Treatment complications and importance of follow up.
CASE INFORMATION: A 26-year-old female with history of hypothyroidism, depression, migraines, and gastroesophageal reflux disease presented with cough, purulent sputum production and chest discomfort. Her home medications include levothyroxine, fluoxetine and oral contraceptive. Her vital signs were stable. Chest was clear and no murmurs were heard. Abdominal exam was unremarkable. Lab results were normal except for a platelet count of 512 K/μL. Sputum culture revealed normal upper respiratory flora. Blood cultures were negative. A chest X-ray showed a right paratracheal density. Noncontrast chest tomography (CT) was performed to further evaluate this and showed a mucous plug in the airways supplying the medial aspect of the right upper lobe apical segment, likely representing bronchitis. She was treated with antibiotics. Two months later, she was seen in follow up and had shortness of breath. Pulmonary function testing was done showing normal spirometry and flow volume loops. A follow up chest CT showed a persistent 1.4 cm soft tissue density extending from the right main stem bronchus into the right upper lobe. There were associated calcifications. The patient underwent flexible fiberoptic bronchoscopy revealing a 1.5 cm mass at the junction of the right mainstem and upper lobe bronchus. Biopsies were taken and pathology confirmed carcinoid tumor. The patient then underwent right upper lobectomy with sleeve resection. There was a lymph node in the mediastinum and 10 nodes were excised which were all negative for the neoplasm. Postoperatively, she continued to have persistent cough and wheezing. A repeat bronchoscopy showed granulation tissue involving the right bronchus intermedius causing severe stenosis of the right main bronchus. After failed balloon dilation, laser resection was performed which reduced the stenosis from 90% to 40%. Subsequently she developed pneumonia in the right lung remnant and required two further laser resections for repeat stenosis.
IMPLICATIONS/DISCUSSION: Bronchial/lung carcinoids are one of the three most common sites for carcinoid tumors and have an incidence rate range of 0.2 to 2 per 100,000 people per year and have been divided into typical and atypical types based on pathologic criteria, with typical being four times more common. Our patient had typical carcinoid and had presenting features consistent with the most common presentation. However she was in the early age group and had a relatively short time between symptom onset and diagnosis. Also her treatment course was significant for post operative complications and she will need to be followed up regularly. Post treatment surveillance is recommended for carcinoids because even though they have a low malignant potential, local or distant disease recurrence may occur many years after treatment. The consensus guidelines are chest CT annually for resected typical carcinoids, monthly chest CT for 6 months for atypicals for the first two years, then annually.

CALCIPHYLAXCIS IN AN END STAGE RENAL DISEASE PATIENT. S.U. Abbas[1]. [1]University of Miami, Miami, FL. *(Tracking ID # 204456)*

LEARNING OBJECTIVES: Early recognition and prevention of calciphylaxis in patient with ESRD.
CASE INFORMATION: A 35-year-old female with juvenile diabetes, hypertension and end stage renal disease on peritoneal dialysis for 2 years was admitted with a six day history of excruciating left hand pain. She had swelling and bluish discoloration of her thumb, middle and index fingers. She also had a non-healing left leg ulcer. She denied any insect bites, trauma, fevers and cold sensitivity. Family and social history were unremarkable. On admission vital signs were within normal limits.The lateral three digits of her left hand were extremely tender, swollen and mottled. Range of motion was decreased due to swelling and pain. There was a chronic ulcer on her left Achilles tendon. Pulses were not palpable but present by Doppler. The rest of her examination was unremarkable. Labs were significant for a Ca 8.1 mg/dl, phosphate 9.4 mg/dl, BUN 56 mg/dl, creatinine 14.1 mg/dl and CRP of 7.8 mg/dl. She was admitted with a working diagnosis of limb ischemia and treated with heparin and antiplatelet agents. Doppler showed deterioration of pulse waveform and a CT arteriogram of her left arm showed radial artery cutoff at the radio carpal level and extensive calcification in all vessels visualized. She underwent angiography of both upper and lower extremities followed by balloon angioplasty of a radial artery stenosis. On the next day she developed similar complaints in her right foot and underwent angioplasty of her popliteal artery. The extensive calcification raised concerns for calciphylaxis. She therefore underwent CTA of her chest, abdomen and pelvis which was consistent with extensive calcification of all visualized vessels. Her skin biopsy was diagnostic of calciphylaxis. Her repeat phosphate level was 12 mg/dl and her PTH was 211 pg/ml. She was continued on renagel, heparin and peritoneal dialysis was intensified. Hypercoagulable panel, and rheumatologic profile were normal. On day 8 she had high fevers with worsening left hand symptoms and leucocytosis. She was started on broad spectrum antibiotics. She was transferred to the ICU to treat her sepsis and to switch to hemodialysis for optimal phosphate control .On day 9 she became hypotensive, unresponsive and suffered a cardiac arrest resulting in anoxic brain injury. Two days later her family decided to withdraw support.
IMPLICATIONS/DISCUSSION: This case illustrates that the optimal therapy of calciphylaxis is to prevent its development. Calciphylaxis is one of the most lethal and rare conditions resulting from calcification of small blood vessels among dialysis patients. It carries a mortality from 60–80% secondary to progression of disease and sepsis. It should be suspected in patients with ESRD and painful ulcers, nodules or necrosis involving the dermis or subcutaneous tissue. The diagnosis can be established by arteriography and biopsy of affected skin. Inadequate control of phosphate leads to elevated levels of the calcium-phosphate product, which then plays a pivotal role in vascular calcification, calciphylaxis and death. Controlling serum phosphorus level is the key to prevention. Intense dialysis, non calcium containing phosphate binders, calcimimetics and parathyroidectomy should be considered. Marked improvement of calciphylaxis has been reported with the use of intravenous sodium thiosulfate.

CARDIAC SARCOIDOSIS: A HEART STOPPING INITIAL PRESENTATION T.B. Smith[1]; A.R. Hercules[1]; K. Judson[1]; D. Gabos[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205052)*

LEARNING OBJECTIVES: 1.To describe an atypical initial manifestation of sarcoidosis 2.To discuss the importance of early and adequate diagnosis of cardiac sarcoidosis
CASE INFORMATION: A 27 year old Caucasian male with no significant past medical history was admitted with weakness and dizziness of one day duration. While at home the patient had 2 witnessed syncopal events. He denied chest pain, SOB or palpitations but did admit to

having frontal headaches. Clinical examination was normal except for marked bradycardia. Initial chemistry and hematologic panels were unremarkable. EKG demonstrated third degree heart block with a ventricular escape rate of 33 bpm. Left axis deviation and RBBB were also present. A temporary pacemaker was placed because of monitored asystolic events. CT of the chest showed thoracic and upper abdominal lymphadenopathy together with bilateral pulmonary nodules suspicious for sarcoidosis. Cardiac MRI was performed and demonstrated transmural enhancement of the basal ventricular septum consistent with an infiltrative process. Subsequent lymph node biopsy via mediastinoscopy revealed noncaseating granulomas.

IMPLICATIONS/DISCUSSION: The diagnosis and management of sarcoidosis frequently requires a multidisciplinary approach with the internist being the focal point and coordinator of patient care. Although sarcoidosis as a pathologic entity has a good prognosis, high remission rate, and low mortality, cardiac involvement alters this scenario. Prompt diagnosis and intervention are critical in the face of cardiac arrhythmias which range from first degree to complete heart block, and ventricular arrhythmias. The case presented is one in which, surprisingly, the initial manifestation of the disease was of cardiac origin. Myocardial involvement of sarcoidosis has been described as early as 1929 but is clinically apparent in only 5% of patients with established disease. Most cases are discovered when the disease has already been identified in other organs. In the ACCESS (A Case Control Etiologic Study of Sarcoidosis) report, the incidence of cardiac involvement among patients studied within 6 months of histologic diagnosis of sarcoidosis was 2.3%. Only few cases occur with isolated cardiac manifestations as the initial presentation. The basal aspect of the ventricular septum is the second most common site of granuloma formation in cardiac sarcoidosis. Healing and scar formation account for the electrical abnormalities and arrhythmias. The clinical and electrocardiographic manifestations depend upon the extent, location and activity of the disease but mat not correlate with MRI findings. Syncope usually indicates a significant electrophysiologic abnormality which requires immediate attention to avert sudden cardiac death. Early detection of cardiac involvement of sarcoidosis is particularly important because despite having infrequent clinical involvement, cardiac disease is the second most common cause of death in patients in the western hemisphere.

CASE OF HEYDE'S SYNDROME: AN ASSOCIATION BETWEEN ANGIODYSPLASIA AND AORTIC STENOSIS

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LEARNING OBJECTIVES: 1. Know that the pathogenesis of Heyde's Syndrome is an acquired von Willebrand factor deficiency induced by high shear forces across the stenotic valve. 2. Treatment of this syndrome is aortic valve replacement which gives better results than routine GI management and prevents recurrent bleeding.

CASE INFORMATION: A 66 year old man with coronary artery disease presented to the ER with bright red blood per rectum. The patient was admitted to the MICU and had a colonoscopy the following day. The procedure showed patchy angioectasias in the ascending colon as well as diverticulosis of the sigmoid colon. The patient's initial ECG showed ST depression in V3-V6 with right-bundle-branch block. He had elevated troponins. Due to his history of CAD and ECG/troponin findings, a transthoracic echocardiogram was done which unexpectedly showed severe-to-critical aortic stenosis and an ejection fraction of 30–34%. Coronary angiography showed stenosis in the proximal portion of the left anterior descending, stenosis in the left circumflex, stenosis in the right coronary artery, and confirmed the aortic stenosis. This patient has Heyde's syndrome complicated by CAD. He was scheduled for cardiovascular surgery for aortic valve replacement and aortocoronary bypass.

IMPLICATIONS/DISCUSSION: We present here a case of Heyde's syndrome. Patients with this disease typically have an induced von Willebrand factor deficiency brought on by high shear forces across the stenotic valve. It is hypothesized that the stenotic valve induces a conformational change in a von Willebrand factor, making it more susceptible to proteolysis and leading to defective platelet-mediated hemostasis and angiodysplatic bleeding. Aortic valve replacement has been shown to fix the GI bleeding and prevent further recurrence of bleeding. While managing patient with a GI bleed, it is important to consider aortic stenosis as a contributor to the pathogenesis.

CAUGHT OFF BALANCE: FLUCTUATING NEUROLOGICAL IMPAIRMENT IN AN ALCOHOLIC WITH CENTRAL PONTINE MYELINOLYSIS

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LEARNING OBJECTIVES: 1) Identify the clinical signs of central pontine myelinolysis 2) Recognize prophylactic and symptomatic treatment for central pontine myelinolysis

CASE INFORMATION: A 50-year-old woman with alcohol dependence presented with impaired consciousness and unsteady gait for 5 days. As per the patient's husband, she had been hospitalized several times for alcohol withdrawal during the past year, the last of which was 2 weeks prior to admission. She remained abstinent since. At initial presentation to this hospital, the patient appeared "locked-in." She was quadriplegic and anarthric, yet tracked activity with her eyes. Hours later she was alert, confabulating, and verbally abusive with the hospital staff. She continued to exhibit waxing and waning dysarthria, dysphagia and paraplegia throughout her hospitalization. The patient's cranial nerve exam and muscle strength were normal, but she exhibited impaired finger-to-nose testing, inability to perform rapid alternating movements, and an ataxic, wide-based gait. Routine labs were within normal limits, and serum ethanol and urine toxicology showed no recent substance use. CT head also revealed no abnormalities. Clinically, the patient's neurological status continued to fluctuate despite supportive care with thiamine, folate and benzodiazepenes on call for possible withdrawal. A repeat CT head was again normal, however an MRI of the brain showed increased signal intensity in the pons with sparing of the corticospinal tract consistent with a pontine infarct or central pontine myelinolysis (CPM). Records obtained from her prior hospitalization revealed correction of serum sodium from 110 mEq/L to 128 mEq/L within a 24 hour period supporting the diagnosis of CPM.

IMPLICATIONS/DISCUSSION: CPM is a dreaded complication of treating hyponatremia. Its etiology is still not well understood, but rapid correction of hyponatremia is thought to cause an osmotic fluid shift from the intracellular to the extracellular space and myelin sheath destruction of pontine oligodendrocytes. First described in malnourished alcoholics, CPM occurs also in cases of hyponatremia from psychogenic polydipsia, prolonged vomiting, SIADH and in the postsurgical liver transplant period. In the course of CPM, the patient may initially exhibit a subacute encephalopathy due to hyponatremia that reverses rapidly with saline administration. This is followed by a sudden clinical deterioration, occurring 2 days and up to several months following sodium repletion. This phase is notable for such symptoms as ophthalmoplegia, pseudobulbar palsy, quadriplegia, emotional lability, and as our patient demonstrated initially, "locked-in" syndrome. Cautious correction of sodium by no more than 1 mEq/L/h is recommended to prevent CPM but does not guarantee its absence. Currently, treatment for CPM is limited to neurorehabilitation and supportive care. Prognosis varies with the extent of the patient's lesion. Partial recovery is possible for at least 1/3 of cases, but residual mental and physical disability often persists, with death occurring only in the most severe of cases. In this case, the patient was treated supportively with vitamin supplementation and inpatient physical therapy. The patient's emotional lability and aggression were treated successfully with quetiapine. By discharge, the patient had returned to her baseline mental status and planned to attend an outpatient physical rehabilitation program for her ongoing postural instability.

CENTRAL RETINAL VEIN OCCLUSION IN A PATIENT WITH MULTIPLE MYELOMA

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LEARNING OBJECTIVES: 1. To recognize the risk of venous thromboembolism in patients with hematologic malignancies. 2. To recognize the need for thromboprophylaxis in patients treated with Lenalidomide.

CASE INFORMATION: A 52 yr old male with no significant past medical history presented to the emergency department complaining of 3 days of pleuritic chest pain and shortness of breath. On review of systems, pt described 9 months of scapular and rib pain. Family history was negative for malignancy or thromboembolic disease. Vital signs were within normal limits. CBC showed wbc 4.6, Hgb 10.6, MCV 95.7, plts 156. LFTs were notable for total protein of 9.3 and albumin 4.0. CXR showed minimal subsegmental atelectasis in the left lower lobe. CT angiogram revealed no pulmonary embolism, but multiple osteolytic lesions in the sternum, ribs, scapula, and spine. SPEP demonstrated an IgG kappa monoclonal band. Bone marrow biopsy revealed greater than 80% atypical plasma cells consistent with multiple myeloma. Patient was begun on Lenalidomide, Dexamethasone, Zolendranate, and aspirin 81 mg. After 10 months of continuous treatment, patient experienced partial disease response with an 80% decline in his M protein, and 5% plasma cells in his BM. However, pt developed new painless right eye blurriness. Visual acuity was limited to counting fingers at 6 inches. Retinal exam revealed thickened tortuous veins with flame hemorrhages consistent with a central retinal vein occlusion. Patient underwent panretinal laser photocoagulation therapy to prevent further retinal damage.
IMPLICATIONS/DISCUSSION: Central retinal vein occlusion is a rare presentation of venous thromboembolism (VTE) in multiple myeloma, and may occur from hemodynamic disturbances and changes in coagulation. The annual incidence of VTE is 2–7% in patients with hematologic malignancies compared to 1% in the general population. Multiple myeloma patients treated with thalidomide or its related compound, lenalidomide, in combination with dexamethasone are at particular risk, with the incidence of VTE as high as 26%. The reason for this increased risk is multifactorial. In multiple myeloma, hyperviscosity from high levels of serum immunoglobulins leads to venous stasis. Lenalidomide therapy leads to decreased thrombomodulin levels and high von Willebrand factor, allowing activation of the clotting cascade. Further coagulation activation occurs from the release of TNF, IL-1, and IL-6 by monocytes and macrophages interacting with malignant cells. Direct endothelial damage from chemotherapy toxicity completes Virchow's triad. Retrospective study of VTE prophylaxis with aspirin during treatment with thalidomide showed decreased rates of thrombosis by 70–80%. Randomized studies comparing prophylaxis with aspirin to warfarin or low molecular weight heparin (LMWH) in these patients have never been performed, but studies of thromboprophylaxis in other malignancies have shown LMWH to be superior to aspirin or warfarin. Heparin and warfarin therapy is indicated for treatment of documented VTE. In conclusion, this case describes a patient with multiple myeloma receiving first-line treatment with Lenalidomide, Dexamethasone, and prophylactic aspirin, who developed central retinal vein thrombosis and vision loss. Aspirin may be inadequate prophylaxis against thrombotic events in these patients, and clinicians should maintain a low index of suspicion for thrombotic events as the cause for unusual symptoms.

CHASING THE DRAGON. K. Sanfilippo[1]; H. Jasti[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205159)*

LEARNING OBJECTIVES: 1) Identify the clinical presentation of Heroin Inhalation Leukoencephalopathy 2) Review the treatment options and implications of this diagnosis
CASE INFORMATION: A 57-year-old female with a history of narcotic abuse presented with mental status changes. Per the patient's husband, she had begun to exhibit signs of increasing confusion three days prior. An extensive work-up at an outside hospital was negative. Upon admission, the patient was alert but disoriented to person, place, and time. There were no signs of trauma. Neurologic exam revealed intact cranial nerves grossly; however, the patient was unable to follow commands. Her speech was soft and apathetic, and she was only able to reply with yes/no. She was unable to participate in the strength exam, but moved all extremities equally and exhibited motor restlessness. Her gait was normal. There was no spasticity, clonus, or hypereflexia. Laboratory data revealed a normal metabolic profile, thyroid panel, urine drug screen, and blood and urine cultures. Other negative studies included those for hepatitis, syphilis, vasculitis, and HIV. A lumbar puncture was non-revealing for adenovirus, CMV, Coxsackie virus, Echo virus, varicella zoster, influenza, Lyme disease, measles, mumps, West Equine, and fungal organisms. An EEG and CT scan of the head were normal. An MRI revealed a diffuse leukoencephalopathy consistent with toxic or metabolic process. During hospitalization, the husband learned that she had been associating with a known heroin distributor, and had recently withdrawn $1,000 from their joint bank account. Based upon the history and negative work-up, a diagnosis of toxic leukoencephalopathy secondary to heroin inhalation was proposed. The patient was started on Coenzyme Q10 and vitamins C and E, and subsequently transferred to a nursing facility. Her mental status gradually improved over six months and she was back to baseline during a recent follow-up clinic visit.
IMPLICATIONS/DISCUSSION: Chasing the dragon is a form of heroin use that consists of inhalation of heroin fumes created by heating heroin on aluminum foil. Heroin induced leukoencephalopathy (HIL) was first described in 1982. Although the pathogenesis of HIL is not completely understood, is thought to occur from toxins contained in the heroin pyrolysate (chemical changes induced by heating), as the disease is not observed in users who snort or inject heroin. There are three described clinical phases of HIL. Presenting symptoms may include soft/pseudobulbar speech, motor restlessness, cerebellar ataxia, and apathy/abulia/bradyphrenia. Approximately 50% of patients go on to an intermediate stage which includes worsening of cerebellar symptoms, pyramidal tract symptoms, hypereflexia, spastic paralysis or tremor. 25% of patients will go on to a terminal phase which consists of hypotonic paresis, akinetic mutism and central pyrexia followed by death. Determination of which phase patients progress is correlated with the amount of heroin inhaled. Brain MRI shows diffuse, usually symmetrical, white matter hyperintensities on T2 sequences. Neuroimaging in addition to a thorough history supports the diagnosis. There is no established treatment for HIL. Antioxidant therapy consisting of coenzyme Q10 in combination with vitamin E and C was shown in two patients to correlate with improvement, and thus is recommended for patients with a diagnosis of HIL. The remainder of therapy is supportive and rehabilitative.

CHEST PAIN AND CARDIOGENIC SHOCK SECONDARY TO CORONARY ARTERITIS AND MYOCARDITIS IN A MALE WITH WEGENER'S GRANULOMATOSIS P.I. Bokhoor[1]; J. Kim[2]; A. Bui[2]; H. Honda[2]. [1]University of California, Los Angeles, Tarzana, CA; [2]UCLA, Los Angeles, CA. *(Tracking ID # 206003)*

LEARNING OBJECTIVES: To recognize and diagnose coronary arteritis and myocarditis as a possible etiology of chest pain and heart failure in patients with histories of vasculitides, such as Wegener's granulomatosis. To emphasize the importance of prompt initiation of immunosuppressive therapy and recognize that such life-saving therapy can help patients regain significant cardiac function.
CASE INFORMATION: A 46-year-old gentleman with a history of hypertension and recently diagnosed Wegener's granulomatosis (WG) presented to an outside hospital with complaints of chest pain and shortness of breath. Upon presentation to the ED, he was found to have positive troponins and nonspecific EKG changes. He was treated according to ACS protocol and ultimately underwent coronary angiography the same day which demonstrated patent coronary arteries except for a 60% occlusion in the mid first diagonal artery with a left ventricular ejection fraction (EF) of 60%. As an outpatient, he was being treated for WG with oral prednisone daily and cyclophosphamide IV every three weeks. On admission, it was thought that his symptoms were consistent with a Wegener's exacerbation, and he was started on methyprednisolone IV and cyclophosphamide PO. He had minimal response to therapy, and the next day had recurrent severe chest pain with significant ST elevations, further rise in troponins, and intermittent complete heart block. Given these findings, he underwent a second cardiac catherization which demonstrated 100% occlusions of the mid first obtuse marginal artery, distal left anterior descending, and cut offs of distal arteries. His EF had also decreased from 60% the prior day to 35%. Shortly thereafter, the patient developed complete third degree heart block requiring placement of transvenous pacing wires. He deteriorated clinically progressing to cardiogenic shock and was electively intubated requiring ionotropic support and an intra-aortic balloon pump. On the third day, he was transferred to the cardiac care unit at UCLA, and his care was further optimized with plasmapheresis. An initial transthoracic echocardiogram with a bubble study demonstrated an EF of 25% without a PFO. Workup for embolic sources was negative, and the working diagnosis was thought to be myocarditis and

coronary arteritis. He was continued on plasmapheresis and immunosuppressive therapy with hemodynamic improvement, which correlated with decreasing serum C-ANCA titers. He was successfully extubated and weaned off the intra-aortic balloon pump on the sixth day. His complete heart block also resolved and the transvenous pacing wires were removed. He remained in sinus rhythm, and his EF improved from 25% to 50% on the ninth day. He received a total of ten treatments of plasmapheresis and remained stable on prednisone and Cytoxan. He recovered well and was discharged on day 22.
IMPLICATIONS/DISCUSSION: Wegener's granulomatosis and related vasculitides result in production of autoantibodies which cause tissue damage and vascular inflammation via interactions with primed neutrophils and endothelial cells. This potentially lethal yet reversible inflammatory process can damage multiple vital organs. This case demonstrates the significance of recognizing coronary arteritis and myocarditis in the setting of chest pain in a patient with a history of vaculitis, such as Wegener's granulomatosis. More importantly, it emphasizes that prompt initiation of immunosuppressive therapy and plasmapheresis can be life-saving in such situations.

CHEST PAIN AND HEART BLOCK AS INITIAL PRESENTATION OF SARCOIDOSIS E. Bradley[1]; K.M. Hla[2]. [1]University of Wisconsin, Madison, WI; [2]Society of General Internal Medicine, Madison, WI. *(Tracking ID # 204772)*

LEARNING OBJECTIVES: 1. Recognize the most common presentation of cardiac sarcoidosis 2. Review different causes of heart block 3. Recognize the variable presentation of sarcoidosis
CASE INFORMATION: A 49 year-old male construction worker with hypertension presented with exertional chest pain and exertional dyspnea. He had noticed progressive non-radiating substernal chest pain and dyspnea at work while using a concrete polishing machine. His review of systems was otherwise unremarkable. Personal history was significant for hypertension and gout. No family history of coronary artery disease or sudden cardiac death. The patient is a lifetime non-smoker, but drinks 2–3 beers daily. Upon presentation he had a heart rate of 52 and systolic BP of 180 mmHg. Resolution of pain and normotension were restored with three sublingual nitroglycerin. On examination he appeared mildly uncomfortable. Cardiovascular examination was unremarkable except for split S2. PMI was non-displaced and JVP was 8 cm from the right atrium in 30 degree supine position. Respiratory auscultation was unremarkable. An EKG was obtained and showed high degree atrioventricular block. Electrolytes and cardiac enzymes were normal. A cardiac catheterization revealed minor luminal irregularities of the left anterior descending artery. The patient had chest pain post-catheterization and underwent a chest radiograph that showed increased density at the aortic arch and prominent right paratracheal soft tissue. A chest CT revealed extensive mediastinal lymphadenopathy and bilateral pleural nodularity with upper lung predominance. Ophthalmologic eye exam showed no ocular manifestations of sarcoid. Pathology from transbronchial lung tissue biopsy showed a single caseasting granuloma. Subsequent cardiac MRI did not show macroscopic evidence of sarcoid or arrhythmogenic right ventricular dysplasia. The patient was treated with steroids for sarcoidosis and an automated internal cardiac defibrillator for the heart block.
IMPLICATIONS/DISCUSSION: In most primary evaluations of new onset heart block, the differential diagnosis is often overshadowed by the contemplation and work up of ischemic heart disease. This case was no different. Few clinicians would argue with an ischemic work-up in a middle-aged hypertensive man with acute chest pain and new heart block. However, when the cardiac catheterization showed no significant coronary artery disease, a wider differential diagnosis for heart block was considered: including Lyme's, myocardidits, endocrinopathy, and rhythm disturbances. Mediastinal adenopathy and CT scan findings helped narrow the differential. Five percent of patients in the US with sarcoidosis have clinical cardiac manifestations, and 25% have cardiac sarcoid on autopsy. Complete heart block is the most common conduction abnormality found in cardiac sarcoidosis (23% to 30%). Since cardiac disease remains the second most common cause of death in sarcoid patients residing in the Western hemisphere, it is important to recognize the common clinical presentation of cardiac sarcoidosis. In the outpatient setting it is important to take a good history, eliciting complaints of dyspnea, fatigue, palpitations, or syncope – the most common symptoms. Additionally, an electrocardiogram is of great value since 20% to 50% of sarcoid patients have first, second, or complete atrioventricular block or T wave abnormalities.

CHRONIC LOW BACK PAIN IN A YOUNG PATIENT- A DISABLING DIAGNOSTIC DILEMMA R. Venugopal[1]; E. Thibodeau[1]. [1]Tufts University, Boston, MA. *(Tracking ID # 206048)*

LEARNING OBJECTIVES: 1. Recognize the possibility of a seronegative spondyloarthropathy in young patients presenting with low back pain. 2. Understand how to evaluate and manage a young patient with low back pain.
CASE INFORMATION: A 39-year-old male of German origin presenting to the outpatient clinic with recurrent episodes of anterior uveitis for the past 14years and lumbar area back pain of unknown duration. He had sprained his left ankle and had associated pain and swelling. He denied morning stiffness, any known psoriasis or chronic diarrhea and family history was negative for any known spondyloarthropathy. Laboratory data included normal electrolytes, creatinine, liver enzymes, urinalysis and urine for gonococcal and chlamydia, negative Lyme titer, RPR but positive HLA-B27. Joint exam showed normal hands, wrists, elbows, shoulders and neck. He had normal lumbosacral mobility with a negative Schober's test and the left ankle exam was normal. At that point it was felt that the ankle joint symptoms and back were more likely individual mechanical and posttraumatic issues but given the positive HLAB27 and the uveitis he underwent an x-ray of the pelvis, AP view of the sacroiliac joints which showed increased sclerosis of the bilateral sacroiliac joints. An MRI with contrast confirmed the bilateral sacroileitis of an inflammatory nature and he was diagnosed with early ankylosing spondylitis.
IMPLICATIONS/DISCUSSION: This case demonstrates the importance of maintaining a high level of suspicion for a seronegative spondyloarthropathy in a young male patient presenting with chronic low back pain. These are a group of systemic inflammatory joint disorders that share distinct clinical, radiographic and genetic features like inflammatory spine and sacroiliac disease; asymmetrical inflammation in four or less peripheral joints, enthesitis, presence of HLA B27 and extraarticular manifestations like uveitis, colitis, urethritis, aortitis and psoriasis. Doing a thorough history (including family history) and physical examination looking for the above as well as diagnostic testing is crucial. Ankylosing spondylitis is the prototypical spondyloarthropathy with a 9:1 male predominance, primarily affecting the spine and sacroiliac joints. The diagnosis is often considered only after the extraspinal manifestations like uveitis appear which affects about 30–40% of patients. There is a delay in the diagnosis for years after initial presentation with back pain because back or pelvic radiography could be normal for a significant period of time. Furthermore the morning stiffness, an important diagnostic clue suggesting an inflammatory component is often missed by the patients and clinicians. Early sacroileitis appears as erosions and irregularity of the sacroiliac joints while in late sacroileitis joint space is absent and finally there is squaring and fusion of the vertebral bodies resulting in 'bamboo spine' secondary to syndesmophytes. Complications include marked limitation of range of motion and function, fractures, restrictive lung disease, apical lung fibrosis and aortic insufficiency. There is increased mortality because of the disease progression as well as due to secondary amyloidosis, cardiovascular complications and spinal fractures. Treatment modalities include physiotherapy and non-steroidal anti-inflammatory agents. If this fails other agents like disease modifying anti-rheumatic agents and anti-tumor necrosis factor agents should be considered.

CIRRHOSIS AND HEPATIC VENO-OCCLUSIVE DISEASE IN METASTATIC BREAST CANCER P.C. Hendrickson[1]; S. Habib[2]. [1]University of Iowa-Des Moines Internal Medicine Residency, Des Moines, IA; [2]Center for Liver Disease, Iowa Health-Des Moines, Des Moines, IA. *(Tracking ID # 206308)*

LEARNING OBJECTIVES: 1. Recognize that breast cancer can metastasize to the liver as infiltrating tumor resulting in cirrhosis and related sequelae. 2. Explain the pathophysiology of hepatic cirrhosis in advanced diffuse metastatic breast cancer.
CASE INFORMATION: A 43-year-old female was diagnosed with breast cancer in March 2006. She was treated with left mastectomy, radiation

therapy and completed a course of adriamycin, cytoxan and tamoxifen. In November 2006 a CT scan showed a liver mass and biopsy confirmed metastatic adenocarcinoma. Treatment consisted of trastuzumab, vinorelbine and gemcitabine. Metastasis to the brain was discovered and was treated with decadron and radiation. In April 2008 she presented with syncope and hematemesis. Exam was unremarkable. She was anemic, hemoglobin 8.6, and thrombocytopenic, platelet count 38,000. Liver function tests showed AST 43, ALT 123, alkaline phosphatase 160, total bilirubin 1. Upper endoscopy revealed bleeding esophageal varices that required banding. Over the next several months she developed significant ascites requiring frequent paracentesis. CT scan in November 2008 revealed intrahepatic portal vein thrombosis and findings suspicious for peritoneal carcinomatosis. Laboratory studies at that time showed alkaline phosphatase 346, AST 63, ALT 47. Autoimmune, viral and metabolic liver diseases were ruled out by biochemical and histological tests. She was positive for hepatitis B surface antibody. A random liver biopsy revealed extensive collapse, fibrosis, and features of cirrhosis with focal intravascular tumor emboli present. Venogram was consistent with hepatic veno-occlusive disease (Budd-Chiari syndrome) with portal venous gradient of 20 mmHg. She was started on coumadin, ursodiol and continued on beta-blockers and diuretics as well as capecitabine and lapatinib. Transjugular intrahepatic portosystemic shunt (TIPS) was considered, but was decided against for two reasons; a) portal hypertension was stable with medical management, and b) risk of loss of chemotherapeutic effect of capecitabine. Treatment goals are now palliative. At recent follow up she was stable.

IMPLICATIONS/DISCUSSION: This case illustrates infiltrating metastatic breast carcinoma resulting in hepatic veno-occlusive disease (Budd-Chiari syndrome) and cirrhosis that is complicated by portal venous thrombosis, and portal hypertension resulting in significant GI bleeding and ascites. Cirrhosis and "pseudo-cirrhosis" are rare findings in patients with advanced breast cancer. In previously reported case series, radiological features consistent with cirrhosis without any clinical manifestations have been described. Moreover, in most of the reports histological evidence was lacking. Pathophysiology of cirrhosis in advanced metastatic breast cancer remains unknown. Infiltrating tumor may cause a desmoplastic reaction that results in fibrosis and liver failure. "Pseudo-cirrhosis" can be seen as a consequence of chemotherapy and is likely due to nodular regenerative hyperplasia. Liver biopsy of these patients shows hepatic nodule formation with compression and atrophy of liver parenchyma without fibrosis. Our patient had received several forms of chemotherapy, however fibrosis seen on biopsy argues against nodular regenerative hyperplasia. This case is interesting in that it also had evidence of hepatic veno-occlusive disease (HVOD), which could have contributed to her cirrhosis. Breast cancer is the most common cancer among women and this case illustrates a rare form of metastases.

CLINICAL VIGNETTE: MYCOBACTERIUM AVIUM-INTRACELLULARE (MAI) DUODENITIS, ILEITIS, AND COLITIS IN AN IMMUNOCOMPROMISED PATIENT L. Meyers[1]; C. Rainwater[1]; N. Sharma[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205933)*

LEARNING OBJECTIVES: To highlight MAI as an infectious cause of diarrhea in an HIV/AIDS patient. Approach to treatment of MAI infectious diarrhea in an HIV/AIDS patient.

CASE INFORMATION: 61 year old Hispanic male with a history of acquired immunodeficiency syndrome (AIDS) presents with diarrhea for two months. He endorses at least twenty small, watery, non-bloody bowel movements per day that were not associated with meals and had a nocturnal component. He receives no relief with anti-diarrheal agents. The patient also notes a 20 lbs weight loss over this time frame. He was non-compliant with highly active anti-retroviral therapy (HAART) for four months, and was only taking prophylactic fluconazole daily. Vital signs significant for blood pressure 96/68 and heart rate 119. Physical exam is unremarkable, specifically no lymphadenopathy and a non-tender abdomen. Stool studies were negative for leukocytes, Clostridium difficile toxin, Crptosporidium antigen, Giardia antigen, and Cytomegalovirus antigen; stool cultures were also negative for enteric pathogens. Lab studies notable for bicarbonate of 16; remainder of metabolic profile, as well as complete blood count, was normal. Colonoscopy showed severely denuded mucosa from the terminal ileum to the transverse colon (figure 1), and esophagogastroduodenoscopy showed similar appearing mucosa in the duodenum down to the ligament of Treitz (figure 2). Biopsies of the terminal ileum and ascending colon showed active ileitis and colitis, respectively, with a histiolytic infiltration of the lamina propria (figure 3). Duodenal biopsies revealed active duodenitis with a similar histiolytic infiltrate and villous hypertrophy (figure 4). Fite stain on all specimens was highly positive for MAI (figure 5). The patient was started on ethambutol and azithromycin for treatment of MAI infection, with a planned 6 week course.

IMPLICATIONS/DISCUSSION: MAI organisms are common contaminants of food and water in the natural environment and a known opportunistic pathogen in the AIDS patient from disseminated mycobacterium to localized manifestations such as duodenitis, ileitis, colitis, pneumonitis, pericarditis, soft tissue infections, genital ulcers, or CNS infections. Although MAI is a known cause of infectious diarrhea in the immunocompromised pt, the development of HAART has markedly decreased the incidence of these infections. Given the lower incidence of disease majority of the literature for MAI infectious diarrhea is limited mainly to case reports. Guidence for therapy in our pt was extrapolated from the well studied National Institute of Health (NIH) 2008 recommendations for treating disseminated MAC infection. In these cases, NIH recommends a two drug treatment with either clarithromycin or azithromycin, and ethambutol for 4–8 weeks. If MAC infection occurred while pt was already on HAART, or has a CD4 count <50 then rifabutin can be considered as third agent. Our particular patient was at high risk for this infection with a history of MAC, with a CD4 count <50 not on HAART or prophylactic macrolide as an outpatient.

CLOTS-CLOTS EVERYWHERE, MUST BE A CANCER SOMEWHERE S. Arora[1]; D. Yuchno[2]; R. Costa[1]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]Drexel University, Pittsburgh, PA. *(Tracking ID # 205444)*

LEARNING OBJECTIVES: To recognize the characteristics of venous gangrene. To recognize venous thromboembolism as a presenting manifestation of occult malignancy

CASE INFORMATION: A 69 year-old female, with no significant past medical history presented with chief complaint of painful black discoloration of her feet bilaterally for past two days. She denied any weight loss, chest pain or abdominal pain. On examination of lower extremities, she had gangrene extending up to the level of mid-metatarsals on plantar aspect and distal interphalynges on dorsal aspect, pitting edema up to the level of knees with blebs and bullae bilaterally. Dorsalis pedis pulses were diminished bilaterally. The patient had a weak right posterior tibial pulse and absent left posterior tibial pulse. Patient had elevated liver transaminases. Contrast angiography of her lower extremities revealed a 100% occlusion of her left common iliac and left posterior tibial arteries which while significant would not explain the bilateral feet involvement. Venous doppler of the lower extremities showed thrombosis of the right greater saphenous vein as well as deep vein thrombosis of the posterior tibial and peroneal veins bilaterally. Abdominal ultrasound ordered for abnormal LFTs showed questionable pancreatic mass. CT scan of abdomen done was strongly suggestive of pancreatic cancer with peritoneal carcinomatosis and involvement of the splenic vein. CA19-9 was 1900. In light of the patient's CT findings and multiple foci of thromboembolic disease we believe that this gangrenous process was venous in nature representing perhaps phlegmasia cerulea dolens (PCD) associated with pancreatic carcinoma. The patient refused further treatment and was discharged on enoxaparin with home hospice.

IMPLICATIONS/DISCUSSION: PCD (phlegmasia cerulea dolens/blue painful legs) is an uncommon manifestation of deep-vein thrombosis and results from massive thrombosis compromising venous outflow, associated with a reported mortality of 25%. Of PCD cases, 40–60% have capillary involvement, which results in irreversible venous gangrene that involves the skin, subcutaneous tissue or muscle. Venous gangrene encompasses a clinical triad of skin necrosis and discoloration, evidence of venous thromboembolism (VTE) and presence of palpable arterial pulsation. Our patient presented with ischemia of bilateral lower extremities but her angiography was consistent with a left sided arterial thrombosis only. Patient had edema, agonizing pain, and cyanosis with bullae formation with bilateral venous thrombosis that was more consistent with venous gangrene. The absence of involvement of larger veins would make this case an atypical presentation of PCD which is a rare entity. Her VTE was likely related to her underlying pancreatic cancer.

COCAINE CAN DO THIS TOO! S.K. Sekhon[1]; R. Mitre[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204855)*

LEARNING OBJECTIVES: 1. To describe a case of cocaine-induced splenic infarction. 2. To recognize an uncommon adverse reaction of cocaine, a commonly used illicit drug.
CASE INFORMATION: A 52-year-old Caucasian male with a past history significant for insulin-requiring diabetes mellitus type 2 with retinopathy, nephropathy on hemodialysis, hypertension, cardiomyopathy with diastolic dysfunction, ejection fraction of 55%, and cocaine and tobacco abuse was admitted after passing out in cold weather. He was found by EMS to be hypoglycemic with a blood glucose of 62 mg/dl and hypothermic with a body temperature of 30 degree Celsius. He was also noted to be bradycardic with a heart rate nearly 50BPM in sinus rhythm. EKG was consistent with osborne wave and no ST/T wave changes. A CT of the head was negative for an acute bleed. He was given dextrose, re-warmed passively, and he rapidly improved. On day 2, the day of discharge, he developed left upper quadrant abdominal pain with peritoneal signs. Lactic acid, amylase, lipase, CRP, LFTs, and UA were all within normal limits. CT of the abdomen and pelvis showed acute splenic infarction with a wedge-shaped non-enhancing area, no splenomegaly or perisplenic abnormality, and no other clots. Extensive workup, including WBC with differential, blood cultures, ECHO, and chest CT PE protocol were negative for an embolic event. HIV 1 and 2 were negative. He was not hypotensive, and BP was equal in both the extremities. Hypercoagulability panel (both arterial and venous) were only positive for heterozygous factor V mutation. Other negative tests included hemoglobin electrophoresis and G6PD levels. Urine drug screen tested positive for cocaine metabolites. The patient was diagnosed with cocaine-induced splenic infarction. Tests to rule out end-organ toxicity from cocaine, including CK's, CKMB, and creatinine were within normal limits. As there were no signs of sepsis or complications such as hemorrhage, rupture, abscess, or pseudocyst, the spleen was not removed. He was treated with analgesics and continued his daily aspirin. Upon discharge he was immunized with pneumococcal, meningococcal, Hib and influenza vaccines.
IMPLICATIONS/DISCUSSION: Cocaine is the most common illicit drug associated with emergency department visits in the Unites States. Its effects occur primarily via blockade of reuptake of biogenic amines, acting as an indirect sympathomimetic agent causing vasoconstriction and ischemia. Well known complications related to cocaine use include myocardial infarction, myocarditis, aortic dissection, stroke, seizures, ischemic colitis, acute liver failure, thrombotic phenomena, and renal infarction. Splenic infarction is most commonly associated with hematological disorders, emboli, infections or trauma. However, although rare, splenic infarction is also a predictable side effect of cocaine use. Only 4 other cases of isolated cocaine-induced acute splenic infarction presenting as acute abdomen have been described in the literature. Recognition of this adverse effect is critical to prevent fatal sepsis. This report highlights an uncommon adverse reaction of cocaine use and the significance of obtaining a comprehensive drug history.

COCCIDIOIDAL MENINGITIS MASQUERADING AS SUBARACHNOID HEMORRHAGE K.T. Nguyen[1]; S. Swenson[1]. [1]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 206091)*

LEARNING OBJECTIVES: 1. Identify the often chronic presentation of coccidioidal meningitis. 2. Diagnose meningitis as a rare but serious complication of coccidiomycosis. 3. Treat coccidioidal meningitis with longterm antifungal medication as relapse is common and potentially fatal.
CASE INFORMATION: A 41 year old previously healthy Mexican-American man was transferred from an outside hospital with one week of severe headache, left-sided facial and arm paresthesias, and evidence of communicating hydrocephalus and subarachnoid hemorrhage on CT scan. His wife reported a 4 month history of gradually worsening headaches, with increasing confusion, sleepiness, and disorientation over the past few weeks. Other symptoms included a 20-lb weight loss, intermittent chills, nausea, vomiting, and diplopia with left gaze. The patient denied fever and night sweats. He did not drink and worked as a foreman in agricultural irrigation in California's Central Valley. On physical examination, the patient was afebrile. His mental status ranged from somnolent to agitated. He had no aphasia, apraxia, or dysarthria. Pupils were equal, round and intact with normal extraocular movements and preserved visual fields. The patient had normal muscle strength and tone, sensation, and coordination. The remainder of his examination was normal. A repeat CT scan showed diffuse increased densities in the subarachnoid spaces as well as substantial hydrocephalus involving his lateral and third ventricles. Despite concern for subarachnoid hemorrhage, CT angiogram was negative for aneurysm, vasculitis, or other source of bleeding. A lumbar puncture revealed an opening pressure of 27 cm, <6 mg/dL protein, and cell count of 13 RBC's and 215 WBC's (65% lymphocytes, 11% polyneutrophils, and 24% monocytes). Cryptococcal antigen and acid fast smears were negative. MRI showed extensive leptomeningeal enhancement at the caudal frontal sulci, basilar cisterns and sylvian fissures. The abnormal densities in the basilar cisterns and subarachnoid spaces on CT scan were concluded to be proteinaceous deposition from predominantly basilar meningitis. Serum and CSF coccidioides serologies were ultimately positive, and the patient responded well to antifungal treatment with fluconazole.
IMPLICATIONS/DISCUSSION: Coccidioides species are endemic to certain lower deserts of the western hemisphere, including the southwestern United States, parts of Mexico and Central and South America. The clinical expression of disease is protean, ranging from self-limited acute pneumonia to disseminated disease, especially in immunosuppressed patients. Coccidioidal meningitis is a rare but lethal complication of coccidiomycosis which, if left untreated, has a 95% mortality within two years. Diagnosis is complicated by other chronic meningitides which can mimic coccidioidal meningitis, including tuberculosis, neurosyphilis, Lyme disease, sarcoidosis, vasculitis, and collagen vascular diseases. Typical CSF findings include a pleocytosis with lymphocytic predominance, low glucose, and elevated protein. Although recovery of Coccidioides species from CSF is diagnostic, the species is initially cultured in only 15% of cases. Culturing large volumes of CSF increases sensitivity. Detection of IgM or IgG antibodies to coccidioidal-related antigen also confirms the diagnosis. Classic radiographic findings include hydrocephalus, basilar meningitis, and vasculitic infarction. Antifungal treatment with fluconazole is lifelong as relapse is common and potentially fatal.

CRANIAL NEUROPATHY AS PRESENTATION OF LYMPHOMA IN HIV N.M. Brown[1]; C.J. Fichtenbaum[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 203822)*

LEARNING OBJECTIVES: 1. Recognize that typical diseases seen in HIV may present atypically in the HAART era. 2. Describe the decreased association between Epstein-Barr virus and CNS lymphoma.
CASE INFORMATION: A 35 year-old man with a 4-year history of HIV, presented with 3 1/2 months of varied and progressive neurologic complaints with systemic symptoms. He suffered from unilateral then bilateral facial weakness, left-sided body weakness, falls, impaired hearing, slurred speech, headaches, double vision, weight loss, nausea, vomiting, and constipation. He had a history of cocaine dependence, bipolar disorder and recent community-acquired pneumonia. The patient restarted HAART 4 months prior to admission. His plasma HIV-1 RNA copy number went from 200,000 to 4,867 copies/mL and CD4 count from 30 (3%) to 83 (9%) 1 month prior to presentation. Physical exam was notable for a thin man with dysmetric gaze, bilateral cranial nerve VI and VII palsies and apparent impairment of right CN VIII and IX, decreased left upper extremity strength and left lower extremity strength, absent reflexes on left, and positive pronator drift on left. Lumbar puncture demonstrated opening pressure 14, glucose 11, protein 227, 0 RBCs and 154 WBCs (18% lymphs, 82% atypical lymphs). Initial MRI head showed white matter signal abnormalities (including left frontal) slightly improved compared to 2003. Spinal MRI showed no abnormal enhancement or lesions. Subsequent head CT was unchanged. Empiric liposomal amphotericin was initiated for the possibility of fungal meningitis (in particular, histoplasmosis) and was discontinued after 10 days due to lack of improvement. Over 1 month, 4 lumbar punctures yielded CSF studies negative for any suspected infectious agents, including Toxoplasma gondii, Cryptococcus, Histoplasma capsulatum, JC virus, and Ebstein-Barr virus. Blood and urine microbiologic studies were also negative. Repeat MRI Brain demonstrated interval extension/development of multifocal supratentorial hyperintense T2 and FLAIR signal white matter lesions mostly without contrast enhancement except centrally in 2 adjacent anterior frontal lesions. Repeat MRI Lumbar spine showed likely lymphomatous

changes. Initial CSF showed atypical lymphocytes but was non-diagnostic on flow cytometry. Subsequent CSF showed CD20+ B-cells, consistent with malignant lymphoma. Body CT, PET scan, and bone marrow biopsy were negative.
IMPLICATIONS/DISCUSSION: This case highlights the diagnostic difficulties in identifying the etiology of neurological abnormalities in HIV/AIDS patients, especially in the changing milieu of the HAART era. Diagnosis in this patient was hindered by a lack of meningeal enhancement on imaging, negative Epstein-Barr virus, and difficulties with obtaining accurate flow cytometry and CSF stains. However, bilateral cranial nerve palsies have been noted extensively in late stage HIV/AIDS CNS lymphoma and should be a clinical clue. Although the prevalence of CNS lymphoma is lower in patients who consistently use HAART, this patient had only recently resumed treatment, and his CD4 count indicated advanced untreated HIV infection. A decrease in the association between Epstein-Barr virus and CNS lymphoma has been observed in the "HAART era," however this may not be directly related to HAART itself. A decrease in sero-positivity to EBV in the general population and higher CD4 counts, regardless of HAART use, may account for this trend.

CRISIS MANAGEMENT: A CASE OF WEAKNESS AND RESPIRATORY FAILURE A. Im[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204039)*

LEARNING OBJECTIVES: 1) To recognize acute respiratory failure as an initial presentation of myasthenia gravis 2) To outline the treatment goals and management of myasthenic crisis 3) To emphasize the importance of early recognition and prompt treatment of myasthenic crisis
CASE INFORMATION: A 53 year old man with history of diabetes, hypertension, and hypercoagulable state presented with a one month history of progressive weakness and shortness of breath. Two months prior to presentation, he suffered a fall and sustained a femur fracture requiring surgery. During his physical therapy and rehabilitation, he noted easy fatigability and shortness of breath. He also noticed difficulty moving his mouth and chewing. One week prior to presentation, the patient went to the ED for persistent shortness of breath, at which time he was diagnosed with pneumonia and discharged on antibiotics. His shortness of breath did not improve, and his weakness continued to worsen, prompting admission to the hospital. Shortly after admission, he developed worsening respiratory distress, eventually requiring intubation and mechanical ventilation. His physical exam was notable for proximal muscle lower extremity weakness. He did not have any vision changes, sensory deficits, or other neurologic findings. Laboratory studies revealed the presence of acetylcholine receptor modulating antibodies, and an EMG revealed findings consistent with myasthenia gravis. The patient was started on plasma exchange for five days with significant clinical improvement. He was extubated after eight days, and was started on mycophenolate and pyridostigmine for long term treatment of myasthenia gravis. A CT scan was performed which did not reveal any thymoma. He was discharged in stable condition to a rehabilitation facility.
IMPLICATIONS/DISCUSSION: Myasthenic crisis (MC) is defined as weakness from myasthenia gravis that is severe enough to necessitate mechanical ventilation. It is estimated that 15–20% of patients with myasthenia gravis experience MC, and it usually occurs within the first 2 years after diagnosis. In fact, MC may be the initial presentation of myasthenia gravis in some patients. Mortality has declined from 42% in the early 1960 s, and is now estimated to be about 5% as awareness and therapies have improved. Approximately two-thirds of patients have an identifiable triggering event, usually infection, changes in medications, or recent surgery. Treatment goals are focused on 1) respiratory management and supportive care, and 2) therapy aimed at removal of the antibody and recovery of neuromuscular function. The most effective treatments for MC are plasma exchange or intravenous immunoglobulin (IVIg). There have not been any direct comparison studies between plasma exchange and IVIg, but both have shown to be effective, and the efficacy of plasma exchange has been estimated to be about 75%. After the initial acute treatment, maintenance therapy with acetylcholinesterase inhibitors, corticosteroids, or immune-modulating agents can be initiated. Long term treatment will help prevent future episodes of crisis, but about one-third of patients will experience a recurrent episode. When supportive and therapeutic measures are initiated promptly, outcomes are positive. It is important to be aware of myasthenic crisis as a cause of respiratory failure in patients, both in patients with known myasthenia gravis and as an initial presentation of the disease.

CUTANEOUS AND CENTRAL NERVOUS SYSTEM INVOLVEMENT IN MULTIPLE MYELOMA S. Karam[1]; I. Matushansky[2]; H. Hassoun[3]. [1]Montefiore Medical Center, Bronx, NY; [2]NewYork-Presbyterian/Columbia, New York, NY; [3]Memorial Sloan-Kettering Cancer Center, New York, NY. *(Tracking ID # 205347)*

LEARNING OBJECTIVES: -To recognize the scarcity of Central Nervous System Involvement and/or Cutaneous Involvement in Multiple Myeloma as well as the modalities of diagnosis. -To establish that both manifestations forebode an extremely poor outcome.
CASE INFORMATION: A 60 year old man presented with fever, vertebral lytic lesions, a serum monoclonal IgG kappa, and a large right clavicular mass proven to be an anaplastic plasmacytoma by biopsy with a MIB1 index of 60%. Initial bone marrow biopsy was normal. Radiation therapy was administered to the clavicle followed by four cycles of thalidomide and dexamethasone. Shortly after completion of this treatment his fever recurred and a bone marrow biopsy revealed dense infiltration by plasma cells. Three cycles of C-VAMP chemotherapy lead to normalization of the bone marrow. Four weeks later, the patient was found to have right upper extremity weakness and a papular rash. Imaging of the brain was unremarkable. The cerebrospinal fluid contained numerous plasma cells with kappa light chain restriction. Biopsy of a skin lesion also showed plasma cell infiltration with kappa light chain restriction. The patient expired shortly afterwards.
IMPLICATIONS/DISCUSSION: Neurological complications are very common in patients with multiple myeloma. These consist of peripheral neuropathies, spinal radiculopathies, cranial nerve palsies, spinal cord compression, and a host of metabolic encephalopathies. Despite this high incidence and in contrast to other hematological malignancies, involvement of the cerebrospinal fluid (CSF) and leptomeninges, as defined by the presence of myeloma cells in the cerebrospinal fluid, is exceedingly rare. However, the number of cases reported in the literature has been increasing recently, possibly due to recent advances in the treatment of this disease that have lead to prolonged patients' survival . Meningeal spread can occur either by local invasion from the bone or by hematogenous dissemination. It is an entity that is often difficult to diagnose. Repeated CSF puncture may be necessary to establish the diagnosis, and leptomeningeal involvement may be only recognized by fat-suppressed MRI after gadolinium administration. The monoclonality of plasma cells in the CSF fluid should be proven because plasma cells can be seen in the CSF in other conditions, both infectious and noninfectious. Patients with meningeal myelomatosis can have a good response to treatment initially, but their prognosis is poor. A recent review by Fassas et al concluded that the vast majority of patients succumb to their disease within 3 months of diagnosis. Cutaneous involvement in multiple myeloma is also extremely rare and does not appear to be associated with a particular class of myeloma immunoglobulins. The most common sites involved by order of decreasing frequency are the trunk, scalp, face, neck, lower extremities, and upper extremities. Cutaneous involvement results either from direct extension to the skin from adjacent bony lesions or from cutaneous metastases as described in this report. This manifestation of the disease usually portends a poor prognosis and most of the patients die within 12 months after the diagnosis. Interestingly, no case of CSF involvement has been previously described among patients with cutaneous manifestations of multiple myeloma and we can presume that this association is a rare occurrence that forebodes an extremely poor outcome as illustrated in this report.

CUTANEOUS HISTOPLASMOSIS LESIONS ASSOCIATED WITH IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME E. Stringer[1]; J. Percak[1]; M. Glass[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203838)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of immune reconstitution inflammatory syndrome 2. Identify the treatment

of Immune Reconstitution Inflammatory Syndrome 3. Identify the clinical presentation and management of cutaneous histoplasmosis
CASE INFORMATION: A 31-year-old man with AIDS and disseminated MAC presented with two weeks of a progressive, painful, pruritic rash. The rash was associated with fever, cough, and weight loss. The patient lived in southeastern Louisiana but had recently been in California for fifteen months, and he had taken occasional trips to the desert. He had no pets, recent trauma, history of intravenous drug use, or medication allergies. Current medications were Atripla, rifampin, ethambutol, trimethoprim-sulfamethoxazole, and clarithromycin. He was cachectic and febrile with a diffuse, erythematous, papular rash that had secondary excoriation and ulceration. The rash was predominately on the extremities, but also appeared on the trunk and face while sparing the palms, feet, and genitalia. He had normal heart sounds, clear lungs, and a benign abdomen. The neurologic examination was normal. Two months ago, his CD4 count was 2 cells/mm3, and the HIV viral load was 246,753 copies/mL. The CD4 count taken when he was admitted was 93 cells/mm3 with an undetectable viral load. Urine histoplasmosis antigen was elevated. Skin biopsy with H&E stain demonstrated round, narrow-based, budding yeast within the cytoplasm of multinucleated giant cells.
IMPLICATIONS/DISCUSSION: Internists frequently encounter patients with rashes of unknown etiology. Our patient was immunocompromised, had recently traveled, and was on several medications that can cause cutaneous drug reactions. Importantly, our patient had recently restarted his anti-retroviral medication regimen, resulting in a substantial increase in his CD4 count. The immune reconstitution inflammatory syndrome (IRIS is defined by an increase in the CD4 count, resulting in the clinical appearance of previously subclinical infections. While the mechanisms causing IRIS are still uncertain, it is clear IRIS often causes new dermatologic pathology within three months of the initiation of antiretrovirals. Patients with low CD4 counts and pre-existing opportunistic infections are at highest risk of developing IRIS. Physicians be vigilant for IRIS if patients are on new antiretrovirals and have a marked increased in the CD4 count or a substantial decrease in the viral load. Our patient was diagnosed with disseminated histoplasmosis with cutaneous manifestations presenting within three months of restarting HARRT treatment. Fever and weight loss are the most common presenting symptoms in patients with AIDS with disseminated histoplasmosis. Skin biopsy is the most effective way to diagnose cutaneous histoplasmosis lesions. If the skin biopsy is inconclusive, a fungal culture can add additional diagnostic certainty. Our patient was treated with amphotericin B followed by itraconazole. The rash had improved after two weeks of treatment. We continued his antiretrovirals during this time, and is recommended in most cases of IRIS. However, physicians should consider holding antiretrovirals in life- or organ-threatening cases of IRIS. Concomitant steroids should also be considered. Because it can be easily mistaken for a new infection, IRIS should be investigated in all patients with an infection presenting soon after starting antiretrovirals.

CYCLIC VOMITING SYNDROME: EVALUATING THE EFFICACY OF A TRICYCLIC ANTIDEPRESSANT FOR PROPHYLAXIS IN A YOUNG ADULT
P. Taunk[1]; R. Lowe[2]; E.J. Chen[3]. [1]Boston City Hospital, Boston, MA; [2]Boston Medical Center, Boston, MA; [3]Boston University, Lexington, MA. *(Tracking ID # 205999)*

LEARNING OBJECTIVES: -Diagnose Cyclic Vomiting Syndrome in the absence of an organic etiology for vomiting. -Manage Cyclic Vomiting Syndrome in adults to decrease morbidity associated with this disease.
CASE INFORMATION: A 22-year old female with Cyclic Vomiting Syndrome (CVS) since age 16 has been admitted to the hospital 12 times over the past 2 years for intractable episodes of nausea and vomiting.The patient reports that these episodes last 3–7 days,occur every 2–3 months, and are severe enough for her to be hospitalized. Episodes have occurred independent of stress. The patient also reports severe headache,anxiety and depression which have been affecting her life since the episodes began. She had an upper endoscopy in 4/06 which revealed mild gastritis and duodenitis. She was subsequently placed on Prilosec with minimal relief and continued to be admitted for episodic vomiting. In between episodes she remains symptom free and takes Phenergan for nausea. This past admission she again presented with one day of severe nausea and vomiting. She did not note any triggering event or any recent stressors in her life. She was managed supportively with Zofran, Reglan and IVF, and improved over two days. Before discharge, she was started on amitriptyline. Over a period of 4 months she did not have to visit the hospital for any severe episodes of vomiting. In addition, she stated that she did not vomit once since being started on amitriptyline. She reported side effects of feeling tired and having a dry mouth. After four months, she was switched to nortriptyline because of its better side effect profile and has remained symptom free. In addition to increasing the interval between episodes, the patient's quality of life has much improved as she states she no longer gets headaches and her depressive symptoms have subsided. She is satisfied with the addition of the medication to her.
IMPLICATIONS/DISCUSSION: In order to diagnose CVS, patients must exhibit three or more recurrent discrete episodes of vomiting, with varying intervals of completely normal health between episodes. These vomiting episodes are stereotypical with regard to timing of onset, symptoms, and duration. One final criterion is that there must be an absence of an organic etiology of vomiting. CVS was first described in the English literature in 1882 by Samuel Gee who reported a series of nine children ranging in age from 4 to 8 years. Until the 1980 s, this disorder was thought to be exclusive to children. In 1984 Scobie published a series of 31 adults with what he termed "recurrent vomiting," all of them fitting the description of CVS. Although there is much data to support the use of prophylactic medication in the pediatric population, there is little information available on the success of prophylaxis in the adult age group. The only major study performed in adults, mentioned above, included 17 adults followed over 10 years. In that retrospective chart review of open-label treatment, the authors suggested that tricyclic antidepressants in low daily dosages may have benefit in reducing the severity and frequency of vomiting, as complete remission was seen in 17.6% of patients and partial response was seen in 58.8% of patients. Our case report reflects that general internists who start a TCA on CVS patients may provide their patients with a decrease in the recurrent, stereotypic episodes of vomiting of CVS as well as improve associated symptoms of headache/depression/anxiety to improve morbidity in this disorder.

CYTOMEGALOVIRUS COLITIS IN AN IMMUNOCOMPETENT PATIENT: A RARE AND POTENTIALLY FATAL COMBINATION
N.E. Anthony[1]; B.E. Susi[1]. [1]Carolinas Medical Center, Charlotte, NC. *(Tracking ID # 205246)*

LEARNING OBJECTIVES: 1)Recognize that CMV should be considered as a cause of diarrhea in an immunocompetent individual. 2)Assess the potential severity of CMV colitis in specific populations.
CASE INFORMATION: A 59 year old Caucasian female presented with one week of abdominal tenderness, distention, and diarrhea. The pain was intermittent, crampy, and localized to both lower quadrants. Her bowel movements were described as profuse, watery diarrhea occurring approximately 2–3 times per day. Review of systems was notable for decreased PO intake and nausea. The patient denied any fever, chills, vomiting, hematemesis, melena, or hematochezia. Past medical history was only significant for schizophrenia; there was no history of prior antibiotic use or immunosuppressive therapy. Physical exam revealed a soft, distended abdomen which was diffusely tender to palpation in all four quadrants. High pitched bowel sounds were noted but there was no rebound or guarding. Rectal exam was significant for heme positive stool without masses, fissures, or hemorrhoids. The patient had been admitted to the hospital during the prior month for similar symptoms. An extensive workup at that time included multiple colonoscopies and imaging consistent with a diffuse pseudomembranous colitis. Surgical pathology confirmed these findings. During this period, the patient had five different stool specimens which were negative for Clostridium difficile toxin as well as multiple stool cultures which were negative. The patient was treated with oral vancomycin and intravenous metronidazole but continued to decline. In the process, she developed respiratory and renal failure and required intubation, pressors, and multiple blood transfusions. The patient was eventually extubated and discharged to a nursing facility. She was subsequently readmitted to the hospital and underwent repeat colonoscopy which revealed friable ulcerations, ischemic colitis type changes, and inflammatory stenosis of the proximal sigmoid. Once again, the patient was empirically treated for Clostridium difficile infection but continued to show no improvement. Repeat pathology results showed findings consistent with Cytomegalovirus inclusions on immunohistochemical stain. This spe-

cific analysis had not been performed on the original biopsy done during her previous hospitalization. A quantitative CMV viral load came back at 486 copies/mL. The patient was started on a course of ganciclovir and her symptoms improved tremendously, to the point where surgery was not needed and she was able to be discharged.
IMPLICATIONS/DISCUSSION: The implications of Cytomegalovirus (CMV) infection in immunocompromised patients are well understood and documented. However, infection in an immunocompetent host may be a much more prevalent and serious cause of gastrointestinal disease than previously thought. In fact many of the clinically significant cases have only been anecdotally reported and many of these have serious outcomes. A recent meta-analysis involving 44 cases of CMV colitis in immunocompetent hosts showed a surprisingly high mortality rate of 31.8% in those aged 55 or older. Some of the highest mortality rates were associated with immune modulating conditions such as diabetes, renal failure, and malignancies. In these situations, antiviral therapy with ganciclovir, or foscarnet can be life saving. Although rare, CMV should be considered as a cause of diarrhea in immunocompetent individuals when other more common etiologies are excluded.

DAPSONE INDUCED METHEMOGLOBUNEMIA J.L. Yeh[1]; A.L. Diamant[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 203648)*

LEARNING OBJECTIVES: -Recognize methemoglobunemia in an acutely ill patient -Identify acquired methemoglobunemia as a complication of oxidizing drugs -Highlight the treatment modalities for methemoglobunemia
CASE INFORMATION: A 28-year old woman with systemic lupus erythematosis on immunosuppressive therapy developed Pneumocystis jiroveci pneumonia with respiratory failure requiring intubation. She was started on trimethoprim/sulfametoxazole but developed a rash and was transitioned to dapsone. Three months later, she presented with ten days of shortness of breath and pleuritic chest pain. Pulse-oximetry showed 88–92% on room air. On admission to the hospital, CT angiogram of the chest was negative for pulmonary embolism. However, bronchocentric nodular ground glass opacities in the right upper lobe warranted empiric treatment with clindamycin and primaquine. Additionally, she had an iron deficiency anemia. During the first 24 hours, the patient did not show any signs of hypoxia. However, she was hypoxic during her bronchoscopy and a concurrent arterial blood gas (ABG) revealed discordance without hypoxemia. Bronchoalveolar lavage and cultures were all negative. Serum Coccidiodes and urinary Histoplasma antigen were negative. Repeat ABGs on room air repeatedly demonstrated discrepancies between oxygen saturation from pulse-oximetry and arterial blood gas (e.g., 92% versus 98%). A hemolysis work up was negative, with normal G6PD enzyme activity. A clinical diagnosis of methemoglobunemia was suspected and primaquine was discontinued in favor of atovaquone. Repeated co-oximetry studies were attempted but unsuccessful because of "interfering substance(s) present". The patient was stabilized on room air with pulse-oximetry readings of 92–94% and discharged home.
IMPLICATIONS/DISCUSSION: Methemoglobunemia can be either congenital or acquired. The acquired form is a relative rare consequence of oxidizing drugs. The most common offending agents include benzocaine, dapsone, primaquine, nitrites and sulfonamides. Once oxidized from ferrous to ferric iron, the altered heme moiety is no longer able to carry oxygen. Individuals with congenital methemoglobunemia are generally asymptomatic. However, patients with acquired forms often exhibit clinical features of impaired oxygen delivery similar to functional anemia. Early symptoms of headache, dyspnea and fatigue can progress to respiratory depression, altered mental status and even death if not corrected. Diagnosis is based on clinical suspicion and confirmed by fixed wavelength co-oximetry. Methemoglobunemia should be considered in patients with a significant saturation gap between pulse oximetry and arterial blood gas analysis, or who appear cyanotic. Co-oximetry quantifies the concentration of methemoglobin in the 630 nm range. In our case, the recent use of dapsone followed by primaquine presumably interfered with the absorption readings. The first line treatment for acquired methemoglobunemia is removal of the offending agent. Reducing agents that accept electrons such as methylene blue have been used successfully. The usual dose of 1–2 mg/kg of methylene blue given intravenously over five minutes rapidly reduces methemoglobin using NAPDH generated by G6PD in the hexose monophosphate shunt pathway. Among patients with G6PD deficiency, ascorbic acid can be considered. Although relatively rare, acquired methemoglobunemia should be considered in select patient populations taking oxidizing medications with unexplained symptoms.

DARK URINE PARTYING HARD D.S. Gloss[1]; K. Cartwright[2]. [1]Tulane University, New Orleans, LA; [2]Tulane, New Orleans, LA. *(Tracking ID # 203887)*

LEARNING OBJECTIVES: 1. Recognize rhabdomyolysis as a consequence of overdose 2. Identify the clinical presentation of rhabdomyolysis
CASE INFORMATION: 46 year-old man was found in his home by EMS to have a respiratory rate of four breaths per minute and a Glasgow Coma Score (GCS) score of three. He was given naloxone and his GCS score improved to fourteen. He reported an overdose with oxycodone, alprazolam, and carisoprodol. On presentation, the patient was combative and desaturated to 80% oxygen saturation despite receiving oxygen by facemask. He had miotic pupils, a diffusely tender abdominal examination, and he was confused and somnolent with waxing and waning level of consciousness. He had a Foley catheter placed that returned dark brown urine. His urine toxicology was positive for benzodiazepines and opiates, and his urinalysis had blood, but only 3–5 red cells per high power field. He had a combined metabolic and respiratory acidosis by arterial blood gas, The remainder of his laboratory studies were lost in transport to the laboratory. On telemetry, he appeared to have peaked T waves which was verified on 12 lead electrocardiogram. The patient received two grams of calcium gluconate. Repeat labs were ordered. While waiting for the labs, the patient was empirically started on two liters per hour of normal saline and a bicarbonate drip. When the labs resulted, he had a creatinine phosphokinase of 111,160 units/l, an ionized calcium of 0.7 mmol/l, a potassium of 6 mEq/dl, a serum creatinine of 3.5 mg/ dl , and a myoglobin too high to measure. He was diagnosed with rhabdomyolysis.
IMPLICATIONS/DISCUSSION: Drug overdose is frequently encountered by the general internist. While most narcotic overdose events can be managed simply by the administration of naloxone, it is important that the general internist is aware of the potential complications. Any patient receiving more than one milligram of naloxone should be observed for at least four hours to ensure that the narcotic overdose does not recur, and that a sympathetic-induced pulmonary edema does not result following the naloxone administration.Rhadbomyolysis is a syndrome of muscle necrosis, with resulting release of muscle enzymes. It is caused most often by trauma with crush injury, comatose state, postsurgical, lower extremity compartment syndrome, physical exertion, or metabolic myopathies. This disorder includes urine with myoglobin causing red to brown colored urine, elevated muscle enzymes, sometimes massively so, renal failure, and electrolyte abnormalities. Renal failure is thought to be caused by volume depletion and renal tubular injury from free iron. Electrolyte abnormalities include hyperkalemia, hyperphosphatemia, hypocalcemia, hyperuricemia, and metabolic acidosis. Treatment is aimed at preventing renal failure with fluid resuscitation of 1–2 liters per hour with a goal of urine output of 200–300 ml/hour, forced alkaline diuresis with a bicarbonate drip. While our patient's creatinine kinase was significantly elevated, the most important parameter in following response to the therapy for rhabdomyolysis is the color of the urine. Dark urine, as was the case with our patient, implies a slow intra-nephron transit rate, enabling maximal exposure time between the myoglobin and the tubular cells. It is this time of exposure, via the Haber-Weiss reaction, that leads to the tissue damage due to oxygen free radicals. Aggressive hydration in our patient resulted in the return of clear urine, and complete renal recovery.

DEATHLY MEDICATED A.N. French[1]; S. Wali[2]. [1]Olive View UCLA Medical Center, Sylmar, CA; [2]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 205939)*

LEARNING OBJECTIVES: 1. Review the presentation and diagnosis of PTU induced vasculitis. 2. Highlight the importance of medication reconciliation.
CASE INFORMATION: A 58-year-old Hispanic male recently diagnosed with atrial fibrillation with rapid ventricular response secondary to

hyperthyroidism subsequently started on "thyroid medication," represented one month later with nausea, vomiting, and weakness. The patient reported cough with new onset hemoptysis for two weeks. Additionally the patient had a blood pressure log that revealed new hypotension with a decline in systolic blood pressures from 120 to 80's, and a pulse rate that increased from 70 to 120 over that past 3 days. The patient noted subjective fevers and chills. Additionally, he endorsed intermittent chest pain and progressive shortness of breath for one week. He denied night sweats and decreased urine output. He denied history of tuberculosis. He noted compliance with all medications. Medication reconciliation revealed the patient was taking Propylthiouracil (PTU), in addition to Metoprolol, Benazepril, Ditiazem, Aspirin, furosemide and coumadin for his atrial fibrillation. At initial presentation T=36.7, BP=92/52, HR=117 beats/min, RR=22 breaths/min, and O2 sat=99% on 2 liters nasal cannula. Examination revealed few crackles at the bases bilaterally. Heart tachycardic without murmurs. Abdominal exam was benign and there was no evidence of fluid overload. Labs revealed sodium 140 mmol/L, potassium 6.4 mmol/L, chloride 111 mmol/L, bicarbonate 21 mmol/L, BUN 80 mg/dL, creatinine 2.3 mg/dL, calcium 8.0 mg/dL, phosphorus 6.0 mg/dL, and magnesium 2.8 mg/dL. AST was 75 units/L, ALT 106 units/L, alk phos 106 units/L, and total bilirubin 1.7 mg/dl. Lipase normal. TSH< 0.03 ul U/ml, free T4 slightly elevated at 1.83 ng/dl (normal 0.8–1.45), total T3 normal at 1.67 ng/ml. INR 3.32. Hbg was 12.1 gm/dl. C3, C4 and ESR were within normal limits. The following laboratory values were negative; ANA, Lupus Anticoagulant, Antcardiolipin antibody, Antithyroglobulin, Proteinase 3 antibiody, C- ANCA, and Coombs. P-ANCA/ Myeloperoxidase Antibody was greater than 100 U/ml. RUA revealed greater than 400 RBC's. Chest x-ray showed fluffy infiltrates in right upper and lower lobes and left lower lobes. CT scan of the chest revealed multiple bilateral lung opacities and cardiomegaly. Given the presentation of hemoptysis, acute renal failure, concurrent treatment with PTU and positive P-ANCA antibody the diagnosis was presumed secondary to PTU induced vasculitis. During the hospitalization the patient's diagnosis was confirmed by renal biopsy, which revealed concentric necrotizing glomerulonephritis consistent with PTU induced vasculitis. In addition to discontinuing the PTU, the patient was treated with IV solumedrol and supportive care. The patient's labs quickly returned to normal with resolution of the hemoptysis and renal failure. The patient was subsequently discharged without complication.

IMPLICATIONS/DISCUSSION: The case reveals the significance of medication reconciliation and the value of reviewing the possible complications associated with all medications a patient is currently taking. Second, while PTU induced vasculitis is uncommon; the case illustrates the importance of physicians to be able to identify the potential complications associated with PTU. It is critical that the diagnosis is identified early, given the discontinuation of PTU with concurrent initiation of corticosteroids frequently results in recovery.

DEVASTATING BICKERSTAFF'S BRAINSTEM ENCEPHALITIS

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LEARNING OBJECTIVES: · To be aware of this extremely rare yet potentially devastating form of brain stem encephalitis. · To differentiate it from other similar conditions such as Miller Fischer variant of G-B syndrome, brainstem strokes/tumors, myasthenia gravis, botulism, multiple sclerosis, vasculitis and acute disseminated encephalomyelitis.

CASE INFORMATION: A 43 year old middle school principal was admitted with symptoms of symmetric ascending tingling, numbness, ataxia and paresis in all four extremities which rapidly progressed over a duration of 48 hours. It involved several of the cranial nerves in quick succession manifesting as ptosis, diplopia, inability to swallow and eventually resulted in loss of consciousness and respiratory failure that required intubation and ventilation. Tetra-paresis was initially spastic with bilateral positive Babibski's sign and brisk deep tendon reflexes. This progressed to complete flaccid paralysis in a week. He had an upper respiratory tract infection a week before the onset of these symptoms. Diagnostic workup included a CSF analysis which showed albumino-cytological dissociation, together with negative tests for multiple viral and bacterial encephalites, two normal MRI/MRA scans of the brain and neck and two non-significant EEGs. Eventual diagnosis was made based on clinical criteria, supported with a strongly positive CSF Anti-GQ1b antibody. EMG showed delayed motor axonal conduction. Treatment involved long term supportive care together with IV Immunoglobulin and five runs of plasmapharesis. Minimal recovery of the motor function of the eyelids fingers and toes, besides the diaphragm occurred over a period of 6 months.

IMPLICATIONS/DISCUSSION: · Bickerstaff Brainstem Encephalitis (BBE) is diagnosed by the strict criteria of progressive, relatively symmetrical external ophthalmoplegia and ataxia by 4 weeks, and disturbance of consciousness or hyper-reflexia. An antecedent illness usually precedes this condition. Nerve conduction studies show predominant axonal involvement and MRI scans of the brain are normal in 70% of cases. CSF analysis shows albumino-cytological dissociation. EEGs were consistent with disturbance in consciousness and serum anti-GQ1b antibody is positive in over 2/3 rd the cases. · Differential diagnosis includes vascular disease of the brainstem, Wernicke's encephalopathy, botulism, myasthenia gravis, brainstem tumors, multiple sclerosis, vasculitis and acute disseminated encephalomyelitis. Treatment is limited to IV Immunoglobulin, Plasmapheresis and supportive care. 66% of patients have complete recovery in 6 months.

DIABETIC KETOACIDOSIS, NO LONGER A DISEASE JUST OF TYPE 1 DIABETES.

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LEARNING OBJECTIVES: 1.) To describe the diagnostic dilemma of a young man in diabetic ketoacidosis (DKA). 2.) To investigate the clinical and biochemical differences in DKA in type 1 vs. type 2 Diabetes (T1DM vs T2DM).

CASE INFORMATION: The patient is a 22 year old man with no past medical history presenting with nausea, vomiting and lethargy. His symptoms were preceded by 6 months of polyuria, polydypsia, polyphagia, and a 30 pound weight loss. Four days prior to admission the patient had an alcohol binge of 15 beers on New Year's Eve. The next day he was very thirsty and drank one gallon of apple juice. He had continued abdominal pain and anorexia and presented to ER after having five episodes of blood streaked emesis. He emigrated from Mexico and both parents had T2DM. Exam was significant for being thin and lethargic, HR 110, RR 14, BP 130/80, epigastric tenderness, and hypoactive bowel sounds. Initial labs were significant for a pH of 6.9, anion gap (AG) of 19, glucose of 287, moderate ketones, hemoglobin of 16 and triglycerides (TG) of 181. CT of the abdomen and pelvis showed a hypodense mass between the gastric antrum and the pancreatic head. The leading diagnosis was DKA with exacerbating alcoholic ketoacidosis. Standard therapy led to resolution of DKA. EGD showed a 10×5 cm extrinsically compressing mass in the antrum and the duodenal bulb which was biopsied. Endoscopic ultrasound the next day demonstrated a normal pancreas. HbA1c was 15.4 and C-peptide was low. The patient was transitioned to subcutaneous insulin and discharged. Pathology was negative for malignant cells.

IMPLICATIONS/DISCUSSION: The diagnostic dilemma in this patient lies not in the treatment of DKA, but in counseling this patient on his future DM management depending on if he is a T1DM or a T2DM. In the past, DKA has been presumed to be a manifestation of T1DM. However, with the increased prevalence of T2DM there has been an increase in the proportion T2DM patients with DKA. This patient had several factors confounding the diagnosis. A thin body habitus, pH and anion gap consistent with T1DM but history, ethnicity, TG and HbA1c favoring T2DM. C-peptide in the acute illness is not a reliable diagnostic tool. His age and the pancreatic mass further confound the picture. Although not a common presentation, pancreatic masses tend to lead to hyperinsulinemia and glucose intolerance. whereas reduced islet cell mass and impaired insulin secretion is attributed to chronic pancreatitis. Patients with T2DM present in DKA equally between early and late onset presentations while T1DM tend to develop DKA at an early age. In addition, it is suggested that in many T2DM a significant precipitating stressor can be elicited in the history at presentation. This may be explained by the hypothesis that DKA in T1DM mainly results from a relatively total absence of insulin while DKA in T2DM is thought to arise from insulin deficiency and an increased secretion of counter-regulatory hormones.Furthrmore, in a study illustrating ethnic variations in diabetes and DKA, Hispanics were found to have a greater percentage

of T2DM presenting in DKA when compared with African Americans and whites. Patients with T2DM presenting with DKA also exhibit a different biochemical presentation than patients with T1DM. In particular, DKA in T2DM has a tendency towards a smaller degree of acidosis and a normal initial serum potassium level. This case underscores the need to reevaluate our thinking in the presentation of DKA in new onset T1DM and T2DM.

DIAGNOSIS NOT TO BE CONFUSED: DIABETIC MYONECROSIS IN LONG-STANDING DIABETES P. Yee[1]; A. Falk[1]; P. Aronowitz[1]. [1]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 205884)*

LEARNING OBJECTIVES: 1. Recognize the features of diabetic myonecrosis 2. Learn that the treatment of diabetic myonecrosis is conservative and most patients improve with supportive care

CASE INFORMATION: A 47-year-old man with a 15-year history of insulin dependent diabetes, presented with complaints of progressive left medial thigh pain and bilateral leg edema for approximately 1 week. The patient described the swelling as asymmetric and greater in the left thigh. Pain in the thigh was constant and was exacerbated with palpation and adduction on the affected side. He denied any trauma and had been taking a large amount of ibuprofen for the pain with little relief. Physical examination revealed a systolic ejection murmur and bilateral basilar crackles. No erythema was noted at the left medial thigh, but it was warm to the touch and tender to palpation. He had marked pitting edema of the left lower extremity, and moderate pitting edema of the right lower extremity. He was noted to have bilateral foot drop and decreased sensation below the ankles bilaterally. Lab results were significant for an elevated creatinine of 2.1, sedimentation rate of 67 and creatinine kinase level of 446. Urinalysis revealed nephrotic range proteinuria. Ultrasound of his left lower extremity was negative for deep venous thrombosis and demonstrated a 4 cm×15 cm area of echogenicity of the left medial thigh. MRI demonstrated an extensive inflammatory process primarily involving the adductor muscle group of the left thigh with a 2 cm focus of suspected early necrosis in the adductor magnus muscle. There was significant concern for infectious pyomyoitis. He was started on empiric antibiotics but showed no improvement in his symptoms and antibiotic therapy was discontinued. A muscle biopsy was not performed and the patient was treated conservatively with immobilization and pain management. Renal function improved with diuresis and discontinuation of NSAIDs. Three weeks following discharge, the patient reported that his symptoms had significantly improved.

IMPLICATIONS/DISCUSSION: Diabetic myonecrosis is a rare complication of long standing diabetes. The majority of patients presenting with this condition have other complications of diabetes including neuropathy, retinopathy, and nephropathy. Muscles of the thigh are the most common sites of involvement. The pathophysiology of diabetic myonecrosis is still under investigation. Vascular etiology has been suggested because, in some cases, biopsy of the affected muscle has shown abnormalities in the small arteries and microvasculature supplying the affected muscle. Other investigators hypothesize that abnormalities in the clotting and fibrinolytic cascade are responsible. This case illustrates the importance of considering diabetic myonecrosis in the differential for diabetic patients presenting with unilateral muscular pain. Symptoms typically resolve over 4–6 weeks with immobilization. Anti-platelet agents have been suggested as a possible treatment but no benefit has been proven. Effective analgesia is also required and NSAIDs may be used to this end. However, this case also demonstrates the serious side effects that can be associated with NSAID use in a patient with renal insufficiency.

DIAGNOSTIC UNCERTAINTY IN A PATIENT WITH UNCERTAIN MEMORY B. Metelits[1]; K. Zdanys[1]; J. Kenny[1]; J. Crawford[1]; A. Kondracke[1]; E. Grossman[1]. [1]New York University School of Medicine, New York, NY. *(Tracking ID # 205368)*

LEARNING OBJECTIVES: 1. Recognize an unusual medical etiology for behavioral abnormalities 2. Distinguish infectious and autoimmune causes of limbic encephalitis

CASE INFORMATION: A 43-yo female pharmacist was brought to the psychiatric ER by her family due to several days of bizarre behavior. She appeared confused, was talking rapidly to herself, and did not recognize friends. She had vomited once at symptom onset. The family denied any illicit ingestions, and she had no prior medical or psychiatric illnesses. During evaluation in the ER, she had brief waxy flexibility with unresponsiveness; she was admitted to the psychiatry service. During 3 days on the psychiatry unit, her exam was stable and was notable for flat affect, impaired concentration, and impaired registration and short-term memory. She was transferred to the medicine service for work-up of possible medical diseases. CSF on day 7 of symptoms showed 40 red blood cells, 0 white blood cells, protein 33 mg/dl, glucose 68 mg/dl, gram stain and culture negative. MRI showed abnormal T2 signal in the hippocampi and amygdalae, consistent with limbic encephalitis. She was treated with acyclovir for possible herpes (HSV). Over the first few days on acyclovir, she seemed slightly better oriented; during this time, she learned to take notes to remind herself of daily events. Acyclovir was discontinued on day 13, when the team received CSF test results negative for HSV DNA via PCR and negative for other viral encephalitides. Full-body CT scans and a mammogram were negative for malignancy. Serum and CSF were negative for anti-Hu, anti-NMDA-receptor, and anti-voltage-gated-potassium-channel (VGKC) antibodies.

IMPLICATIONS/DISCUSSION: Limbic encephalitis (LE) is the subacute onset of memory impairment, disorientation, and agitation. Common etiologies are infectious or immune-mediated. For this patient, diagnosis remains unclear. HSV typically presents with fever, severe mental status changes, and asymmetric lesions on MRI; our patient had none of these. CSF HSV PCR (98% sensitivity) was negative. However, she did show mild initial improvement on treatment with acyclovir. She also met criteria for non-herpetic acute limbic encephalitis, a semi-controversial entity of potentially infectious etiology with a better prognosis than HSV. A paraneoplastic syndrome is another possible cause. Common associations are: small cell lung cancer (SCLC), ovarian or testicular cancer, thymoma, and non-Hodgkin's lymphoma. Typically, anti-Hu antibodies are associated with SCLC and anti-CRMP5/CV2 with thymoma. After SCLC, ovarian teratoma is the most common tumor associated with LE in women, and is associated with antibodies to the NMDA receptor. None of these auto-antibody-cancer associations are perfectly reliable. Our patient's CT scans and mammogram did not reveal a malignancy; however, cancer can be diagnosed up to 4 years after presentation of neurological symptoms. If our patient's disease was neither infectious nor paraneoplastic, autoimmune etiologies are possible. These causes of LE have been reported with anti-NMDAR and anti-VGKC antibodies, but there are likely many as-yet-undefined autoantibodies as well. Since our patient began to show improvement on acyclovir, she did not receive the usual treatment for paraneoplastic or autoimmune LE – e.g., corticosteroids, IV immunoglobulin, plasma exchange, or other immunosuppressants. She will need long-term outpatient follow-up to determine whether she is harboring a malignancy or will develop other autoimmune phenomena.

DILATED CARDIOMYOPATHY AND FAMILIAL SENSORINEURAL HEARING LOSS: EMERGING ASSOCIATION M. Kaushik[1]; V.M. Alla[1]; M. Peggs[1]; Y.M. Reddy[1]; C. Nair[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 205410)*

LEARNING OBJECTIVES: 1)To understand that familial forms of dilated cardiomyopathy are underrecognized 2)To recognize the rare association between familial dilated cardiomyopathy and autosomal dominant sensorineural hearing loss

CASE INFORMATION: A 50-year-old Caucasian male presented with gradually progressive dyspnea of six years duration. He also reported exertional palpitations for many years but denied presyncope, syncope or chest pain. Patient had been diagnosed with bilateral sensorineural hearing loss (SNHL) by pure tone audiometry in his teens. Family history was significant for hearing loss in three generations including his mother, both siblings and his son with onset usually in late first or second decade. There was also history of heart disease in 1 sibling suggestive of heart failure. Patient reported no recreational drug use, was a current smoker and had remote history of moderate alcohol use (60 gms/week). Physical examination was remarkable for sinus tachycardia, jugular venous distension, left ventricular S3 gallop and pedal edema. ECG revealed sinus tachycardia and non-specific intraventricular conduction delay with nor-

mal QTc. Laboratory data revealed normal blood counts, liver, kidney, thyroid function tests and negative urine drug screen. Transthoracic echocardiogram revealed severe biventricular enlargement with severe global reduction in systolic function and no significant valvular abnormality. A coronary angiogram showed normal coronaries except for mild irregularities in left circumflex artery and ventriculogram showed EF of 15%. Ventricular Endomyocardial biopsy was not done. An diagnosis of idiopathic dilated cardiomyopathy (DCM) was made in the absence on recent alcohol intake or systemic diseases causing dilated cardiomyopathy. He was treated in the hospital for heart failure and was discharged on usual heart failure therapy. Pedigree analysis revealed autosomal dominant inheritance pattern of sensorineural deafness with presumed familial dilated cardiomyopathy in the index patient and a sibling who was not available for evaluation.
IMPLICATIONS/DISCUSSION: Familial forms of DCM are grossly under-recognized and may contribute to about 25–35% of all cases of idiopathic DCM. Three different patterns of familial dilated cardiomyopathy are known. The most common pattern of occurrence is in association with mitochondrial cytopathies. Here, it coexists with neurological abnormalities like myopathy, encephalopathy and is follows a maternal (cytoplasmic) inheritance pattern. Secondly, it can follow an autosomal recessive pattern and is associated with obesity, short stature, pigmentary retinopathy, SNHL and diabetes mellitus or insulin resistance (Ahlstrom's disease). The frequency of dilated cardiomyopathy in Ahlstrom's disease is about 60%. A third form that has been more recently reported is characterized by autosomal dominant inheritance pattern with variable penetrance. It is characterized by progressive SNHL manifesting in first two decades and DCM that manifests in the fourth to sixth decades. Based on the pedigree analysis, we believe that our patient fits into this uncommon category. Genetic studies in families with this pattern of disease have revealed abnormalities in a locus on chromosome 6q23–24. In summary, presence of SNHL in patients with idiopathic DCM should raise the suspicion of familial cardiomyopathy and should prompt detailed pedigree analysis and genetic testing. Similarly, patients diagnosed with early onset SNHL should be evaluated for cardiac disease.

DISSEMINATED ADENOVIRUS IN A KIDNEY TRANSPLANT
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LEARNING OBJECTIVES: 1) Review the common manifestations of Adenovirus infection 2) Recognize the morbidity/mortality associated with an untreated Adenovirus infection in a transplanted kidney
CASE INFORMATION: A 65-year-old woman with end-stage renal disease secondary to diabetes mellitus was transferred to our institution after being treated at an outside institution for presumed urinary tract infection. She had received a kidney transplant 3 years earlier with no complications to this point. She had a baseline creatinine of 0.9–1.0 mg/dl, but it was 4.9 mg/dl on initial presentation. After adequate hydration and treatment for presumed UTI with levofloxacin, the patient's creatinine improved but did not return to baseline. On admission to our hospital, her vital signs were stable, and her physical exam was unremarkable with the exception of moderate distress and gross blood within her urinary catheter collecting bag. Laboratory data showed WBC 15,000, BUN 98 mg/dl, and creatinine 4.2 mg/dl. Due to persistent elevation of her creatinine, a biopsy of her allograft kidney was done on hospital day 3. Pathology was consistent with acute interstitial nephritis, and she was treated with IV methylprednisolone for 3 days without improvement in her renal function. This led to further workup, including viral staining of her biopsy which was positive for adenovirus. Immunosuppresive agents were withdrawn with the exception of tacrolimus, which was halved in dose. Adenovirus PCR of both blood and urine was determined and results showed 1× 107copies/ml in the urine and 64,500 copies/ml in the blood. Since her renal function didn't correct despite high dose steroids and discontinuation of immunosuppression, a trial of antiviral therapy was initiated. One dose of cidofovir was given, and within 3 days, her adenovirus PCR counts dropped, hematuria resolved and her physical complaints all but resolved. She was discharged with a stable creatinine of 2.3 mg/dl after a peak of 4.6 mg/dl.
IMPLICATIONS/DISCUSSION: Adenovirus is a double-stranded DNA virus with 49 distinct types that are stable to physical agents and adverse pH media, permitting prolonged survival in the body. In the immunocompetent host, typical manifestations are respiratory, gastrointestinal, or ocular illnesses that are self-limited. However, in immunocompromised patients morbidity is increased and mortality reported as high as 48%. Unlike our patient, most cases of adenovirus in a transplanted kidney present weeks to months after surgery. Prompt discontinuation of immunosuppression is the standard of treatment. However, when adenovirus infection becomes systemic, appropriate antiviral therapy is necessary for halting the progression of disease. Our case demonstrates the potential for adenovirus infection to cause severe complications and the importance of early diagnosis in an immunocompromised host.

DISSEMINATED NOCARDIA IN AN IMMUNOCOMPROMISED HOST
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LEARNING OBJECTIVES: To describe the presenting symptoms of disseminated nocardia To review risk factors, diagnosis, and management of nocardia
CASE INFORMATION: A 39-year-old man with relapsed multiple myeloma status post allogenic bone marrow transplant complicated by graft versus host disease presented with one month of progressive dyspnea. At onset of symptoms, chest CT showed nodular pulmonary infiltrates; voriconazole was initiated for presumed fungal pneumonia. Dyspnea worsened, accompanied by pleuritic chest pain alleviated by leaning forward, abdominal pain, blurry vision, subcutaneous nodules in his arms, fevers, chills, and fatigue. Medications included prednisone, FK506, and voriconazole. On physical exam, T 38.4 °C, P 116, BP 112/78, RR 36, O2 saturation 94% on room air. Fundoscopic exam revealed creamy exudates bilaterally. Breath sounds were decreased throughout, with crackles at the left base and right mid-lung, a transient pericardial rub, and tender rubbery subcutaneous nodules overlying his abdominal rectus sheath and extremities without overlying skin changes. EKG showed diffuse ST elevations. Imaging showed left lower and right middle lobe lung infiltrates, multiple abscesses involving his psoas, rectus sheath, and paraspinal muscles, and abscesses in the gray-white junction of his brain. Bronchoscopic lavage grew Nocardia cyriacigeorgica; blood culture grew N. nova.
IMPLICATIONS/DISCUSSION: Nocardia is an increasingly recognized cause of disseminated infection in immunocompromised hosts. While infection is uncommon (0.375 cases/100,000 persons annually), the incidence is increased up to 300-fold in conditions of impaired cellular immunity (e.g., AIDS, cancer, organ transplantation, or glucocorticoid therapy). A gram positive, partially acid-fast, branching filamentous actinomycete, Nocardia is found in soil or decaying vegetable matter and enters the body by inhalation, although cutaneous disease may occur by direct inoculation. Nocardia typically presents as a subacute or chronic pulmonary infection that in half of cases disseminates to other organs. The brain is the most common site of dissemination, but any organ may be affected. Our patient's symptoms were consistent with disseminated nocardia beginning with pneumonia, leading to pericarditis, endophthalmitis, and brain, muscle and subcutaneous abscesses. Nocardia may present as cellulitis, lymphocutaneous disease, or actinomycetoma via transcutaneous inoculation. Diagnosis is by gram stain and culture of sputum, blood, spinal fluid, or biopsy specimens. Expectorated samples are usually inadequate and bronchoscopy is needed. CT and MRI can be helpful in diagnosing disseminated disease. Nocardia have variable antimicrobial susceptibility; treatment is initially guided by epidemiologic data and adjusted according to cultures. Sulfonamides form the basis of treatment. Minocycline is an alternative in sulfa allergy. With severe, progressive infection or CNS involvement, amikacin and either carbapenems or third generation cephalosporins are added. With disseminated nocardia infections, a treatment course of 6–12 months is often required. Mortality is rare (<5% in absence of CNS involvement), but even with appropriate treatment, nocardia infections may relapse or progress. Our patient was placed on bactrim, ceftriaxone, and amikacin. He was readmitted one month later with recurrent pericarditis with progression of his ophthalmic lesions, requiring the addition of linezolid. He is currently stable on quadruple therapy.

DOC MY SUGAR IS LOW: NON-INSULINOMA PANCREATOGENOUS HYPOGLYCEMIA IN A HEALTHY YOUNG ADULT M.F. Lippincott[1]; A. Weinstein[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205930)*

LEARNING OBJECTIVES: 1) Recognize Reactive Hypoglycemia in Non-Diabetics 2) Diagnose Non-Insulinoma Pancreatogenous Hypoglycemia Syndrome

CASE INFORMATION: A 23 year old female with attention deficit hyperactivity disorder reports several months of drenching night sweats, a five pound weight loss, amenorrhea and tremulousness after fasting or eating a large meal. She has a paternal family history of type II diabetes. On exam the patient is 4'11", 88 pounds, and mildly tremulous. Blood glucose was 33 mg/dl; other chemistries, complete blood count and liver function tests were normal. A pregnancy test was negative. Glucose tolerance testing resulted in hypoglycemic symptoms with a blood glucose of 36 mg/dl at 180 minutes and insulin and c-peptide levels peaking at 82–120 minutes. A 72 hour fast resulted in venous blood glucose ranging from 55 to 87 mg/dl and no insulin antibodies. Glucagon administration post-fast increased blood glucose to 70 mg/dl. Urine testing revealed no evidence of oral hypoglycemics. The patient's hypothalamic axis was intact. CT scan with contrast showed no pancreatic masses. Therapy for reactive hypoglycemia was initiated with dietary management, cessation of methylphenidate and alcohol, and initiation of Diazoxide; all interventions failed to provide symptom relief. The patient underwent a calcium stimulation test which suggested insulin overproduction in the distal pancreas and confirmed the diagnosis of non-insulinoma pancreatogenous hypoglycemia syndrome (NIPHS). She underwent distal pancreatectomy and pathology of the pancreatic tail demonstrated nesidioblastosis. Since the surgery, the patient's symptoms have resolved and she takes pancrelipase for exocrine pancreatic insufficiency.

IMPLICATIONS/DISCUSSION: Hypoglycemia is diagnosed by Whipple's Triad: symptoms of hypoglycemia, low plasma glucose of less than 55 mg/dl and relief of symptoms with increased blood glucose. Reactive hypoglycemia is post-prandial hypoglycemia and has an important differential diagnosis: alimentary hypoglycemia, early diabetes mellitus, factitious hypoglycemia, hereditary fructose intolerance, ingestion of large amounts of ethanol or gin, insulin autoimmune hypoglycemia, insulinoma, or NIPHS. Alimentary hypoglycemia is due to autonomic dysfunction after gastric surgery. A glucose tolerance test can diagnose early type II diabetes by demonstrating elevated blood glucose readings shortly after glucose ingestion. Factitious hypoglycemia can be ruled out by testing for insulin and c-peptide levels in the blood and oral hypoglycemics in the urine. Hereditary fructose intolerance presents as failure to thrive often with lactic of keto-acidosis in children. Insulin autoimmune hypoglycemia is caused by insulin antibodies. An insulinoma can be differentiated from NIPHS in a 72 hour fast because patients with an insulinoma will have hypoglycemia and inappropriately high blood glucose after post-fast administration of glucagon. In NIPHS imaging studies are usually not helpful. A selective arterial calcium stimulation test localizes the source of excess insulin secretion by injecting calcium, an insulin secretagogue, into branches of the celiac artery and measuring insulin levels in the hepatic vein. Surgical resection of the pancreas removing nesidioblastosis or islet cell hypertrophy ameliorates symptoms in 50–100% of NIPHS cases in the literature. Medical treatment with Diazoxide which inhibits insulin secretion has had mixed results.

DON'T FORGET TO BRUSH YOUR TEETH! PNEUMOMEDIASTINUM FOLLOWING TOOTH EXTRACTION C. Yoon[1]; C.N. Mui[2]. [1]New York University, New York, NY; [2]New York University School of Medicine, New York, NY. *(Tracking ID # 204901)*

LEARNING OBJECTIVES: 1) Recognize pneumomediastinum as an uncommon cause of chest pain. 2) Review the risk factors and pathophysiology of both spontaneous pneumomediastinum and secondary pneumomediastinum.

CASE INFORMATION: A 34 year-old healthy female presented with 5-months of chest pain. Her symptoms began immediately following a right-molar tooth extraction and filling placement with right-sided jaw and neck pain that resolved the next day. Two days later, the patient developed mid- and right-sided pleuritic chest pain which was intermittent over the next 5-months. On the day of admission, she reported a foreign-body sensation in her throat with swallowing. She denied shortness of breath, fever, cough, vomiting and risk factors for HIV. Her vital signs were unremarkable with normal respiratory rate and oxygen saturation. Her physical exam was notable for a missing right-lower molar with a 'loose' filling and crepitus in the right neck. Cardiopulmonary exam was unremarkable. Laboratory data were all within normal limits as was the EKG. A chest x-ray demonstrated soft tissue subcutaneous emphysema in the right neck and right paratracheal lucency suggestive of pneumomediastinum. Computed tomography of the chest confirmed the diagnosis of pneumomediastinum with air in the anterior neck, paratracheal mediastinum and along the esophagus. The patient was admitted for observation with a diagnosis of pneumomediastinum secondary to tooth extraction. During her hospitalization, an esophagram was performed which was negative for esophageal perforation; shortly thereafter, the patient was discharged with instructions to seek dental care and replace her filling.

IMPLICATIONS/DISCUSSION: Spontaneous pneumomediastinum (SPM) is an uncommon and benign disease entity most often seen in young healthy patients following a sudden increase in intrathoracic pressure such as violent coughing, emesis, the use of inhalation drugs, or even the playing of wind instruments. Increased intra-alveolar pressure results in terminal alveolar rupture; air then escapes into the connective tissue sheath surrounding the bronchi and ascends centrally into the mediastinum and in some cases, into the neck and face along cervicofacial planes. Although the finding of pneumomediastinum on radiographic images may cause alarm, SPM is actually a benign condition without associated morbidity or mortality. Non-spontaneous pneumomediastinum is a rare condition secondary to trauma or a complication of instrumentation (head and neck surgeries, dental procedures, esophageal perforation) whose prognosis depends on the presence of concomitant infection. As opposed to SPM, air is introduced into pharyngeal fascial spaces and dissects downwards towards the mediastinum. Both SPM and non-spontaneous pneumomediastinum have chest pain as the most common presenting complaint. Other symptoms include dyspnea, odynophagia and neck swelling. Although diagnosis is often made with chest-x-ray, a careful history is imperative to rule out secondary causes, which are associated with higher morbidity if complicated by infection. In the absence of infection, patients with SPM or secondary pneumomediastinum can be discharged safely with outpatient follow-up without fear of complication or recurrence. In our patient, we report an unusual case of persistent pneumomediastinum secondary to a dental procedure. We speculate that air trapping is maintained by an ill-fitting filling that maintained continuity with atmospheric air.

"DOWNHILL" VARICES M. Sonenshine[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 204785)*

LEARNING OBJECTIVES: 1. Review the rare entity of 'downhill' varices – history, pathophysiology, etiology, and management 2. Review the contrasting etiologies of 'uphill' and 'downhill' varices

CASE INFORMATION: An 80-year-old female with paroxysmal atrial fibrillation not on chronic anticoagulation, non-systolic heart failure, and surgical hypothyroidism status post thyroidectomy for papillary thyroid cancer presented to the emergency room after experiencing two episodes of maroon stools with accompanied blood clots, as well as lightheadedness. She denied prior GI bleeds, alcohol or NSAID use, abdominal pain, nausea, vomiting, diarrhea, or fevers. On physical exam, she had orthostatic hypotension, sinus tachycardia and a surgical thyroid scar, but exam was otherwise unremarkable, with no scleral icterus, spider angiomata, palmar erythema, or shifting dullness. Laboratory examination showed a hematocrit of 35 with normal platelet count, coagulation times, and comprehensive panel. The patient soon became hemodynamically unstable requiring blood transfusions and emergent endoscopy. In preparation, nasogastric lavage was grossly positive for bright red blood. EGD showed multiple columns of grade IV esophageal varices from 15 cm to the GE junction consistent with 'downhill' esophageal varices.

IMPLICATIONS/DISCUSSION: Most esophageal varices are a result of portal hypertension and bypass a cirrhotic liver. As a result, collateralization of venous return occurs through the lower esophageal veins to reach the azygos vein and finally the superior vena cava (SVC), creating 'uphill' varices in the distal esophagus. A history of liver disease and portal hypertension, an abnormality on labs (i.e. elevated liver enzymes, abnormal coagulation times, thrombocytopenia, hypoalbuminemia), or

exam findings suggestive of end-stage liver disease (i.e. scleral icterus, caput medusa, spider angiomata, shifting dullness, palmar erythema) may raise the suspicion of variceal disease in a patient with a presumed upper GI bleed. The rare entity of downhill varices, first described in 1964 by Felson and Lessure, occur in the proximal, rather than the distal esophagus, and are not a result of chronic liver disease. Bleeding from downhill varices in the proximal portion of the esophagus is quite uncommon, as exposure to stomach acidity is negligible, liver function, platelets, and clotting proteins are normal, and the varices occur in the submucosa as opposed to subepithelium. Downhill varices occur from obstruction of venous return from structures in the neck and upper thorax, often forcing retrograde collaterals in the valveless proximal portion of the venous esophageal submucosal plexus. Causes of such obstruction include superior vena cava syndrome, fibrosing mediastinitis, goiters, tumors, radiation and neck dissections. The site of venous obstruction and duration of time are the two major factors responsible for causing downhill varices. For instance, in our patient, ligation of the inferior thyroid veins during her thyroidectomy 40 years prior was likely her inciting event, as the esophageal plexus drains into the inferior thyroid veins that feed into the brachiocephalics and SVC. Band ligation of an obvious bleeding downhill varix is used for hemostasis; otherwise, relieving the underlying obstruction is definitive treatment. Sclerosant and cyanoacrylate are contraindicated as the anatomical distribution of downhill varices increases the risk of vertebral body or spinal cord infarction and pulmonary embolus.

EMPIRIC TREATMENT AS A MEANS OF DIAGNOSIS IN AIDS PATIENTS WITH CNS LESIONS S.P. Patel[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 203611)*

LEARNING OBJECTIVES: 1. Recognize the differential diagnosis of acute neurological changes in AIDS patients 2. Determine the proper management algorithm for atypical mass lesions in AIDS patients 3. Implement the proper therapeutic strategy in a high-risk neurosurgical patient whose primary differential diagnosis includes toxoplasmosis vs. primary CNS lymphoma
CASE INFORMATION: Mr. S is a 69-year-old Caucasian male who presented to the ER with a 6-hour history of left-sided vision loss and memory impairment who on arrival states "I feel like I'm having a stroke." The stroke team was activated and an MRI was performed showing a single 2-cm ring-enhancing occipital lobe lesion. During this time, the patient reported a history of AIDS since 1997 and cessation of all HAART and prophylaxis 5 months ago secondary to diarrheal side effects from his medications. Of note, the patient had platelet count of 23. Mr. S was afebrile, completely alert and oriented, and with a neurological exam only pertinent for a left homonymous hemianopsia, left-sided disdiadokinesis, with no meningismus. As the primary differential of a single CNS lesion in an AIDS patient is toxoplasmosis vs. primary CNS lymphoma (PCNSL) the patient was started on pyrimethamine/sulfadiazine/folinic acid for empiric toxoplasmosis treatment, vancomycin/ceftriaxone/metronidazole for empiric brain abscess coverage, and azithromycin for MAC prophylaxis as the patient had an unknown CD4 count at the time of presentation. The patient was given 1 unit of platelets and IR-guided lumbar puncture was performed with numerous CSF studies sent. Of note, the patient had an EBV CSF PCR with 1.5 copies, a negative toxoplasma CSF PCR, and a toxoplasma serum IgG of 912. NM SPECT of brain was inconclusive. CD4 count was later found to be 185.
IMPLICATIONS/DISCUSSION: The workup of Mr. S presents multiple diagnostic issues pertaining to the multisystem sequelae of AIDS. As the patient remained thrombocytopenic with mean platelets of 35, the patient was at high risk for brain biopsy. Generally, toxoplasmosis presents as multiple lesions on imaging, with only 14% presenting as a single lesion on MRI. (1) CSF studies for toxoplasma were negative, and serologies only indicated isolated serum IgG elevated to 912. However, the pre-test probability of toxoplasmosis as the cause of a CNS lesion increases from 59% to 87% in light of the patient's lack of prophylaxis. (2) The 2-cm size of the patient's lesion is substantially smaller than the average PCNSL lesion which tends to be 4-cm. (3) In addition, the EBV CSF PCR was negative with <1.5 copies, which is not consistent with a lymphomatous process. (4) Treatment for brain abscess was discontinued as the clinical picture was not consistent with bacterial infection, and other etiologies were made less likely based on the results of the CSF studies. The decision to abstain from neurosurgical intervention was made, and the patient was continued on toxoplasmosis therapy for 2 weeks. Interval MRI showed a significantly smaller lesion with increased edema consistent with treatment effect. The patient also reported interval improvement in his vision. This improvement was attributed to toxoplasmosis monotherapy and the patient was continued on his treatment as an outpatient with scheduled resumption of HAART. 1. Porter SB, et al. NEJM 1992;327:1643 –1648. 2. Antinori A, et al. Neurology 1997;48:687–694. 3. Bellinzona M, et al. Eur J Surg Oncol 2005;31:100–105, . 4. Cinque P, et al. Lancet 1993;342:398–401.

EOSINOPHILIC GRANULOMA: A MIMICKER OF METASTATIC LUNG DISEASE A. El Abbassi[1]; D. Youssef[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203581)*

LEARNING OBJECTIVES: 1- To recognize an unusual condition that lights up on PET scan that is not a malignancy. 2- To recognize that eosinophilic granuloma is a disease that can occur in middle aged smokers.
CASE INFORMATION: A 52-year-old male smoker presented with shortness of breath, cough, and fatigue without weight loss. PMH was otherwise unremarkable. His physical exam was notable for a well-developed man in no respiratory distress at rest. Temperature was 37.9, HR=96, BP=110/70, RR=20, RA O2 saturation=93%. His lung exam revealed the presence of fine bibasilar crackles with good air entry. Otherwise his physical exam was unremarkable. Laboratory: WBC 8.4, SEGS 65%, LYMPHS 25%, EOS 2%, BANDS 6%, HGB 15, HCT 43, PLT 275 K, BUN/CR=18/1.0, TSH and ACE levels were normal. ABG pH=7.39; pCO2=42; pO2=76 on room air. Pulmonary function tests were compatible with a combined defect. Chest x-ray showed bilateral lung nodules. CT confirmed the masses in both lungs and PET scan showed an increased uptake in the nodules. Bronchoscopy was nondiagnostic as was CT guided fine needle biopsy of a nodule. This led to video assisted thoracoscopy with wedge resection of the right upper lobe which was diagnostic for eosinophilic granuloma of the lung. The patient was started on steroids and responded well to treatment both clinically and radiologically.
IMPLICATIONS/DISCUSSION: Eosinophilic granuloma of the lung, pulmonary histiocytosis X, and Langerhans cell granulomatosis are all synonyms for an uncommon interstitial lung disease which can mimic malignancy both clinically and radiographically. It primarily affects individuals between the second and fourth decades of life and is more common in men. Clinically, most patients are symptomatic as was our patient, with cough and dyspnea being most common and spontaneous pneumothorax occurring in up to 25%. The disease affects predominantly the upper lobes with sparing of the costophrenic angles and bases. The diagnosis is often suggested by the appearance on high resolution CT scan however since routine laboratory tests are nonspecific the definitive diagnosis is best made by tissue biopsy. Pathology of resected lung tissue shows Langerhans cells which are characterized by elongated and uniform nuclei with numerous folds and indentations with abundant pale eosinophilic cytoplasm. There are also cytoplasmic inclusions known as Birbek granules and the cells have characteristic histiochemical staining properties. Although its etiology is unclear, the condition is thought to involve immune dysfunction caused by viral activation of histiocytes. Tobacco is highly associated with the disease. Smoking may stimulate the release of bombesine-like peptides by neuroendocrine cells which in turn recruit the Langerhans cells and activate alveolar macrophages leading to fibrosis and nodule formation. PET scans are increasingly used to detect cancer, however, the increased uptake seen in our case was due to the inflammatory condition caused by the eosinophilic granuloma rather than malignancy. The prognosis of pulmonary eosinophilic granuloma is relatively good with treatment focusing on smoking cessation and systemic steroids. Lung transplantation has been successful in refractory cases associated with progressive respiratory failure. While it is an uncommon diagnosis, physicians should be prepared to diagnose and manage pulmonary eosinophilic granuloma in patients with interstitial lung disease when the pathology is diagnostic.

EVANS SYNDROME IN AN ADULT: DIAGNOSIS AND TREATMENT O. Yousuf[1]; B. Garibaldi[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205941)*

LEARNING OBJECTIVES: 1. Diagnostic criteria and incidence of Evans Syndrome in adults. 2. Pharmacologic management of Evans Syndrome, with use of Rituximab as an early therapy

CASE INFORMATION: A 71-year-old man with a history of coronary artery disease, hypertension, and stroke was transferred from another hospital for evaluation of anemia and thrombocytopenia. He had presented two weeks prior with a non ST-elevation myocardial infarction, at which time anemia and thrombocytopenia were noted. On transfer, vital signs were afebrile, heart rate 83, blood pressure 114/61, respiratory rate 18, and he was noted to have conjunctival pallor and chest petechiae. Laboratory data showed hemoglobin 10.9 g/dL (15.2 g/dL one month prior), platelets 94,000 (297,000 two weeks prior), normal leukocyte count, reticulocyte index 10%, LDH 478U/L (118–273 U/L), and haptoglobin 8 mg/dL (36–95 mg/dL). Direct Coombs test was positive; anti-C3d was negative. Antiplatelet antibodies were positive. Peripheral blood smear revealed reticulocytosis, spherocytes, and thrombocytopenia. Serum and urine protein electrophoresis were unremarkable. Peripheral blood flow was normal. Antibodies to CMV, EBV, and HIV were negative. ANA, rheumatoid factor, anti-Ro, anti-La, Scl-70, and anti-histone antibodies were unremarkable. CT of the chest, abdomen, and pelvis did not reveal any evidence of malignancy. A diagnosis of Evans syndrome was made. Prednisone 80 mg daily was started, but blood counts continued to decline. He underwent two cycles of intravenous immunoglobulin (IVIG), and rituximab weekly for 4 doses, with a normalization of hemoglobin to 15 mg/dL and continued rise in platelets to 137,000 three weeks into treatment. He remains on a prednisone taper, and is clinically doing well.

IMPLICATIONS/DISCUSSION: Evans syndrome is characterized by the simultaneous or sequential development of direct Coombs-positive autoimmune hemolytic anemia (AIHA) and immune thrombocytopenia (ITP) without another identifiable etiology. Patients present with features of anemia and thrombocytopenia. Its incidence is unknown, but is predominantly seen in the pediatric population and much less frequently in adults. It usually follows a chronic course with frequent relapses; long term mortality ranges from 7–36%. Etiologies to exclude are rheumatologic disorders, IgA deficiency, HIV, autoimmune lymphoproliferative syndrome, malignancy, and drug induced cytopenias. Our patient had a positive direct Coombs test and antiplatelet antibodies with other laboratory and imaging tests revealing unremarkable. To our knowledge, our patient represents the oldest diagnosis of Evans syndrome in the literature. Management includes corticosteroids and IVIG as first line therapy, with immunosuppressive agents (e.g., cyclosporine, mycophenolate mofetil, danazol) and splenectomy as second line interventions. More novel therapies include chemotherapeutics and stem cell transplantation. Although evidence supports the use of rituximab in patients with AIHA and ITP independently, there is minimal data describing its use in adults with Evans syndrome, particularly as a second line agent. Shanafelt et al. published the largest series of 4 adults with Evans syndrome who received rituximab, with complete remission in 2 patients, but in only one cell line. Our case represents one of very few reported cases in which early rituximab therapy in the absence of prior interventions with more toxic immunosuppressive agents, resulted in clinical improvement in an adult with Evans syndrome.

FAMILIAL MEDITERRANEAN FEVER: AN UNCOMMON CAUSE OF RECURRENT ABDOMINAL PAIN A. Mustafa[1]; A.A. Donato[2]; R. Pradhan[2]. [1]The Reading Hospital and Medical Center, Wyomissing, PA; [2]The Reading Hospital and Medical Center, West Reading, PA. *(Tracking ID # 205010)*

LEARNING OBJECTIVES: 1. Review inheritance and typical presentation of Familial Mediterranean Fever (FMF) 2. Consider FMF in Mediterranean patients with recurrent serositis without source

CASE INFORMATION: 38 year old Armenian male presented multiple times in emergency department with complaint of recurrent bouts of sharp, intermittent abdominal pain, fever, diarrhea, nausea and vomiting. Diarrhea consisted of 5 to 6 episodes of watery, dark stool. His episodes first occurred at age 20, and had resulted in an appendectomy for a presumed appendicitis at that age which turned out later to be a normal appendix as well as a laparoscopic cholecystectomy for presumed gallstone pancreatitis. The patient was also noted to have an opioid dependency from chronic back and neck pain. Family history revealed similar episodes in his father. Physical exam revealed fever, diffuse maculopapular rash over extremities and back, and diffuse abdominal tenderness. Labs were significant for Leukocyte count of 13,300/ cmm with 63% neutrophils. ESR and CRP were mildly elevated at 38 mm/hr and 1.18 mg/dl respectively. ANA and celiac antibody panel was negative. CT of abdomen and pelvis showed circumferential thickening of colonic wall involving ascending colon, transverse and sigmoid colon. Patient was initially treated for acute colitis but he kept coming back with recurrent abdominal pain and diarrhea. He finally underwent extensive GI work up including upper and lower GI endoscopies which revealed mild gastritis and normal appearing colon. Considering recurrent, familial attacks of abdominal pain, he was started on Colchicine 0.6 mg twice daily which was titrated up to 1 mg twice daily. Patient responded well to it with decrease frequency of recurrent abdominal pain. Genetic testing revealed heterozygosity to R761H alteration confirming the diagnosis of FMF.

IMPLICATIONS/DISCUSSION: Familial Mediterranean Fever is caused by an autosomal-recessive inherited defect in the pyrin protein of neutrophils that regulates the transcription of proteins involved in inflammation. It is a gene mutation common to Sephardic Jews, Turks, and Arabs, but is especially common in Armenians, where the gene is carried in 1 in 7 and expressed in 1 in 500 patients. Common symptoms include childhood onset of 1 to 3 day bouts of serositis, commonly of abdomen but also in pleura, of a stereotypical nature and of such extreme nature that appendectomies of normal tissue and opioid dependence are not uncommon. Colchicine therapy reduces number of attacks as well as the incidence of its major complication, AA amyloidosis. Physicians caring for patients of Mediterranean descent with recurrent, unexplained abdominal pain should take a thorough family history and consider this disorder when multiple unexplained bouts of serositis are seen.

FATAL PRECORE MUTANT HBV REACTIVATION POST CHOP-RITUXIMAB IN A PATIENT WITH PRIOR CLEARED HBV INFECTION: THE NEED FOR ANTIVIRAL PROPHYLAXIS IN THIS EMERGING POPULATION? C. Kournioti[1]; A. Sofair[1]. [1]Yale University, New Haven, CT. *(Tracking ID # 205485)*

LEARNING OBJECTIVES: Reactivation of resolved hepatitis B virus infection is a well-described and often fatal complication in patients treated with chemotherapy for lymphoma. Current guidelines recommend antiviral prophylaxis with lamivudine only for those patients who are HBsAg-positive. We report the case of a lymphoma patient with prior cleared HBV infection who succumbed to a fatal precore mutant HBV reactivation and discuss the importance of extending current antiviral prophylaxis recommendations.

CASE INFORMATION: A 65 year-old male with a past medical history of B-cell lymphoma status-post three cycles of chemotherapy with CHOP-rituximab, presents six months after completion of treatment with jaundice, dark urine, decreased appetite, weight loss, watery diarrhea, nausea, weakness, and epigastric pain. Labs on admission were significant for AST and ALT >2200 units/L, direct bilirubin= 29.7 mg/dL, total bilirubin=42.1 mg/dL, PT=54 sec, PTT=49 sec, INR= 22, and WBC=1.1 thous/mm3 with 3% segs. Physical exam on admission was significant for fever, jaundice, RUQ tenderness to palpation, hepatomegaly, and no gross neurologic deficits. Results of pretreatment screening for hepatitis were: HBsAg-negative, HBsAb-positive, HBcAb-positive, negative HBV PCR, HDVAb-positive, and HCVAb-negative. On the day of admission, the patient was started on broad-spectrum antibiotics with Vancomycin/Ceftazidime for febrile neutropenia. Both a RUQ ultrasound and CT Scan of the abdomen/ pelvis were performed showing a heterogeneous liver with no focal liver lesions and no biliary obstruction, masses or lymph nodes. A bone marrow aspirate was performed which showed no evidence of recurrent lymphoma, which was consistent with the absence of major lymphadenopathy on CT scan and the results of flow cytometry. On hospital day #2, hepatitis serologies performed showed conversion to HBsAg-positive and HBsAb-negative with HBeAg-negative and HBeAb-positive, indicating a precore mutant HBV reactivation. HepB DNA PCR was 64,300,000. Antiviral therapy was started with Entecavir 1 mg daily. Despite antiviral therapy, the patient developed progressive coagulopathy, hepatic encephalopathy requiring MICU admission and intubation, hepatorenal syndrome with anuria, hypotension refractory to three pressor therapy, and eventual death on hospital day #7.

IMPLICATIONS/DISCUSSION: Reactivation of resolved hepatitis B virus infection is a well-described, often fatal complication in lymphoma patients treated with chemotherapy. Most reported cases of reactivation

are in HBsAg-positive patients receiving chemotherapy. The highest risk of reactivation is seen in chemotherapy regimens containing glucocorticoids and most recently, rituximab. Prophylactic antiviral therapy has been shown to be more efficacious than treatment once HBV reactivation has occurred. Current recommendations include prophylaxis with lamivudine for reactivation only in HBsAg-positive patients receiving chemotherapy and that the duration of prophylaxis should be six months beyond the completion of chemotherapy. Our case illustrates that the risk is no longer confined to HBsAg-positive patients and that fatal reactivation can occur greater than six months after completion of CHOP-rituximab. Therefore, we recommend antiviral prophylaxis should be considered in HBsAg-negative patients who have evidence of cleared HBV infection. Further research should investigate the optimal duration of prophylaxis.

FIRST DO NO HARM S. Whelton[1]; A. Carhill[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203886)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation and management of discitis. 2. Identify epidural anesthesia and steroid injections as a potential source for infection
CASE INFORMATION: A 62 year-old man presented with a history of gradually progressing lower back pain over many years. He had no fever, weakness, history of intravenous drug use, or malignancy risk factors. Over the past two years, he had been treated with non-steroidals, muscle relaxants, and physical therapy. Several months prior to his presentation, he had been referred to an anesthesia clinic and had received two series of epidural steroid injections in his lower sacral region. The steroid injections were initially helpful , but the effects were transient; he was referred for further evaluation. On presentation, his vital signs were normal and he was afebrile. He had tenderness at the L4-L5 spinal region, but normal reflexes, sensation and motor tone in the extremities. The lower back was tender with flexion and extension, but there was no increased tenderness on straight leg raise. His white blood cell count was normal, as were his other laboratory studies. An MRI was obtained, demonstrating an area of irregularity and poor definition of the endplates, along with a band-like abnormal signal in the adjacent vertebral marrow at the L4-L5 level that was concerning for possible osteomyelitis or discitis. A follow up full body bone scan demonstrated evidence of osteomyelitis at the L4-L5 region. He was diagnosed with discitis that had progressed to vertebral osteomyelitis, which was presumed to be secondary to his epidural injections.
IMPLICATIONS/DISCUSSION: Back pain is one of the most common clinical complaints encountered by the general internist. While osteoarthritis is the most common etiology, it is important that the internist exercise a disciplined approach to the evaluation of back pain. Fever, neurologic compromise, a history of intravenous drug use, and known malignancy are common red flags that should prompt a more detailed evaluation. Often forgotton from this list, however, is the history of previous injection of the spine. Osteomyelitis is an infection of the bone that usually occurs via hematogenous spread of a micro-organism, direct trauma to the bone, or contiguous spread from a local area of infection. The diagnosis and treatment of osteomyelitis and disciitis are often delayed, because of the vague initial symptoms. The onset is usually insidious, occurring over weeks to months. The clinical presentation usually begins with progressive neck or back pain, increasing with movement and associated with mild or no tenderness over the spinous process of the involved vertebra. Only half of patients become febrile and neurological signs do not present until late in the disease course. The development of radicular signs followed by weakness and paralysis suggests progression of disease and formation of an epidural abscess. Chronic back pain is one of the most common presenting symptoms encountered by the general internist. Due to its refractor nature, there is an increasing prevalence of interventional treatments being offered to patients. The general internist must be able to recognize the presenting features of discitis and initiate an appropriate evaluation. Important in this methodical approach is the recognition of prior spinal injections as a risk factor for discitis. Timely identification and treatment of vertebral discitis can prevent the development of osteomyelitis and neurological symptoms.

FLIRTING WITH DISASTER: A CASE OF CATASTROPHIC ANTIPHOSPHOLIPID SYNDROME A. Im[1]; R. Granieri[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204040)*

LEARNING OBJECTIVES: 1) To describe the presentation and clinical features of catastrophic antiphospholipid syndrome (CAPS) 2) To emphasize the importance of early recognition and treatment of CAPS to improve morbidity and mortality
CASE INFORMATION: A 42 year old woman with history of ITP status post splenectomy and a positive lupus anticoagulant antibody presented with an acute onset of right sided weakness and aphasia. 2 days prior to admission, she had been complaining of fever/chills, joint pains, and cough. At the time of admission, she was also found to have worsening mental status, thrombocytopenia worse than her baseline, acute renal failure, and gangrenous toes on her left lower extremity. CT scan documented acute multifocal cerebral infarcts. She had no previous episodes of thrombotic events, nor any personal or family history of clotting disorders or miscarriages. She had no recent exposure to heparin. Laboratory testing confirmed the presence of an antiphospholipid antibody. There was no evidence of microangiopathic hemolytic anemia. The diagnosis of catastrophic antiphospholipid syndrome was made, and the patient was started on plasma exchange. She had improvement in her platelets and renal function, with no further venous or arterial thrombotic events. Once infection was ruled out, she was started on high dose steroids as well as heparin for anticoagulation. She was transferred to a rehabilitation unit on a steroid taper and lifelong anticoagulation therapy.
IMPLICATIONS/DISCUSSION: Catastrophic antiphospholipid syndrome (CAPS) is a rare and rapidly progressive life-threatening disease that causes multiple organ thromboses in the presence of antiphospholipid antibodies. Less than 1% of patients with antiphospholipid syndrome present with CAPS, but this can be fatal if not detected and treated promptly. Patients may develop CAPS without any previous history of thrombosis associated with antiphospholipid antibody. CAPS poses a diagnostic challenge in that it can mimic the presentation of thrombocytopenic thrombotic purpura, acute disseminated intravascular congestion, or heparin-induced thrombocytopenia. The characteristic features of CAPS include rapid onset arterial and venous thromboses resulting in multi-organ dysfunction, development of manifestations simultaneously or within 1 week, and the presence of antiphospholipid antibodies. 60% of patients with CAPS have preceding triggers as an inciting event, usually infection. The most common complications are renal failure (70%), pulmonary complications such as ARDS and PE (66%), cerebral infarcts (60%), and skin necrosis (66%). A high index of clinical suspicion is required to make an early diagnosis so that effective treatment with anticoagulation and high dose steroids, as well as plasma exchange and/or IVIg, can be initiated. Moreover, early recognition is important because treatment differs from that of other syndromes that CAPS can mimic, and risk of mortality is high. The mortality rate is estimated to be about 48%, but patients who are stabilized with treatment have a low chance of recurrence with continued anticoagulation. Awareness of CAPS is essential as prompt diagnosis and treatment can improve the morbidity and mortality associated with this rapidly progressive and fatal syndrome.

GI BLEEDING IN A 25 YEAR-OLD FEMALE: GETTING THE GIST OF IT. P.J. Sarcia[1]; K. Sloan[2]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Mayo School of Graduate Medical Education, Rochester, MN. *(Tracking ID # 204912)*

LEARNING OBJECTIVES: 1. Recognize history and presentation consistent with GIST. 2. Discuss epidemiology and medical conditions associated with GIST, the steps to definitive diagnosis and proper treatment strategies.
CASE INFORMATION: A 25 year-old woman presented to the outpatient clinic with a one-week history of exertional dyspnea, melena, and abdominal discomfort. She was found to be tachycardic, fecal occult blood positive, and have orthostatic hypotension. Her exam was otherwise normal. Laboratory evaluation was significant for hemoglobin of 5.6 g/dL with appropriate elevation in reticulocyte count. She was directly admitted to the GI hospital service for further evaluation. She was promptly volume resuscitated with normal saline, transfused with packed Red Blood Cells, started on an IV proton pump inhibitor and underwent upper endoscopy. The endoscopy revealed a submucosal gastric mass with central ulceration and visible vessel. The following day, a CT of the abdomen and pelvis with IV contrast demonstrated 4.5 cm heterogeneously enhancing mass arising from the gastric fundus with mild adjacent lymphadenopathy. General surgery was

consulted and recommended a laparoscopic wedge gastrectomy with gastrohepatic ligament lymph node dissection. The following day the procedure was performed and an 11×7×1.5 cm section of stomach was excised with a 4.5x 4.0×4.0 cm tumor. The margins of the excision were free of tumor however, 4 of 11 adjacent lymph nodes were found to have metastatic disease. The final pathology of the tumor and the 4 lymph nodes demonstrated Gastrointestinal Stromal Sarcoma (GIST) positive for C-kit and CD-34 staining and negative for desmin, smooth muscle actin, and S-100. The mitotic rate was estimated at 1 per 50 high-powered fields. The patient did well following surgery and is preparing to initiate adjuvant chemotherapy.

IMPLICATIONS/DISCUSSION: GIST is a rare entity; its incidence was estimated to be less than 0.5 per 100,000 and constitutes only 1% of primary GI cancers. Typically it is found in middle-aged adults and rarely in children as part of a familial syndrome. The majority of tumors are found in the stomach with approximately 25% located in the small intestine, 10% in the colon, and rarely in the appendix, esophagus and other extraintestinal sites. There is no distinct clinical presentation associated with GIST. Often the tumor is found incidentally during endoscopy or on barium studies. Non-specific symptoms that have been associated with GIST are early satiety and bloating, abdominal pain, and GI bleeding (melena or hematochezia). The diagnosis of GIST relies on obtaining tissue from needle biopsy or en bloc resection. CT scan with IV contrast is the imaging modality of choice because of its ability not only to determine the size of a primary tumor but also the extent of metastasis if present. Endoscopy with or without ultrasound can also be helpful as tissue biopsies are possible although there is some concern with dissemination of the tumor as well as bleeding risk. The mainstay of treatment is surgical management with resection of localized disease. There is a significantly high recurrence rate with the majority of the recurrences within 2 years. In patients with recurrent or metastatic disease, tyrosine kinase inhibitors have been shown to have a rapid and sustained partial response or stabilization effect on the disease.

GOOD FOR THE HEART, NOT ALWAYS FOR THE BODY: A CASE OF STATIN INDUCED RHABDOMYOLYSIS E. Thung[1]; M. Rotblatt[2]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Sylmar, CA. *(Tracking ID # 205298)*

LEARNING OBJECTIVES: 1. Learn about the factors that predispose patients to drug-induced rhabdomyolysis

CASE INFORMATION: A 74 y.o. Filipino woman with a h/o HTN, DM, hyperlipidemia, gout, and CKD presents with a 3 day h/o dyspnea on exertion. She also c/o fatigue but denied any other symptoms. Due to progressive respiratory distress, the patient was intubated. Initially, she was treated for possible silent AMI and was continued on her cardioprotective outpatient medications, including gemfibrozil. However, simvastatin was changed to a higher dose of atorvastatin. Further cardiac evaluation eventually ruled out an MI. A CT Chest ruled out PE but unexpectedly showed thyroid lesions. Thyroid function tests were consistent with central hypothyroidism (TSH: 0.059, FT4: 0.66, TT3: 0.45), and the patient was started on synthroid. Although she had an intact neurological exam on admission with strength of 5/5 in her upper and lower extremities bilaterally, the patient became progressively weaker. Eventually, her strength was 1/5 in her upper extremities and 0/5 in her lower extremities bilaterally. Her dyspnea on exertion was thus felt to be an early manifestation of a systemic weakness. Her CK was noted to be 29,624 at this point, and gemfibrozil and atorvastatin were discontinued. The diagnosis of rhabdomyolysis was entertained. Her CK increased to greater than 45,000, and her RUA revealed myoglobinuria. The patient eventually required dialysis as her creatinine increased from 1.68 to 4.59 Neurology was consulted for her profound weakness, and an EMG demonstrated axonal neuropathy with mild demyelinating features. An LP showed mildly elevated protein levels. Neurology believed she had Guillan-Barre vs. vasculitic myopathy since her ANA was elevated. However, a biopsy of her right deltoid muscle showed only myonecrosis without e/o vasculitis. The patient was diagnosed with statin induced rhabdomyolysis. Her CK levels have steadily declined and are now within normal limits.

IMPLICATIONS/DISCUSSION: Statin associated rhabdomyolysis has an annual incidence of 0.7 per 10,000 person years. Its mortality has averaged 0.15 per million prescriptions dispensed in the United States. Rhabdomyolysis mainly occurs when a statin is given in combination with cyclosporine or gemfibrozil, which significantly increase concentrations of several statin medications. Rhabdomyolysis has also been reported in patients taking statins concurrently with niacin, macrolide antibiotics, and antifungal medications. In addition, not all statins are equal in their potential for muscle toxicity due to differences in lipophilic status and metabolism by CYP enzymes. Other predisposing factors that have been associated with statin induced rhabdomyolysis include hypothyroidism, CKD, obstructive liver disease, and inflammatory myopathies, such as polymyositis. Our patient had both hypothyroidism and CKD, which likely contributed to this adverse drug reaction. The pathogenesis behind statin induced myopathy is unclear. Statins inhibit the conversion of HMG-CoA to mevalonic acid, which is an important step in cholesterol synthesis. However, statins may also decrease the synthesis of coenzyme Q10, which plays an important role in muscle energy production. It has been hypothesized that coenzyme Q10 can protect against statin induced myopathy. This theory is actively being studied.

GRANULOMATOUS MASTITIS AND ACTINOMYCES : CLINICAL CORELATION K. Baradhi[1]; V. Somaraju[1]. [1]University of Illinois at Peoria, Peoria, IL. *(Tracking ID # 203573)*

LEARNING OBJECTIVES: Discuss the possible association of Actinomyces with Granulomatous mastitis. Recognize the importance of meticulous history taking in making the diagnosis in unusual presentations.

CASE INFORMATION: 47 year old woman was referred for lumps in the right breast and two month history of chronic drainage from the biopsy site. She initially presented with breast lumps further imaging revealed several hypo echoic lobulated masses. Ultrasound-guided core biopsies of right breast revealed extensive granulomatous mastitis. Bacterial stains, special stains and cultures were negative. Cytology was negative for malignant cells. Her further history included monogamous relation with her husband for 27 years. However her husband is known to have poor dental hygiene with recurrent dental infections and favored right breast during sexual activity. A possible odentogenic source of granulomatous infections was entertained and patient was placed on oral penicillin with prompt response in local symptoms. With this a presumptive diagnosis of actinomyces granulomatous mastitis was made with possible inoculation from husband's poor dental hygiene. Her follow up sonograms progressively improved on prolonged oral penicillin therapy.

IMPLICATIONS/DISCUSSION: Granulomatous mastitis is an unusual disease entity with unique radiographic appearances represents benign inflammatory conditions of the breast. It was first mentioned in the literature by Kessler and Wolloch in 1972 and since then over 120 cases were reported worldwide. It usually manifests as breast lump mimicking carcinoma in women of child bearing age but can affect any age. Diagnosis is made by histopathology, clinical correlation, laboratory and radiographic studies. Several etiologies have been postulated in the literature, most common being idiopathic granulomatous mastitis, which is a diagnosis of exclusion and it responds to steroids. The other main etiologies of granulomatous mastitis reported in literature were autoimmune, hypersensitivity processes, a reaction of extravasated luminal secretions, trauma and infections. The infectious etiologies of granulomatous mastitis include mycobacterium tuberculosis, Corynebacterium, and fungal infections. Certain risk factors have also been suggested like breast feeding for lactation and being on oral contraceptive pills. In our patient based on the history and clinical grounds,odentogenic source of actinomyces mastitis is presumed. Furthermore actinomyces is fastidious organism, slow growing in nature, difficult to culture. In addition isolation is extremely rare and chronicity of the disease hinders the identification of typical sulphur granules due to fibrosis. Even though we do not have culture proven actinomyces for granulomatous mastitis in our patient, we conclude that detail history is vital in clinical diagnosis especially when a rare entity is considered.

GUMMATOUS DILEMMA: REDUX (CHANCRE), RE-INFECTION, OR RELAPSE? M. Sharma[1]; M. Kondapaneni[1]; U. Wu[1]. [1]Louisiana State University Medical Center at Shreveport, Shreveport, LA. *(Tracking ID # 205387)*

LEARNING OBJECTIVES: Assessing response to syphilis treatment can be difficult, especially in the human immunodeficiency virus (HIV) positive population. We describe a case of syphilis in a HIV positive man with a recurrent penile chancre. We highlight the diagnostic dilemma of chancre redux (monorecidive) vs. re-infection vs. relapse.
CASE INFORMATION: A 38-year old man presented with a penile chancre and circumscribed non-pruritic plaque-like lesions of the face, arms, and legs. The patient reported a 20-pound weight loss over two months, but denied fever, chills, cough, headache, or weakness. Small non-tender lymph nodes were palpable in the cervical, axillary and inguinal areas. CD4+ lymphocyte count was 9/μL, HIV viral load was 66335/ml and the patient's RPR was positive at 1:256 dilutions. The patient was treated with benzathine penicillin G, and highly active antiretroviral therapy (HAART) was initiated. Over the next 3 weeks, the patient's chancre healed with complete resolution of the skin lesions. The CD4+ cell count increased to 70/μL, the viral load decreased to 205/mL, and the RPR titer decreased to 1:128 dilutions, however the patient was lost to follow-up. Five months later, the patient presented again with a penile chancre at the same location as the previous chancre, as well as condyloma lata and lesions on his face, legs, palms and soles. The patient denied any sexual exposure since he was last seen. The repeat RPR titer was 1:256, CD4+ cell count was 18/μL, and HIV load was 67366/mL. He was treated with intravenous penicillin G followed by three weekly doses of benzathine penicillin G and HAART was restarted. The penile chancre and skin lesions resolved by the end of 4 weeks of therapy.
IMPLICATIONS/DISCUSSION: Monorecidive is defined as a tertiary manifestation of syphilis in the form of an ulcer at or near the site of the original chancre. Criteria for diagnosing monorecidive or chancre redux include: 1) chancre near the site of original chancre; 2) positive serology; and, 3) recurrence within 12 months of the original chancre. This patient met all the three criteria for chancre redux but his clinical presentation poses a diagnostic dilemma. Since the patient was lost to follow up, the presentation with new lesions on his face, legs, palms and soles could possibly represent re-infection. However, the patient denied any new sexual contact. The other possibility is a relapse as the treatment may have been inadequate given the patient's low CD4 count. HIV infected patients with primary and secondary syphilis having CD4 count of less than 200 have been shown to have higher rates of serologic treatment failure. This case possibly represents chancre redux and/or relapse. Nonethless, assessing response to treatment of syphilis may be difficult, treatment failure sometimes cannot be readily distinguished from re-infection, relapse and possibly in this case, redux (chancre).

HEADACHE IN A CHRONIC PAIN PATIENT S. Heimburger[1]. [1]Tulane, New Orleans, LA. *(Tracking ID # 203882)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of pseudotumor cerebri 2. Identify the differential diagnosis of headache and double vision
CASE INFORMATION: 40 year old obese woman with multiple hospitalizations and multiple pain complaints presented with new onset double vision and 1 week of bifrontal headache. She was afebrile with normal mental status exam. She was noted to have decreased peripheral visual fields to confrontation bilaterally. Right CN VI palsy was identified. There was bilaterally blurring of the optic discs consistent with papilledema on funduscopic exam. No exudate or hemorrhage. No other cranial nerve abnormalities were identified. Motor exam, sensory exam, reflexes and cerebellar testing were within normal limits. CT exam of the brain was normal. LP revealed increased opening pressure. All CSF studies were normal.
IMPLICATIONS/DISCUSSION: Vision changes are a problem that is commonly encountered by the internist. A systematic approach to determining the cause of the visual disturbance is important in identifying modifiable disease processes that may affect vision. One method is to work systematically examining vascular, infectious, congenital, autoimmune, traumatic and drug induced causes. In this patient, the utility of a funduscopic exam was instrumental in making the proper diagnosis. Pseudotumor cerebri (PTC) is encountered most frequently in young, overweight women between the ages of 20 and 45. Headache is the most common presenting complaint, occurring in more than 90 percent of cases. Funduscopic evaluation of patients with PTC demonstrates bilaterally swollen, edematous optic nerves consistent with true papilledema. Pseudotumor cerebri is a syndrome disorder defined clinically by four criteria: (1) elevated intracranial pressure as demonstrated by lumbar puncture; (2) normal cerebral anatomy, as demonstrated by neuroradiographic evaluation; (3) normal cerebrospinal fluid composition; and (4) signs and symptoms of increased intracranial pressure, including papilledema.

HEART OF STONE P.E. Hourani[1]; C.M. Rivera[2]. [1]Montefiore Medical Center of the Albert Einstein College of Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 206083)*

LEARNING OBJECTIVES: 1. Review the diagnosis and treatment of congestive hepatopathy. 2. Recognize hepatitis as a presentation of heart failure.
CASE INFORMATION: A 55 year old man with a history of systolic congestive heart failure presented with 3 days of worsening right upper quadrant abdominal pain, nausea and vomiting. The pain was severe, aching and unrelated to position. He denied change in exercise tolerance and increase in lower extremity edema. He had had multiple previous admissions for shortness of breath responsive to diuretics. His initial physical exam revealed a blood pressure of 108/70 mmHg, a heart rate of 100 bpm, a respiratory rate of 18, and a temperature of 97.7&deg F. Jugular pressure was difficult to assess secondary to a thick neck; the lung sounds were distant, and the legs were free of edema. His abdomen was tender over the epigastrium and right upper quadrant; the liver span was increased. The initial laboratory data showed a WBC of 6.8, a creatinine of 1.6, a BUN of 25, and total and direct bilirubins of 1.7 and 0.4. Prothrombin time was 12.8. A chest x-ray on admission was remarkable only for cardiomegaly. The patient's outpatient medications were administered, including oral furosemide. On hospital day 2 the abdominal pain worsened. The patient had an increased respiratory rate and a positive Murphy's sign. The creatinine rose to 2, and the total and direct bilirubins doubled. Abdominal sonogram revealed a thickened gall bladder wall with calculi in the neck and hepatomegaly. Given the clinical deterioration with diuresis, furosemide was discontinued. A HIDA was performed, which identified patent bile ducts, and viral serologies were negative. The AST and ALT rose to 339 and 724. Furosemide was then restarted at 80 mg IV every 12 hours given that infection had been ruled out. An echocardiogram was performed and compared to a previous study from one month prior, revealing an interval decrease in EF and an increase in tricuspid regurgitation. Over the next four days, the patient experienced improvement in the right upper quadrant pain as well as normalization of the liver tests and the creatinine.
IMPLICATIONS/DISCUSSION: Heart failure can be quite protean in its presentation. One of its sequelae, congestive hepatopathy, can mimick primary hepatitis and shares similarities with biliary disease as well. Abdominal discomfort may be present due to stretch on the liver capsule, and there are elevations in bilirubins in up to 70% of patients. Less frequently, serum aminotransferases are elevated, and alkaline phosphatase and prothrombin time may be elevated. In the present case, we found none of the classic history and physical examination findings of decompensated heart failure, whereas all of the above-mentioned hepatobiliary findings were present. As in most cases of congestive hepatopathy, the hyperbilirubinemia was predominantly unconjugated, and the alkaline phosphatase elevation was mild; however, physical exam findings and gall bladder calculi and wall thickening seen on imaging, as well as continued deterioration in the setting of diuresis, raised a suspicion of cholecystitis. Upon further testing for this and viral hepatitis, suspicion of primary acute hepatobiliary disease was not substantiated. The improvement of the patient's clinical condition with more aggressive diuresis, the classical treatment for congestive hepatopathy, confirmed that the hepatitis was indeed secondary to heart failure.

HEMOGLOBIN: HOW LOW CAN YOU GO? R.S. Hira[1]; A.L. Kolpakchi[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 204810)*

LEARNING OBJECTIVES: 1) Document the lowest hemoglobin in a survivor. 2) Recognize the determinants of survival in severely anemic patients. 3) Review the mechanism of transient cardiac decompensated heart failure in patients with severe anemia.

CASE INFORMATION: A 42-year-old African-American female, gravida 1, para 1, was admitted from an urgent care facility for progressive fatigability over the last month and dyspnea at rest for 2 days. Her hemoglobin was found to be 1.6 g/dL with a hematocrit of 6.2%. On further questioning, she revealed that she had been having menorrhagia with a seven day menses each month for three months prior to presentation. She usually had light bleeding for two days followed by heavy bleeding for the next five. She was having to use 1 pad every 2 hours during her 'heavy' days. She denied any anemia or gynecological problems in the past. Her systolic blood pressure was 90 mmHg, heart rate was 80 beats per minute and on abdominal exam she had a 20 week-sized uterus, which on CT scan of the abdomen and pelvis was confirmed to be a large fibroid. Also, 2D-echocardiogram showed global left ventricular hypokinesis with diminished ejection fraction of 35–39% and PASP of 50–55 mmHg. She was admitted and transfused 8 units of blood. Bleeding was controlled and hemoglobin remained stable at 9 g/dL with resolution of her dyspnea. The gynecology service evaluated her and recommended an abdominal hysterectomy at a later date. At the time of discharge a repeat echocardiogram showed that the ejection fraction had recovered to 40–44% and only the LV apex was severely hypokinetic while other walls had preserved contractility. PASP fell to 30–35 mmHg.

IMPLICATIONS/DISCUSSION: A critically low hemoglobin could be defined as the level at which peripheral, microcirculatory, and coronary compensation fail to provide adequate oxygenation to tissues, most importantly the brain and the heart. Beyond this limit, ischemic myocardial infarction and multi-organ failure would follow. This level has not been determined, but experimental data estimates it to be between 2 and 5 g/dL based on body oxygen demand. Carson et al found that in patients with a postoperative hemoglobin level <8 g/dL the odds of death increased 2.5 times for each gram decrease in hemoglobin after adjusting for age, cardiovascular disease, and Acute Physiology and Chronic Health Evaluation (APACHE II) score. Another study done on post-operative patients who declined blood transfusion explored mortality with hemoglobin levels and found that 100% of patients with a hemoglobin between 1.1–2 g/dL and 54.2% of those between 2.1–3 g/dL died in the hospital within 30 days. Some of the determinants of survival could include age, sex, race, absence of coronary artery disease, LV systolic function, rate of blood loss, body temperature etc. However, these patients need to be studied further to establish the factors of survival. In addition, acute decompensated heart failure can occur in severe anemia, without coronary artery disease. This is due to the high output cardiac state as well as ischemia from the anemia itself. The heart failure resolves, to some extent, with blood transfusion as the high output state is corrected. In our thorough literature review, we only found cases of Jehovah's witnesses with hemoglobin levels of 2–4 g/dL who survived with such profound anemia.

HEMOPHILIAC BLEED K. Lee[1]; T. Majumdar[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 205791)*

LEARNING OBJECTIVES: 1. Recognize the manifestations and differentials of diffuse alveolar hemorrhage syndrome. 2. Recognize the clinical features and treatment of Wegeners Granulomatosis 3. Understand the limitations of a Chest X ray as a diagnostic tool in early interstitial disease. 4. Recognize pulmonary hemorrhage is an unusual site of bleeding in hemophiliacs.

CASE INFORMATION: A 26 y/o Caucasian male with history of Hemophilia A (secondary to de novo mutation) and transfusion related Hepatitis C presented with worsening exertional dyspnea, fatigue and a dry cough of 2–3 weeks. His dyspnea had rapidly progressed and was Grade 3 on admission. He denied any systemic complains except fatigue. The family history was remarkable for an uncle with a diagnosis of Wegener's granulomatosis. Physical examination was unremarkable except for pallor and 3/6 ejection systolic murmur. Initial workup revealed an acute drop in his hematocrit. The patient had no symptoms of blood loss and abdominal CT was negative for retroperitoneal bleed. He was not thrombocytopenic but had low factor VIII levels. He was transfused with PRBC and factor VIII. To better evaluate his worsening respiratory complaints in context of a normal CXR, a chest CT was ordered. It revealed diffuse groundglass opacities bilaterally. He then underwent a diagnostic bronchoscopy with bronchoalveolar lavage which was suggestive of diffuse alveolar hemorrhage. Bronchoalveolar lavage fluid was negative for an infectious etiology and cytology showed sideroblasts and RBCs consistent with hemorrhage. Workup included ANCAs, anti GBM, ANA, complements and cryoglobulins. C-ANCA and PR3 were positive. The differential diagnoses were Wegener's vs. Hepatitis C capillaritis. He then underwent a kidney biopsy which showed mesangioproliferative glomerular lesions with scarring and periglomerular fibrosis and was negative for immune complex deposition by imunofluorescence. A definitive diagnosis of Wegener's was made and immunosuppressive therapy with rituximab and high dose steroids was begun. Currently, the patient is doing well and tolerating therapy.

IMPLICATIONS/DISCUSSION: Alveolar hemorrhage is uncommon in hemophiliacs and its occurrence warrants work-up of a different etiology. Diffuse alveolar hemorrhage syndrome is characterized by bleeding into alveolar spaces due to disrupted alveolar-capillary membrane. Differential diagnosis is broad and includes autoimmune diseases, antiphospholipid antibody syndrome; pulmonary infections; toxic exposures; drug reactions; bone marrow and solid organ transplantation; idiopathic pulmonary hemosiderosis, cardiac disorders such as mitral stenosis and coagulation disorders. Bronchoalveolar lavage plays a key role in diagnosing DAH but is limited in identifying the underlying etiology. Further work up, treatment, and long term prognosis depends on the suspected etiology. Wegener's granulomatosis is a systemic vasculitidis affecting mainly the kidneys, lungs and upper respiratory tract. Diagnosis is made through combination of symptoms, physical examination, laboratory tests, imaging, and biopsy of skin, nose, sinus, lung, or kidney. A positive blood test for ANCA is supportive but not diagnostic. Treatment usually includes corticosteroids and immunosuppressive drugs like cyclophosphamide or methotrexate. Improvement usually occurs within days to weeks.

HEPATIC ENCEPHALOPATHY: RARE MANIFESTATION OF CHOLESTATIC VARIANT OF STAUFFER SYNDROME K. Baradhi[1]; A. Shah[1]; J. Rogers[1]; S. Chalasani[1]; C. Snigda[1]. [1]University of Illinois at Peoria, Peoria, IL. *(Tracking ID # 203733)*

LEARNING OBJECTIVES: Familiarize with Stauffer syndrome and its variants. Recognise Hepatic Encephalopathy as a rare manifestation of Stauffer syndrome.

CASE INFORMATION: A 36-year-old male presented with 2 month history of fluctuating mental status and jaundice. Examination revealed an icteric patient with no ascites, hepatosplenomegaly or asterixis. Patient was disorientated, indifferent, apathetic with prolonged response time, defective short term memory and intact long term memory. His physical exam was remarkable only for hyperreflexia. CT (head), MRI (brain) and CSF studies were all negative. EEG was suggestive of metabolic encephalopathy. Liver function tests showed total bilirubin 18.6 mg/dl, conjugated bilirubin 14.5 mg/dl, AST 1619 U/L, ALT 2063 U/L, alkaline phosphatase 220 U/L, gamma-glutamyl transpeptidase 90 U/L, albumin 3.2 g/dl, prothrombin time 15 sec, INR 1.3 and ammonia level 51umol/L. Extensive workup for his hepatic dysfunction including antinuclear antibody, antimitochondrial antibody, anti-smooth muscle antibody, antineutrophil cytoplasmic antibody, serologies for viral hepatitis, cytomegalovirus, epstein-barr virus, HIV, acetaminophen level, alpha-1 antitrypsin antibody, iron studies, serum copper, serum ceruloplasmin and alpha fetoprotein was normal. Liver biopsy showed histological features consistent with panacinar cholestatic hepatitis with giant cell transformation without any specific findings. Ultrasound of the abdomen showed a 10.8 cm left retroperitoneal mass. Liver was normal with no intrahepatic dilatation or focal masses. MRI/MRA of abdomen showed 10 cm mass in the left kidney with extension into the left renal vein (no extension into IVC) and local nodal spread compatible with stage IIIC renal cell carcinoma. Metastatic workup was negative. Patient underwent left radical nephrectomy (biopsy showing clear cell renal cell carcinoma) with rapid resolution of his clinical symptoms and liver chemistry.

IMPLICATIONS/DISCUSSION: Stauffer's syndrome is a rare paraneoplastic manifestation of renal cell carcinoma (RCC) characterized by elevated alkaline phosphatase, erythrocyte sedimentation rate, alpha 2-globulin, gamma glutamyl transferase, thrombocytosis, prolongation of prothrombin time and hepatosplenomegaly, in the absence of hepatic metastasis and jaundice. Even though Stauffer's syndrome is classically anicteric, icteric variant which presents as cholestatic jaundice is increasingly being reported in the literature. This case illustrates a patient who presented with hepatic encephalopathy as a result of

cholestatic variant of Stauffer's syndrome. This is considered a rare entity per literature.In a patient presenting with altered mental status and cholestatic jaundice without recognizable etiology, further evaluation for an underlying malignancy such as renal cell carcinoma should be considered. Stauffer's syndrome is one of the diverse presenting manifestations of "the internist's tumor" and its recognition may lead to early diagnosis and improved outcome.

HEPATOCELLULAR CARCINOMA (HCC) WITH INVASION OF THE INFERIOR VENA CAVA AND RIGHT ATRIUM: DIAGNOSIS USING ENDOVASCULAR TISSUE SAMPLING. A. Kothari[1]; M. Moehlen[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203883)*

LEARNING OBJECTIVES: 1. Identify the complications of hepatocellular carcinoma. 2. Recognize the clinical presentation of inferior vena cava and right atrial tumor invasion.
CASE INFORMATION: A 50-year-old man with chronic hepatitis C presented with six months of worsening dyspnea, fluid retention and a thirty-pound weight gain. He noted no other symptoms. He had been diagnosed with cirrhosis in 2005, and was referred for a hepatology evaluation. Because of Hurricane Katrina, however, he was lost to follow-up. He was an obese man, with a protuberant abdomen, and 3+ pitting edema to the thigh. He had elevated JVP, and a soft S1 on cardiac examination; there were no murmurs. The lungs were clear. The remaining examination was normal. Computed tomography of the chest and abdomen showed an enhancing mass in the right lobe and a mass occupying most of the right atrium (Figure 1a and 1b). Echocardiogram demonstrated a right atrial mass with protrusion into the right ventricle during diastole. Venography of the inferior vena cava (IVC) showed a thrombus within the IVC. Biopsy of the thrombus revealed well differentiated HCC. The patient was referred to hospice.
IMPLICATIONS/DISCUSSION: Hepatitis C is a common co-morbidity encountered by the general internists. While most patients remain asymptomatic for many years, over twenty percent will develop cirrhosis. Five to ten percent will develop hepatocellular carcinoma, the most common primary malignant tumor of the liver. The risk of hepatocellular carcinoma is ten-fold higher in patients who also consume alcohol, and alcohol cessation is a central tenet of patient counseling for those who have hepatitis C. While the causes of dyspnea and peripheral edema are numerous, intravascular invasion of hepatocellular carcinoma should be considered early in the diagnostic evaluation of patients with hepatits C. MRI is the preferred diagnostic test, though distinguishing a benign thrombus from tumor invasion can be difficult based on imaging alone. Endovascular tissue sampling permits a rapid and accurate diagnosis. Up to fifty percent of patients with HCC have extrahepatic metastases at autopsy with the lungs and regional lymph nodes being the most common sites. Metastasis/transvenous extension to the right atrium occurs in up to three percent of cases . While endovascular invasion is almost also a harbinger of fatal disease, recognizing this complication of hepatocellular carcinoma can substantially reduce morditity and preserve quality of life.

HICKAM'S DICTUM B. Gammon[1]. [1]Tulane, New Orleans, LA. *(Tracking ID # 203881)*

LEARNING OBJECTIVES: 1. Recognize potential for multiple concomitant opportunistic infections immunosuppressed HIV patients. 2. Identify clinical presentation of cryptococcal meningitis and cytomegalovirus retinitis. 3. Identify treatment of cryptococcal meningitis and cytomegalovirus retinitis.
CASE INFORMATION: 34 year-old woman presented with 2 days of headache, nausea, vomiting and bilateral eye pain. Emesis was nonbilious, non-bloody and precipitated by ingestion of solids and liquids. She had a fever of 38.3 °F, a heart rate of 125 b/min.. and a bp of 100/60 mmHg. Passive flexion of the neck elicited pain. She had a normal S1 and S2 without murmurs or rubs. Her lungs were clear to auscultation. She had slight epigastric tenderness and normal bowel sounds. An exam of the skin and nails revealed no rashes. An LP revealed a normal opening pressure. Exam of the cerebrospinal fluid further revealed a glucose of 60, a protein of 40, 10 red blood cells and 100 white blood cells composed of 80% lymphocytes. India ink stain was positive, and serum cryptococcal antigen was positive at 1:1024. Her CD4 count was 5 cells/mm3. She was initiated on intravenous liposomal amphotericin B and flucytosine. Her headache and nausea steadily improved. On the third day of initiation, she complained of persistent ocular pain, scotoma, and decreased visual acuity. The retinal examination revealed evidence of active CMV. PCR analysis of a tissue biopsy was positive for cytomegalovirus. She was initiated on intravitreal foscarnet injections and intravenous ganciclovir, to which she responded. Serial retinal examinations revealed resolution of lesions, and she subsequently regained visual acuity.
IMPLICATIONS/DISCUSSION: Complications of HIV are encountered by the general internist, the majority being due to opportunistic infections such as CMV. Once a formal diagnosis of HIV has been made, it is important that the internist maintain fidelity to the specific guidelines for opportunistic infection prophylaxis dependant upon the level of immunosuppression. Even after the advent of HAART, CMV remains an important opportunistic infection in patients with CD4 counts below 100. Patients at risk for CMV retinitis should be thoroughly questioned regarding visual complaints. Patients should be promptly evaluated by dilated ophthalmoscopy. Pathognomonic ophthalmologic findings include white or gray-white areas of retinal necrosis with associated hemorrhage. The lesions typically begin peripherally and progress centripetally along retinal vessels. The diagnosis is generally established on clinical grounds, but if the diagnosis remains in question, biopsies should be taken and analyzed by PCR for viral DNA. Given the ubiquitous nature of the virus, CMV serum positivity does not correlate with active disease. Standard therapy for CMV retinitis has long been induction with intravenous ganciclovir along with twice-weekly intravitreal injections of either ganciclovir or foscarnet. Clinical regression of lesions is typically observed after 2–3 weeks of induction therapy. Lifelong maintenance therapy is suggested, although recent studies have demonstrated that patients with CD4 counts of greater than 50 for 3 months can discontinue maintenance therapy without adverse events. The propensity of HIV/AIDS patients to develop multiple concomitant opportunistic infections mandates a through history and physical exam with particular attention paid to cutaneous and ophthalmogic findings.

HIGH OUTPUT HEART FAILURE SECONDARY TO LARGE ARTERIOVENOUS FISTULA W. Wu[1]; B. Young[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 206038)*

LEARNING OBJECTIVES: 1. Recognize large arteriovenous fistula as a cause of high output heart failure in patients with kidney disease. 2. Review the physiology and treatment of high output cardiac failure due to an arteriovenous fistula.
CASE INFORMATION: 43 year old gentleman with history of cadaveric renal transplant in 2005 secondary to IgA nephropathy, complicated by 2 episodes of acute cellular rejection, hypertension and hepatitis B, presented to clinic with new onset lower extremity edema for one week. Complaints of dyspnea prompted an EKG showing atrial flutter with variable block and a rate of 101. The patient was admitted to the hospital for further workup. He did not have any fevers, chills, chest pain, palpitations, or orthopnea. Recently, he ate more Chinese food than usual. He denied any dysuria, hematuria or decreased urine output. Prior to his transplant, a left upper extremity arteriovenous fistula (AVF) was placed in 2003 for hemodialysis. Since his transplant, he has not required hemodialysis, though the AVF had remained patent. In the past, he heard humming from the fistula. On physical exam, he had a blood pressure of 154/76 and an irregular heart rate of 98. Of significance, he had a jugular venous pressure of 11 cm of water, and 1+ pitting edema to the mid shins. On his left upper extremity he had a large tortuous aneurismal AVF with a thrill, as well as several tributary veins, continuing from the antecubital space to his left shoulder. On neck auscultation, it had a venous hum that was obliterated upon compression of the AVF. Laboratories showed creatinine 1.8 (baseline), BNP 748, albumin 3.2, and TSH 1.2. His chest X-ray showed cardiomegaly. Echocardiogram showed normal systolic ejection fraction, with left ventricular hypertrophy, biatrial enlargement, and a high normal pulmonary artery pressure. Given his clinical presentation and findings of heart failure, most likely the patient had high output heart failure secondary to his large arteriovenous fistula. He underwent a AVF take down by vascular surgery. Immediately post-surgery, his heart rate markedly improved to 60 bpm and dyspnea lessened.

IMPLICATIONS/DISCUSSION: Arteriovenous fistulae are considered the optimal hemodialysis access given their greater blood flow, superior patency, and lower risks of infection. Although a rare complication, large arteriovenous fistulae can lead to high output heart failure in susceptible patients. Risk factors include underlying cardiac or pulmonary disease such as systemic or pulmonary hypertension, or left ventricular hypertrophy. In the setting of an arteriovenous fistula, there is a decrease in peripheral resistance, leading to increased cardiac output. Arteriovenous fistula blood flows can often reach in excess of 1.5 L/min. Increased blood volume return along with activation of the renin-angiotensin-aldosterone axis leads to increased right atrial pressure, pulmonary arterial pressure and left ventricular end diastolic pressure. Over time this causes left ventricular dilation, with a decline in ejection fraction and heart failure. Previous studies have shown improvement of cardiac function after ligation of arteriovenous fistulae. In renal transplant recipients with high output heart failure, closing arteriovenous fistulae may lead to regression of left ventricular hypertrophy and mass. However high output heart failure secondary to arteriovenous fistula continues to be underdiagnosed and patients with large upper extremity fistulae are at highest risk.

HOUSECALLS AND DEPRESSION: WORKING WITH WHAT YOU'VE GOT H.S. Kao[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204613)*

LEARNING OBJECTIVES: This case demonstrates shortcomings in mental health services available to homebound patients. Learners will be able to 1) describe barriers to mental health care services for homebound patients, and 2) recognize options for depression treatment when faced with such barriers.
CASE INFORMATION: 83yo bedbound woman with depression. She was bedbound after multiple osteoporotic fractures. She lived with her husband, adjacent to her son and daughter-in-law who both worked full-time. Despite medications, regular social work (SW) and physician (PMD) visits, her depression worsened. She refused phone support and friendly visitors. Her husband was exhausted, stressed, and exhibiting signs of depression himself. The family only had a part-time caregiver to relieve him. The patient began refusing food and pills, and repeatedly expressed her wish to die. The PMD could not find a psychiatrist or psychologist who made housecalls. The team discussed inpatient psychiatric care with the patient. Of 10 area psychiatric units, only 2 accommodated bedbound patients but only 1 took elective admissions. The insurance plan denied authorization for admission, as the patient had not had requisite outpatient psychiatric care. The insurance plan scanned their entire network but could not find a single psychiatrist who made housecalls. The insurance plan argued, "She is bedbound so she can't kill herself." The PMD continued to advocate for the patient while caring for the patient and her family. Two independent psychiatrists reviewed the case and recommended admission. The insurance finally agreed to inpatient care. The patient was admitted for interdisciplinary care. Her mood lifted and the family dynamic improved while she was hospitalized. At discharge, her team explained that full treatment required not only medication but also a comprehensive approach with environmental changes and a full-time hired caregiver. Unfortunately, attempts to secure appropriate full-time caregivers fell through. The patient's depression, drug refusal, and the family tensions returned. The SW and PMD increased the intensity of visits. The PMD also began actively addressing the husband's well-being each visit. Two months later, the patient was taking her medications daily. The family, prompted by the husband's new diagnosis of bladder cancer and the team's steady encouragement, renewed efforts to hire a full-time caregiver.
IMPLICATIONS/DISCUSSION: Up to 26% of home care patients have depression. The U.S. has 1600 of the 5000 geropsychiatrists needed to care for elders with mental illness. This case illustrates system barriers to providing mental health care to homebound patients: insurance misconceptions of these patients' needs; a limited workforce with geriatric expertise or home visit practice; few psychiatric units that accommodate bedbound patients; and the need for interdisciplinary interventions to care for complex homebound patients. The time commitment required for the degree of advocacy in this case is rarely sustainable for most providers. Until care systems improve, providers must maintain a high level of vigilance and creativity to effectively meet the needs of their frailest patients.

HOW DEEP CAN REFRACTORY CELLULITIS BE ? J.K. Randhawa[1]; P. Hari[1]; K. Pfeifer[1]; J. Ferreira[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 204899)*

LEARNING OBJECTIVES: 1) Recognize that superficial thrombophlebitis may be mistaken as refractory cellulitis. 2) Recall that superficial thrombophlebitis may be a sign of an occult systemic malignancy.
CASE INFORMATION: A 44-year-old woman presented with bilateral lower extremity cellulitis not improving despite outpatient therapy with cephalexin, sulfamethoxazole-trimethoprim, clindamycin and vancomycin over a period of 30 days. A bilateral lower extremity ultrasound at admission showed superficial thrombophlebitis extending into the greater saphenous vein but no deep venous thrombosis (DVT). She received intravenous unfractionated heparin (UFH) infusion. A systemic hypercoagulability work-up was negative. Despite therapeutic partial thromboplastin times (PTT) on UFH, she developed new superficial thromboses. A diagnosis of migratory thrombophlebitis (Trousseau's syndrome) was made and a CT scan performed to rule out systemic malignancy. Mediastinal and left hilar adenopathy on CT led to a bronchoscopic biopsy of a subcarinal lymph node showing high grade non-small cell lung carcinoma (NSCLC). Further staging investigations confirmed a diagnosis of Stage IIIA NSCLC. The patient was discharged on enoxaparin 1 mg/kg twice daily. Two days later, she was readmitted with pulmonary emboli and subclavian vein thrombosis. On higher doses of enoxaparin twice daily and systemic chemotherapy, she has now completed 8 months of follow up with no new thromboembolic phenomena.
IMPLICATIONS/DISCUSSION: Trousseau's syndrome refers to spontaneous thrombotic episodes preceding the diagnosis of or appearing concurrently with systemic malignancy. Superficial thrombophlebitis associated with this syndrome can be mistaken for resistant cellulitis. Randomized trials have shown the presence of occult cancer in 13% of the patients with acute idiopathic venous thromboembolism. A proposed cause for these thrombotic events is exaggerated fluid-phase thrombosis due to mucin-producing carcinoma associated tissue factor-, platelet- or endothelium-based microangiopathy. It is also thought that the conversion of factor VII to VIIa in complex with tissue factor triggers the production of other coagulation-related proteases, particularly factor Xa and factor IXa, which then work with factor Va to generate thrombin. Certain activated oncogenes (K-ras, MET) and inactivated tumor suppressor genes (p53) have also been postulated to promote hypercoagulability. Although the primary approach to treating Trousseau's syndrome is to eliminate the causative tumor, heparins have been the anticoagulant of choice. Heparins are superior since they have complex non-overlapping multiple biologic actions including the ability to inhibit platelet activation. LMWHs, as compared to UFHs, have a lower incidence of HIT and more predictable dose response. Randomized trials suggest superiority for LMWH preparations over UFH and oral anticoagulants. In our patient, it is unclear whether it was the increase in enoxaparin dose or tumor response to chemotherapy which prevented further thrombosis.

HOW HIGH'S THE WATER R. Beck[1]; B. Rhodes[2]; C. Miller[1]. [1]Tulane University, New Orleans, LA; [2]Tulane, New Orleans, LA. *(Tracking ID # 203854)*

LEARNING OBJECTIVES: 1) Identify the diagnostic evaluation of squamous cell carcinoma. 2) Recognize the pathogenesis and prognosis of squamous cell carcinoma of unknown origin.
CASE INFORMATION: A 54 year-old woman presented with six months of right lower extremity swelling and intermittent pain. The swelling began after three international flights and had progressively worsened over the previous months. Over the past six months, she had been diagnosed with cellulitis in the same leg and had a non-diagnostic evaluation for deep venous thrombosis. Her vital signs were normal, with normal oxygenation. Her heart examination was normal, and her lungs were clear. The JVP was normal. The abdominal examination was normal with no evidence of ascites or hepatomegaly. She had 3+ edema in the right lower extremity that extended from the foot to the right inguinal ligament. There was a palpable cord over the right greater saphenous vein and tenderness over the superficial femoral vein, but no erythema, hyperpigmentation or increase in varicosities. There was no palpable lymphadenopathy. Based upon this examination, a Doppler ultrasonography was obtained. A partial thrombus was noted in the

superficial femoral and deep saphenous veins as well as a 3 cm by 2 cm mass occluding the external iliac vein. Further imaging studies, including CT and MRI, confimed the presence of the mass, with no additional information. A CT guided biopsy of this mass revealed squamous cell carcinoma. Pap smear, mammogram, proctoscopy, and skin exam were negative. CT of the chest, abdomen, and pelvis and a full-body PET scan were negative for evidence of further disease. The mass was resected and she is currently being treated with radiation and adjuvant chemotherapy.

IMPLICATIONS/DISCUSSION: Peripheral edema is a common presenting complaint confronting the general internist. In our patient, an ultrasound confirmed the diagnosis of deep vein thrombosis. Because of the extension of the edema to the pelvis, however, additional imagin was obtained to exclude additional causes of obstruction. Based upon this physical examination clue, the primary case of the DVT and the edema was identified in the form of the squamous carcinoma. Even with extensive evaluation, the primary tumor goes undiagnosed in twenty to forty percent of cases. There are several proposed theories on how this occurs: 1) early metastasis before detection of the primary, 2) involution of the primary after metastasis due to an immunologic response, and 3) metastasis acquisition of pro-angiogenesis traits where primary tumor growth was limited without those traits. In women, the initial evaluation for metastatic squamous cell carcinoma includes laboratory data, a careful Pap smear, screening mammogram and further investigation as guided by the results of these tests. It is also reasonable to obtain a CT as well as a PET scan if the primary is not identified after the initial investigations. Because squamous cell carcinoma tends to spread contiguously and lymphatically, all nearby tissues with squamous epithelium need to be explored. Because of the inguinal location, further investigation of the cervix and anus was necessary. An Internist, with sound methods and a thorough approach, must still guide the patient through the appropriate work-up for the best chance at a proper diagnosis.

HUMAN MONOCYTOTROPIC EHRLICHIOSIS: AN EVASIVE PATHOGEN OF WOODLAND AMERICA R. Villavicencio[1]; A. Munro[2]. [1]Virginia Commonwealth University, Glen Allen, VA; [2]Virginia Commonwealth University, Richmond, VA. *(Tracking ID # 204831)*

LEARNING OBJECTIVES: 1. To recognize the clinical presentation and unique physical exam and laboratory findings of Ehrlichiosis 2. To understand the epidemiology of Ehrlichiosis in order to aid in diagnosis 3. To recognize the possible severe complications associated with untreated Ehrlichiosis

CASE INFORMATION: Human monocytotropic ehrlichiosis (HME) is rare with an incidence of 0.1% in the United States. Symptoms are nonspecific and mimic a viral illness, presenting a diagnostic challenge. A high index of suspicion must be maintained in endemic areas and empiric treatment initiated when the presentation is suggestive of infection. A 59-year-old White man presented with six days of fever, chills, drenching night sweats, myalgias, arthralgias, nonproductive cough, anorexia, and diarrhea. Blood pressure was 94/67 mmHg, heart rate 100 bpm, respirations 20 per minute, and temperature of 100 °F. He reported living in a wooded area southwest of Richmond, Virginia. Notable labs included leukopenia of 2,500 white blood cells per μL with 4% lymphocytes, thrombocytopenia of 34,000 platelets per μL, elevated transaminases with AST of 298 U/L and ALT of 145 U/L, and hyponatremia with serum sodium of 127 mEq/L. Empiric doxycycline 100 mg orally every 12 hours was started. Twelve hours after admission, the patient became febrile to 102.8 °F. Blood pressure was 88/52 mmHg and room air oxygen saturation was 88%. On exam, a fine, truncal, sandpaper-like, maculopapular rash had erupted consisting of small, discrete lesions approximately 1 mm in diameter superimposed on a background of diffuse erythema from recent sun exposure. Labs revealed creatinine of 2.1 mg/dL and leukocytes of 2,200 (1% lymphocytes, 39% bands). He developed bradycardia with a heart rate in the 40's. A trans-thoracic echocardiogram (TTE) showed an ejection fraction (EF) of 40% with global hypokinesis. Over the next 48 hours the patient recovered with continued doxycycline and supportive care. Repeat TTE at that time showed an EF of 55% with normal motility. Several weeks later, pending serology returned positive for Ehrlichia chaffeensis IgG and IgM antibody titers.

IMPLICATIONS/DISCUSSION: HME is transmitted by the tick, Amblyomma americanum. Infection occurs during April to September in the Mid-Atlantic, Southeastern, and southern Midwestern United States. Symptoms include fever (97%), malaise (84%), headache (81%), myalgias (68%), and a maculopapular rash of the truck and extremities (40%). Labs include elevated transaminases (90%), lymphopenia (60–74%), and thrombocytopenia (72%). In this case, definitive diagnosis was only made after doxycycline was completed. HME can potentially lead to septic shock, acute respiratory distress, and meningoencephalitis. It is imperative the General Internist be able to recognize this presentation and act promptly with empiric antibiotic therapy to avoid these severe complications.

HYPERCALCEMIA AND RENAL FAILURE: A RARE PRESENTATION OF SARCOIDOSIS U. Ghaffar[1]; A. El Abbassi[1]; D. Youssef[1]; E. Gertson[1]; J.L. Pollitte[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203801)*

LEARNING OBJECTIVES: Recognize that sarcoidosis can present with renal failure and severe hypercalcemia.

CASE INFORMATION: A 60-year-old white man was admitted with 7 months of nausea, vertigo, headaches, increased thirst, polyuria, constipation, decreased appetite and weight loss of 40 pounds. There was no history of visual changes, Vitamin D supplement or antacid use. PMH: CAD, CHF, HTN, DM, hyperlipidemia, GERD, asthma, nephrolithiasis and depression. He was a nonsmoker and nondrinker. Medications: atenolol, lisinopril, simvastatin, albuterol, omeprazole, paroxetine. Examination: vitals were normal and his exam was normal except for diffuse abdominal tenderness without organomegaly. Specifically there was no rash, arthritis, edema or lymphadenopathy. Initial labs and x-rays: Hb: 13.1, WBC: 4.9, platelets: 269 k, Na: 139, K: 4.0, Calcium: 14.0, urea: 35, creatinine: 3.0. CXR: stable cardiomegaly with interstitial lung disease. Abd x-rays: old calcified granulomas of the spleen. Head CT and skeletal survey were negative for any lytic lesions. Further workup revealed PTH level of <3, ESR: 30, ACE level: 52, 25-OH-Vitamin D level: 14.6 (30–80). UPEP and SPEP were both unremarkable. Sputum was negative for AFB and fungal stains, ANA and rheumatoid factor were normal. These results prompted a chest CT which showed bilateral upper lobe ground glass infiltrates and mediastinal lymphadenopathy. Bronchoscopy with biopsy revealed noncaseating granulomas with giant cell macrophages and chronic inflammation suggestive of sarcoidosis. Hospital course: He was treated initially with IV fluids, calcitonin and pamidronate with normalization of his calcium levels and renal function, had baseline PFTs performed and was started on steroid therapy and did well.

IMPLICATIONS/DISCUSSION: This patient's clinical history and initial lab results were very suspicious for multiple myeloma or metastatic cancer given his weight loss, hypercalcemia and renal failure. When workup was unrevealing initially and small mediastinal lymph nodes were noted, combined with an elevated ACE level, sarcoidosis was sought and confirmed. Sarcoidosis is a multisystem disorder of unknown origin characterized by the presence of noncaseating granulomas in multiple organs (lungs 95%, skin 16%, lymphatics 15%, eyes 12%) which can rarely present with symptomatic hypercalcemia and renal insufficiency. Renal insufficiency was seen in less than 1% of patients with sarcoidosis in two large series while hypercalcemia was present in 10–20% of patients. The renal dysfunction, when present, is most commonly due to the hypercalcemia leading to nephrocalcinosis; however, reversible dysfunction due to hypovolemia and vasoconstriction may also contribute. Hypercalcemia in these patients causes afferent arteriolar vasoconstriction, decreased renal blood flow, and thus decreased GFR. An additional cause of renal failure in sarcoidosis is granulomatous interstitial nephritis which has been reported approximately in 1/3 of such cases. The disturbance in calcium metabolism in sarcoidosis appears to be related to an increase in hydroxylation of 25-OH-vitamin D caused by an excess of 1-alpha hydroxylase production in the granulomas. In conclusion, physicians should keep sarcoidosis in mind in the evaluation of patients with acute renal insufficiency and hypercalcemia when cancer, hyperparathyroidism and other common causes have been ruled out.

HYPERCALCEMIC CRISIS: RARE MANIFESTATION OF PRIMARY HYPERPARATHYROIDISM B. Gakhar[1]; H. Moturi[2]. [1]Allegheny General Hospital, Pittsburgh, PA; [2]Allegheny General Hospital,, Pittsburgh, PA. *(Tracking ID # 205691)*

LEARNING OBJECTIVES: 1. To differentiate Primary Hyperparathyroidism from Hypercalcemia of malignancy. 2. Review treatment options of hypercalcemic crises.
CASE INFORMATION: An 83 yr old white male with Past medical history of Pagets disease, HTN and prostate cancer under remission, presented to the hospital with complaints of new onset confusion, fatigue, difficulty ambulating and multiple falls. He was taking Risedronate for Pagets disease and was a non smoker. Physical Exam revealed a Blood Pressure of 160/90 mmHg, and he was oriented to self only; rest of the exam was normal. CT head on admission revealed a new 7 mm subdural hematoma which was conservatively managed. Laboratory data showed BUN: 57 mg/dl, Creatinine: 3.3 mg/dl (baseline-1.2), Serum Calcium (Ca): 22 mg/dl, Ionized Ca: 9.0, Phosphorous: 2.3 mg/dl, Magnesium 2.3 mg/dl, EKG had multiple premature complexes and short QT interval. Parathormone intact (iPTH) level: 1551 pg/ml (high), 25 (OH) Vitamin D: 17 ng/ml, Albumin: 3.6 g/dL, Alk Phos: 84U/L. Thyroid function tests: normal. SPEP/ UPEP: negative for multiple myeloma. Parathormone related peptide (PTHrP): <0.2 pmol/L. Bone scan was negative. CT neck: 1.1 cm soft density located in posterior superior thyroid lobe, suggesting possible parathyroid adenoma. For the hypercalcemia patient was treated with aggressive hydration, Calcitonin, Pamidronate and lasix IV. Within a week his Ca came down to 11 mg/dL, mental status improved and acute renal failure resolved. Sistamibi scan was done which revealed a dominant enlarged parathyroid adenoma on right thryroid lobe. Diagnosis of Primary Hyperparathyroidism was made. MEN syndromes were ruled out. Surgery i.e. right superior parathyroidectomy was done (weight: 1420 mg) on day10 of hospitalization. Ten min after the surgery, iPTH level fell to 147 pg/ml, and was down to 43 pg/ml at discharge. Pathology was consistent with primary parathyroid adenoma. Ca levels came down to 8.4 mg/dl post resection and stayed in the same range at the 6 month follow up. His confusion and multiple falls had completely resolved.
IMPLICATIONS/DISCUSSION: A hypercalcemic crisis (Ca>14 mg/dL) in a patient above the age of 65 is secondary to malignancy unless proven otherwise. In an extensive review of the world literature by Bayat-Mokhtari and colleagues, only 128 cases of hypercalcemic crisis from primary hyperparathyroidism are described. The age related incidence of primary hyperpara in pts >79 yrs is 1:1445. We considered this diagnosis because his prostate cancer (although associated with hypercalcemia) was in remission, there were no bony metastasis, PTHrP was absent, and iPTH was excessive. The sudden drop in iPTH and calcium levels noted minutes after the parathyroid resection and biopsy report confirmed a diagnosis of Parathyroid adenoma. Biopsy ruled out parathyroid cancer. Delay in treatment leads to fatal cardiac, renal and neuromuscular complications. Early identification of the etiology and aggressive medical and/or surgical management are essential to decrease mortality

HYPEREOSINOPHILIC SYNDROME COMPLICATED WITH MULTI-ORGAN FAILURE I.T. Aldoss[1]; T. Tashi[1]; P. Silberstein[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 203788)*

LEARNING OBJECTIVES: 1. Report a case of Hypereosinophilic syndrome (HES) complicated by multi-organ failure. 2. Recognize the definition, manifestations, and treatments of HES.
CASE INFORMATION: This is a 54 year old male who presented with angina-like chest pain for 1 week. He also had a painless loss of vision in the right eye, secondary to central retinal artery occlusion, 4 days prior to the admission. Blood workup at admission showed WBC count of 18,000 per millimeter with an absolute eosinophil count of 8350. Cardiac evaluation revealed ischemic changes on EKG, elevated troponin, and depressed ejection fraction. Bone marrow biopsy showed eosinophilia, while molecular cytogenetic study and FISH were negative for FIP1 L1-PDGFRA (F/P) fusion. The patient underwent cardiac catheterization and biopsy which revealed normal coronaries and eosinophilic infiltration of the myocardium. Computed Tomography (CT) scan of chest revealed multifocal pulmonary opacities. Transbronchial biopsy showed intravascular and interstitial eosinophilia. He was started on intravenous steroid and then switched to oral prednisone. After starting the steroid therapy, the patient experienced clinical improvement, his ejection fraction improved, and his eosinophil count went down to normal.
IMPLICATIONS/DISCUSSION: Hypereosinophilic syndrome (HES) is a rare disease marked by persistent blood eosinophilia (>1500/mcL) that is associated with eosinophil-mediated multiple organs damage. Diagnosis relies on the presence of idiopathic sustained eosinophilia for more than six months associated with signs and symptoms of end-organ damage, or idiopathic eosinophilia responsible for end-organ damage in which treatment is initiated early enough to prevent further damage before the six month duration criteria can be met. Multiple organs reported to be involved in HES include the skin, heart, lungs, gastrointestinal tract, and peripheral and central nervous systems. A unique variant of HES is characterized by the presence of (F/P) fusion, patients with F/P more likely to develop acute leukemia, heart involvement, and disease related morbidity and mortality. Prognosis depends on the development of irreversible heart failure, as well as malignant transformation. Glucocorticoids are the usual initial therapy in HES with end-organ damage, except in patients with F/P mutation, where imatinib mesylate is the recommended first line agent.

I "SAW" IT IN HIS EYES: A CASE OF JAUNDICE SECONDARY TO SAW PALMETTO. L.I. Shapiro[1]; R. Stark[2]. [1]Albert Einstein College of Medicine/Montefiore Medical Center, White Plains, NY; [2]Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY. *(Tracking ID # 205479)*

LEARNING OBJECTIVES: 1. To understand a potential adverse side effect of the herbal supplement, saw palmetto.
CASE INFORMATION: A 49 year-old African American male with a past medical history of hypertension presented to our clinic with a six day history of jaundice and scleral icterus. He denied fever, abdominal pain, diarrhea, nausea, pruritis, recent travel or ingestion of alcohol or acetaminophen. At the time, the patient was taking an over-the-counter (OTC) supplement, saw palmetto, commonly used to treat symptoms of benign prostatic hypertrophy (BPH), although he denied any symptoms of prostate disease. On exam he was afebrile, BP: 152/106, P: 80, RR: 12. The patient was notably jaundiced with marked scleral icterus. The liver was not palpable below the costal margin, and there was no splenomegaly or ascites. There was an absence of petechiae, telangectasias, or palmar erythema. Initially drug-induced intrahepatic cholestatis, viral or autominnune hepatits, and primary sclerosing cholangitis were all considered on the differential diagnosis. He was advised to stop taking saw palmetto and laboratory investigations and imaging was obtained. The total bilirubin was 5.8, direct bilirubin 3.5, alkaline phosphatase 377, SGOT 167, SGPT 90, GGT 2865, albumin 2.9, total protein 6.7. All other investigations including those for viral, autoimmune, and primary sclerosing cholangitis, INR, hemoglobin, renal function, and electrolytes were normal. An abdominal sonogram was obtained four days after presentation, demonstrating normal liver size, without dilated intra- or extrahepatic ducts. After discontinuing the drug, and with no other intervention, the jaundice and icterus resolved. All laboratory examinations trended toward normal over three weeks.
IMPLICATIONS/DISCUSSION: Saw palmetto is an OTC herbal supplement commonly used for the treatment of BPH, although little is known about its adverse side effects. The patient we describe easily obtained the drug, took it for unclear reasons, and did so without the direction of a medical provider. He then suffered a serious adverse event. This case demonstrates that ease at which herbal supplements can be misused and can result in serious harm. Due to its classification as an herbal supplement, saw palmetto remains unregulated by the FDA. Only three other cases in the literature report adverse events due to saw palmetto. One report was a case of protracted cholestatic hepatitis following the use of a combination drug, Prostata, that included saw palmetto in its formulation. As in our patient, when the drug was discontinued, the hepatitis and all laboratory abnormalities resolved. The other reports implicate saw palmetto in one case of drug-induced hepatitis with concominent pancreatitis and one case of intraoperative hemorrhage. Because of these instances it is imperative that medical providers not only inquire about OTC herbal supplement usage, but suspect it in any adverse events. This becomes important as use of saw palmetto and other herbal medications becomes more frequent. Given the frequency of over-the-counter use of this supplement and common belief that it is a safe alternative to other BPH drugs, it is imperative for clinicians to be aware of this potential serious hepatotoxic side effect.

I HAVE LOST MY POWER! PERSISTENT FEVERS AND FATIGUE FROM SALMONELLA TYPHI HEPATIC ABSCESS A. Hyat[1]; S.N. Syeda[1]. [1]Boston University, Boston, MA. *(Tracking ID # 205102)*

LEARNING OBJECTIVES: 1. To emphasize repeated physical examination while evaluating patients with unclear presentations. 2. To appreciate the value of abdominal imaging in the fever workup. 3. To review the pathogenesis of hepatic abscesses and discuss a rare cause of infection: Salmonella typhi.

CASE INFORMATION: A 62 year old man originally from the Dominican Republic with no significant medical history complained, "I have lost my power" and was admitted for 3 month history of fatigue and subjective fevers. He denied cough, abdominal pain, nausea, vomiting, rash, joint pain, anorexia or weight loss. He was admitted to the hospital one week prior with fever and leukocytosis attributed to pain from a recent tooth extraction. He returned 5 days later with continued malaise and persistent fevers despite oral antibiotic therapy. He denied sick contacts, pets or recent travel. He was febrile to 103F upon admission but was comfortable without localizing signs on physical exam. Labs were notable for wbc 16.5 K with 78% neutrophils, 9% lymphocytes and 13% monocytes; Hg 9.4, Platelets 589. Serum chemistry was normal except for liver panel: AST 40, ALT 50, GGT 343 and Alk Phos 272. EKG, CXR and UA were normal. Urine and blood cultures, malaria smears, HIV and hepatitis panel were collected and subsequent results were negative. Without localizing source, antibiotics were deferred. On repeat examination, he was significantly uncomfortable and exquisitely tender in the epigastrum and right-upper quadrant. Abdominal CT revealed a large (11.6×9.0×8.4 cm) abscess spanning 3 segments of the right lobe of the liver compressing the gallbladder. After percutaneous drainage of 450 cc of purulent fluid and treatment with antibiotics, leukocytosis and fevers resolved. Cultures revealed pan-sensitive Salmonella typhi infection. The patient was later diagnosed with gallstones and underwent cholecystectomy due to chronic cholecystitis.

IMPLICATIONS/DISCUSSION: Our patient presented with non-specific symptoms that evolved over two hospital admissions requiring abdominal imaging for definitive diagnosis. Repeat examination is important in making a diagnosis since findings can be protean or missed on initial exam. CT abdomen/pelvis is often the first imaging test because of high diagnostic yield and ability to evaluate for abscesses or lympho-proliferative disorders. Kupffer cells effectively clear microorganisms from the liver's dual blood supply making hepatic abscesses a rare cause of fevers. Pyogenic abscesses due to Klebsiella or E.Coli are most common; amebic abscesses due to E. Histolytica or fungal abscesses due to Candida are rare. Surgical treatment of appendicitis has eliminated appendicitis as the most common cause. Biliary tract diseases (stones, neoplasms, strictures, congenital) are now the most common causes due to obstruction of biliary flow and bacterial proliferation. The right lobe is more susceptible to infection because it contains more hepatic mass and contains a denser biliary highway. Drainage is definitive treatment. Chronic colonization of the gallbladder is the most likely etiology of infection in our patient since the Dominican Republic is an endemic area. This is a rare diagnosis and there are less than ten reported cases of Salmonella typhi hepatic abscesses in the literature.

IDIOPATHIC RETROPERITONEAL FIBROSIS: A CASE REPORT
R. Ruchi[1]; M. Zegarra[1]. [1]Wayne State University, Detroit, MI. *(Tracking ID # 203918)*

LEARNING OBJECTIVES: 1. To recognize the clinical presentation of idiopathic retroperitoneal fibrosis. 2. To elucidate the typical radiological appearance of retroperitoneal fibrosis and its association with atherosclerosis.

CASE INFORMATION: 61 year old African American male with history only relevant for untreated hypertension, presented to the emergency room with a 2 day history of generalized dull abdominal pain, not associated with any other systemic complaint. His BP was 157/87 and he didn't have any fever. Examination of his abdomen was completely normal. Rectal exam revealed normal prostate and guiaic negative stools. Blood tests showed a BUN of 14, creatinine of 1.8, with eGFR of 47 ml/min. There was no leucocytosis, urine analysis was unremarkable. CT of the abdomen revealed circumferential soft tissue mass in retroperitoneum, encasing the infra-renal aorta upto its bifurcation, bilateral proximal renal arteries and bilateral proximal ureters, but no hydronephrosis, suggestive of retroperitoneal fibrosis (image 1). CT angiogram confirmed these findings and also showed diffuse atherosclerosis throughout the aorta without any evidence of aneurysm. 3 weeks later, the patient presented to the nephrology clinic with marked anorexia, vomittings and anuria. Exam was positive for asterexis, labs showed a creatinine of 29. Renal ultrasound showed bilateral hydronephrosis. He was admitted and underwent urgent hemodialysis, with bilateral ureteral stent placement. The patient improved clinically, his creatinine steadily declined, and he did not need long term dialysis. A detailed work up for malignancy including colonoscopy, b-hCG, alpha FP, PSA, LDH was negative. There was no evidence of infection and the patient was not taking any medication prior to this episode. All these characteristics suggest that his retroperitoneal fibrosis is probably idiopathic. CT guided biopsy of the soft tissue mass was planned but refused by the patient. He also refused medical management with steroids. His repeat CT abdomen 3 weeks later re-demonstrated retroperitoneal soft tissue mass encasing the aorta, bilateral proximal renal arteries, proximal ureters. The size of the mass was however stable. The patient is clinically doing well, with his latest creatinine being 1.2 and is being followed in the clinic on a regular basis.

IMPLICATIONS/DISCUSSION: Retroperitoneal fibrosis is a rare disease, first recognized in 1948 by Ormond. Its prevalence has variably been reported to be from 0.5–1.38 per 100,000. 2/3 rd of the cases are idiopathic, however secondary causes include infection, medications, malignancies,surgeries or radiotherapy. Males between 50–60 yrs of age are most commonly affected. Exact pathogenesis is not known; it has been suggested that it could be a consequence of local inflammatory reaction to oxidized LDL and ceroid, often found in atherosclerotic plaques of abdominal aorta (as seen in our patient). IgG4 auto-immune mechanisms have also been suggested. CT and MRI of abdomen are the diagnostic modalities of choice, biopsy may be required if atypical sites are involved. The fibrotic plaque can be seen typically surrounding the abdominal aorta, iliac vessels, inferior vena cava and ureters, extending from the origin of renal arteries to the pelvic brim. Medical treatment with ureteral stents and steroids are effective in most cases. Relapses are common and long term follow up is essential. Spontaneous regression of idiopathic retroperitoneal fibrosis is very rare, but few cases have been reported.

ILEITIS IS NOT ALWAYS CROHN'S. SEVERE RLQ AND EPIGASTRIC PAIN DUE TO HEREDITARY ANGIOEDEMA. Y. TORIBIO M.D. CANDIDATE, D. SOLARZ M.D., R. LOWE M.D., M. DIPETRILLO M.D. BOSTON UNIVERSITY SCHOOL OF MEDICINE TRACKING NUMBER 203806)
M. Dipetrillo[1]; Y. Toribio[2]; D. Solarz[2]; R. Lowe[2]. [1]Boston University, Roslindale, MA; [2]Boston University School of Medicine, Boston, MA. *(Tracking ID # 203806)*

LEARNING OBJECTIVES: (1) Recognizing hereditary angioedema abdominal attacks as potential cause for severe abdominal pain (2) Recognizing the association of a prodromal rash with hereditary angioedema abdominal attacks

CASE INFORMATION: 22 yo F PMHx mild asthma p/w severe epigastric and RLQ pain for the last 5 hrs after 2 d of more diffuse abdominal pain. Pain described as initially sharp, then dull and non-radiating. Associated symptoms included mild nausea and intermittent rash for 2 d. Rash described as non-pruritic, non-painful small pink areas that join together to form larger pink patches all over her body. She denied fever, diarrhea, constipation, vomiting, urinary symptoms, vaginal discharge; denied food allergies, recent travel, camping, drinking stream/lake water, new foods/personal products. Meds: OCPs started 2 mos prior. On admission, she was afebrile with nl vitals. Initial exam noted RLQ and epigastric tenderness. The rash was not present on admission but developed on HD#2 with diffuse flat, non-palpable, erythematous patches on all extremities and torso. Labs were significant for WBC 12.9 (88% PMNs, 8% lymphs), urine HCG negative, CRP 3.3, and ESR 67. Electrolytes, INR/PTT, LFTs, amylase/lipase were nl. Cervical GC/CT and routine stool and urine cultures were negative. UA 1+ ketones, otherwise nl. CT imaging: focal wall thickening and mild dilatation of the duodenum, thickened ileal wall with hyperemic mucosa, prominent mesenteric lymph nodes, and free fluid in the RLQ. Findings were suspicious for distal ileitis consistent with Crohn's. GI consult thought that CT imaging and clinical picture were more consistent with visceral angioedema. EGD and colonoscopy revealed mild gastropathy with nl duodenum and ileum. Biopsies found no evidence of Crohn's. C1 esterase inhibitor level nl and C1 esterase functional assay was low at 35, which was consistent with hereditary angioedema Type 2.

IMPLICATIONS/DISCUSSION: Hereditary angioedema (HAE) is a rare autosomal dominant disease caused by mutation in the C1 inhibitor gene. Type I HAE includes 85% of cases and is characterized by low levels and decreased function of C1 esterase inhibitor. Type II HAE is characterized by normal levels and decreased function of C1 esterase inhibitor. Decreased level or function of C1 esterase results in elevated levels of bradykinin that promote angioedema. HAE typically presents in late childhood/adolescence with recurrent attacks of angioedema (without pruritus or urticaria) mostly affecting subcutaneous tissues and submucosa of the upper airway and GI tract. Most episodes usually involve one site. In 70% of the cases of abdominal attacks there can be a prodromal rash that is similar to erythema marginatum and sometimes mistaken for urticaria. Abdominal attacks result from bowel wall edema and present with abdominal pain, nausea/vomiting, and/or diarrhea. Triggers for HAE include stress, excitement, ACE inhibitors, menstruation, cold weather, certain foods, H. pylori, and estrogens. Diagnosis is established by low C4, normal C1 and C3, low or normal C1 inhibitor levels, low C1 inhibitor function. The most effective treatment available is purified C1 inhibitor replacement; available only outside the US. In the US, the standard therapy is symptomatic since steroids and antihistamines have not been found to provide significant benefit. For long-term prophylaxis, 17 alpha-alkylated androgens and anti-fibrinolytic drugs have been shown to significantly reduce the number of attacks.

IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME-A NEGATIVE SEQUELA OF SUCCESSFUL HAART M. Kaur[1]; D. Mulcrone[1]; J. Cinicola[2]. [1]Allegheny General Hospital, Pittsburgh, Pittsburgh, PA; [2]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204497)*

LEARNING OBJECTIVES: 1. To define the concept of Immune Reconstitution Inflammatory Syndrome (IRIS) as a severe complication of initiating HAART. 2. To describe the presentation, diagnosis, risk factors and treatment for Progressive Multifocal Leukoencephalopathy.
CASE INFORMATION: A 49 year old male with AIDS , CD4 of 44, presented with rapidly progressing ataxic gait and left homonymous hemianopsia in December 2008. At the time of diagnosis of his AIDS in August 2008, he was noted to have both a normal brain MRI and neurologic exam. CD4 count at that time was 3 and HAART with efavirenz, emtricitabine, and tenofovir was initiated. MRI brain on this presentation revealed periventricular white matter enhancement with axonal involvement of the corpus callosum, consistent with inflammatory Progressive Multifocal Leukoencephalopathy. CSF was positive for JC virus by PCR confirming the diagnosis of PML. HAART regimen was adjusted to lopinavir-Ritonavir, zidovudine, lamivudine and abacavir for enhanced CNS penetration.
IMPLICATIONS/DISCUSSION: PML is caused by reactivation of the latent JC virus in patients with immunocompromised states such as HIV, malignancy, and those receiving immunosuppressive therapy. It can occur in as many as 2–5% of AIDS patients. Patients present with visual deficits, typically a homonymous hemianopsia. Additionally, delirium, weakness including hemiparesis or monoparesis, and ataxia have been reported. The presence of a positive CSF PCR for JC virus DNA in association with typical MRI lesions in the appropriate setting is diagnostic of PML. Sensitivity and specificity of PCR for JC virus is 95 and 92–100% respectively, and has virtually eliminated the need for brain biopsy. HAART remains the mainstay of treatment. Case reports describe rapidly worsening neurologic symptoms in PML patients after commencement of HAART. This phenomenom is known as Immune Reconstitution Inflammatory syndrome (IRIS). IRIS is a condition seen in some patients with immunosuppression, such as our patient with AIDS. In this condition, the immune system begins to recover, but responds to a previously acquired opportunistic infection with an overwhelming inflammatory response that paradoxically worsens clinical symptoms. Pathogenesis remains largely speculative. Current theories concerning the pathogenesis of the syndrome involve a combination of underlying antigenic burden, the degree of immune restoration following HAART, and host genetic susceptibility. Therapy involves continuation of HAART. High dose glucocorticoids are considered in patients who do not improve on HAART alone. This case underscores the importance of realizing that successful HAART can be associated with severe complications.

INFLAMMATORY BREAST CANCER: A WOLF IN SHEEP'S CLOTHING R.M. Dyksterhouse[1]; J.L. Starrels[2]. [1]Montefiore Medical Center, New York, NY; [2]Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205442)*

LEARNING OBJECTIVES: Recognize the signs and symptoms of inflammatory breast cancer
CASE INFORMATION: A 48 year-old postmenopausal woman presented as a new patient to the primary care residents' clinic with a three week history of a painful breast mass that started immediately following trauma to the breast incurred while moving furniture. The patient first noticed a pea-sized lump in the left outer breast that grew in size over 3 weeks and became red, itchy and painful. In addition, a brown discoloration developed on the skin overlying the mass. She denied fever, chills, nipple discharge, previous breast lumps, and weight loss and had not received previous mammography. She had no family history of breast cancer. Visual examination revealed an asymmetrically shaped left breast with a 4×4 cm area of erythema and fullness in the lateral-inferior quandrant with an overlying hyperpigmented and hyperkeratotic lesion approximately 4 cm in diameter. Palpation of the breast revealed a firm, warm, exquisitely tender, ill-defined mass, approximately 2×3 cm in diameter. There was no nipple retraction or discharge. Lymph node examination revealed a 2 cm mobile lymph node in the left axilla. Given the rapid onset of symptoms, the impression was mastitis or abscess with possible underlying malignancy. The patient declined referral to the emergency department for immediate evaluation and instead left the clinic with a course of antibiotics for possible mastitis. However, her pain intensified and she proceeded to the emergency department one week later. Diagnostic mammogram revealed a >4 cm suspicious solid mass with internal flow and an abnormal, replaced lymph node in the left axilla measuring 2.6 cm. Biopsy showed a poorly differentiated invasive ductal carcinoma. Bone scan and full-body CT were negative for metastasis.
IMPLICATIONS/DISCUSSION: Inflammatory breast cancer is a rare and aggressive form of breast cancer. It typically presents with breast swelling, erythema, tenderness, and induration, which may develop rapidly over a period of weeks. Inflammatory breast cancer is more likely to have spread to nearby lymph nodes at the time of diagnosis than other types of breast cancer. Because of the acuity of symptom onset, initial presentation may be confused with mastitis, which may lead to repeated treatments with antibiotics and delay of tissue diagnosis. Prognosis for inflammatory breast cancer is very poor, with a 5-year relative survival rate of 40%, compared to 87% for all breast cancers combined. For this reason, prompt diagnosis is critical and requires the physician to be alert to "mastitis" that does not respond to antibiotic treatment.

INTERFERING WITH GLUCOSE HOMEOSTASIS J. Bhutto[1]; D. Sherling[2]; B. Balmadrid[2]. [1]Tulane University, New Orleans, LA; [2]Tulane, New Orleans, LA. *(Tracking ID # 203880)*

LEARNING OBJECTIVES: 1. Recognize diabetic ketoacidosis (DKA) as a complication of interferon therapy (IFN). 2. Recognize the clinical presentation of DKA in the setting of interferon treatment
CASE INFORMATION: A 61 year-old man presented with progressively worsening nausea and non-bloody vomiting for nine weeks. He reported thirst, polyuria and polydipsia accompanied by weakness, lethargy, palpitations, and shortness of breath. He denied recent illness, cough or fever. He had a history of Hepatitis C that he contracted from intravenous drug use. He has been on interferon and ribavarin for the previous two months. On examination, he was afebrile with a blood pressure of 134/92 mmHg, a heart rate of 114 b/min., and a respiratory rate of 28 b/min. His oxygen saturation was 100% on room air. He had a 3/6 systolic, non-radiating murmur at the apex. His lungs and abdomen were normal with no hepatomegaly or ascites. His capillary refill was delayed, and his skin was dry with decreased turgor. The sodium was 127 mEq/l, the potassium was 5.5 mEq/l, the bicarbonate was 13 mEq/l. He had an anion gap of 25, with a blood glucose of 679. His BUN was 45 and his creatinine was 1.7. An arterial blood gas on room air revealed a metabolic acidosis (7.22/23.4/111.3/ 9.4). The urinalysis revealed a glucose of greater than 1000 mg/dL, ketones of 150 mg/dL, without nitrites or leukocyte esterase. He was diagnosed with diabetic ketoacidosis and started on intravenous fluids with an insulin drip, eventually converting to subcutaneous insulin. He eventually tolerated an oral diet and did well.
IMPLICATIONS/DISCUSSION: Hepatitis C is the leading cause of chronic liver disease, cirrhosis and hepatocellular carcinoma, with an

estimated 3.5 million people with chronic infection and 10,000 hepatitis C related deaths annually. Peg interferon plus ribavarin for 48 weeks is the standard therapy and has shown to be effective in fifty-five percent of patients. The more rare genotypes (2 and 3) have a better success rate (85%) and shorter treatment times (24 weeks) than genotype 1. However, IFN is not without complications. Most common side effects are flu-like symptoms, nausea, diarrhea or anorexia. As our patient illustrated, DKA is a potentially life-threatening complication of IFN therapy. While some patients with this complication have been shown to be positive for HLA-DRB1 (predisposition to DM1), most have no predisposing factors. The general internist must be alert to this complication of interferon therapy, as the incidence of this complication will increase with increasing use of IFN.

INTERSTITIAL PNEUMONITIS DURING TREATMENT WITH NITROFURANTOIN M.G. Tapia[1]; K. Baker-Genaw[1]. [1]Henry Ford Hospital, Detroit, MI. *(Tracking ID # 205331)*

LEARNING OBJECTIVES: Recognize the presentation of interstitial pneumonitis as an adverse effect of nitrofurantoin.
CASE INFORMATION: A 91-year-old Caucasian woman with history of hypertension, coronary artery disease, congestive heart failure and recurrent urinary tract infections, presented with a chief complaint of recurrent episodes of worsening dyspnea on exertion. Her symptoms started about twelve months prior to presentation and within 15 days of starting nitrofurantoin 100 mg daily for prophylaxis of recurrent urinary tract infections. Since that time she was seen on multiple occasions at the emergency department and outpatient clinic. Her first episode was associated with dry cough and wheezing. Her symptoms were thought to be due to an upper respiratory tract infection. Subsequent presentations were thought to be due to volume overload from decompensated congestive heart failure. As a result she was treated with inhaled beta agonists and short courses of furosemide respectively. On this admission the patient was thought to have another episode of acute decompensated heart failure. An initial chest x-ray showed interval appearance of bilateral perihilar and right middle and lower lobe air space opacities. The patient required increasing doses of furosemide with no significant improvement. The patient underwent a cardiac catheterization that showed normal right heart pressures so a primary pulmonary process was suspected. A computed tomography of the chest showed interlobular septal thickening and groundglass opacity within both lungs, right greater than left. Nitrofurantoin was unknowingly discontinued on admission but it was not until a five-day course of oral glucocorticoids was started that the patient significantly improved.
IMPLICATIONS/DISCUSSION: Nitrofurantoin is a common medication used for prophylaxis of recurrent urinary tract infections. It is a fairly well tolerated drug but on rare occasions (less than 1 percent) causes interstitial pneumonitis. The diagnosis of an acute reaction to nitrofurantoin can be established based on the symptoms of fever, dyspnea and cough, approximately 9 days on average after drug exposure.Symptoms of subacute and chronic pulmonary reactions develop after approximately one to six months. Chronic forms such as the present case can be recognized by bilateral interstitial opacities on chest x-rays in a patient with a history of exposure to nitrofurantoin. In the present case the symptoms were attributed initially to an upper respiratory tract infection and later to congestive heart failure, both of which are in the differential diagnosis and occur more frequently. Physicians should be aware that interstitial pneumonitis is a known adverse effect of nitrofurantoin. A prompt recognition of this disorder is necessary so that the medication is stopped and further pulmonary injury can be avoided. Discontinuation of the medication results in regression of the symptoms usually within 15 days after acute exposure, however it may take up to weeks to months, especially after chronic exposure. The benefit of glucocorticoids has not been proven. Only single case reports have demonstrated rapid improvement of the symptoms after the initiation of glucocorticoids. In the present case a short course of oral glucocorticoids resulted in rapid clinical improvement and discharge of the patient.

IS ACUTE RESPIRATORY INFECTION A RISK FACTOR FOR VENOUS THROMBOEMBOLISM? E. Leasure[1]; R. Schmid[1]; C.J. Fichtenbaum[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 203894)*

LEARNING OBJECTIVES: 1) To define acute respiratory infections that can precipitate venous thromboembolism (VTE). 2) To identify the mechanisms by which respiratory pathogens lead to VTE in the absence of other known risk factors.
CASE INFORMATION: Two patients without prior identified risks for VTE were diagnosed with acute pulmonary emboli. Case #1 is a 27-year-old woman who presented with sudden onset of severe, substernal, left-sided chest pain and shortness of breath. The prior two weeks she had fever, chills, headache, myalgias, nasal congestion and a productive cough. Her vital signs were: T-101.2 oF, RR-24, Pulse-118, BP-136/94 and O2Sat-100% on room air. D-dimer test was positive at >1.13 ug/mL. CTPA revealed a subsegmental pulmonary embolus in the left lower lobe. Laboratory evaluation revealed no evidence of inherited thrombophillia. Nasopharyngeal swab for influenza A virus was positive. She was anti-coagulated and treated symptomatically for influenza with improvement of her symptoms. Case #2 is a 19-year-old healthy man who presented with sudden onset of pleuritic chest pain while playing basketball. He also reported left-sided calf tenderness for the preceding 4 days. Several weeks before, he complained of a cough, rhinorrhea and a sore throat; several family members experienced similar symptoms. He was afebrile and well appearing on exam with a tender left calf that was 1 cm larger than the right. D-dimer test was positive at >5000 ng/mL. CTPA revealed multiple pulmonary emboli. Laboratory evaluation revealed no evidence of inherited thrombophillia. Serologies for Mycoplasma (IgG-1.17 ISR) and Chlamydia pneumoniae (IgG-1:64) were positive. He improved on anticoagulant therapy and was discharged home.
IMPLICATIONS/DISCUSSION: Venous thromboembolism is a serious and potentially fatal event. Although VTE is associated with inherited and acquired factors, nearly 50% of cases have no identifiable risk factors. We report two cases of pulmonary emboli in otherwise healthy young individuals with documented preceding upper respiratory tract infections (URI) and no other risk factors for VTE. Virchow's triad (venous stasis, endothelial damage, and hypercoagulability) represents the classical pathogenesis of VTE. Acute infections can alter endothelial function, induce white cell activation, and lead to intravascular volume depletion. These two cases suggest antecedent URIs may be associated with subsequent development of VTE in the absence of other known risks. Smeeth reported a higher incidence of DVT amongst persons with a recent antecedent URI [OR-1.91 (95% CI 1.49–2.44)]. Others have reported a link between acute infection with pathogens like Chlamydia or Cytomegalovirus and increased VTE risk. Clinicians should be aware that VTE might be associated with a recent infection, particularly of the respiratory tract. Future research is needed to identify the mechanisms responsible for hypercoagulable states and why the may lead to VTE.

IS THERE A COMMON CAUSE FOR THESE PULMONARY, GASTROINTESTINAL, AND INTRACRANIAL HEMORRHAGES? D. Kogan[1]; K. Pfeifer[2]. [1]Medical College of Wisconsin, West Allis, WI; [2]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 204607)*

LEARNING OBJECTIVES: 1) Describe the utility and limitations of video-assisted thoracic surgical lung biopsy in diagnosis of primary lung cancer. 2) Outline alternative methods for lung cancer diagnosis when faced with inconclusive lung biopsy results. 3) Recognize rare presentations of lung cancer metastases and how the discovery of these lesions can aid the diagnostic work-up.
CASE INFORMATION: 48-year-old male with a history of cocaine use presented to the hospital with hemoptysis for 4 months. He reported coughing up several blood streaks per day with an increased frequency over the past week. He denied any fevers, chills, night sweats, or shortness of breath. He stopped using cocaine 6 months before presentation. The patient was found to have a right upper lobe (RUL) cavitary lung lesion on chest x-ray. Testing for HIV and tuberculosis was negative. Lung biopsy was obtained via video-assisted thoracic surgery (VATS) and revealed acute on chronic inflammation with alveolar hemorrhage and interstitial fibrosing pneumonitis. Further work-up was negative for toxoplasmosis, histoplasmosis, blastomycosis, coccidiomycosis, and aspergillosis. Antineutrophil cytoplasmic antibodies, anti-double stranded DNA antibodies, and anti-glomerular basement membrane antibodies were also negative. During the hospitalization, he had a tonic-clonic seizure, and head CT revealed hemorrhagic brain lesions and edema with mass effect. He was treated with levetiracetam and tapering dosing of dexamethasone. CT of abdomen, pelvis and bone

marrow biopsy were negative for signs of malignancy. During the course of treatment, he had recurrent hemoptysis and developed right lower quadrant abdominal pain with melenotic stools. Esophagoduodenoscopy revealed 4 exophytic lesions with central necrosis in the duodenum. Biopsies of these lesions demonstrated poorly differentiated adenocarcinoma of undetermined origin. Positive emission tomography (PET) scan was performed for tumor staging and showed multiple foci of FDG uptake in the prximal small bowel, upper lobe of right lung, adrenals, numerous intramuscular sites and brain. He underwent RUL lobectomy in an effort to control recurrent pulmonary hemorrhage, and pathologic analysis of excised lung tissue revealed poorly differentiated non-small cell carcinoma of the lung.
IMPLICATIONS/DISCUSSION: The duodenum is a rare site of tumor metastasis from primary lung cancer. The discovery of these metastases can be very challenging as the patient's presentation may often be complex and misleading. However, these metastatic lesions can be used to help identify the primary tumor site as exemplified in this situation. This case also illustrates the difficulty of establishing the diagnosis of lung cancer with inconclusive biopsy results. Despite high clinical suspicion, this diagnosis was only clinched after discovery of symptomatic duodenal metastases and complete RUL resection. This scenario raises the question of the sensitivity of VATS lung biopsy for the diagnosis of lung cancer. Recent studies have suggested the sensitivity is 92–98%, but review articles point out the limitations of pathologic diagnosis from lung biopsy. These include tissue artifacts, interobserver variability, and similar morphologic changes from various etiologies. Clearly it is important for the clinician to continue pursuit of a pathologic diagnosis when clinical suspicion is high for malignancy. As in our case, this involves consideration of the entire clinical picture and use of alternative approaches.

IS TYPICAL PRESENTATION TYPICAL ANYMORE? A CASE OF CELIAC SPRUE PRESENTING AS INCREASED LEVOTHYROXINE REQUIREMENTS M.S. Wagner[1]; J. Smith[1]; T.S. Knee[1]. [1]United States Navy, Portsmouth, VA. *(Tracking ID # 205502)*

LEARNING OBJECTIVES: Recognize patterns of celiac sprue presentation.
CASE INFORMATION: Celiac sprue is defined as an autoimmune disorder that causes small intestine damage upon exposure to gluten. Serologic testing has improved the diagnostic process. This has shown that many patients now present in an atypical fashion. We present a case of celiac sprue in a 56 y/o male who presented with diarrhea, weight loss, and persistent biochemical hypothyroidism. The patient is a 55 y/o male with past medical history significant for type 2 DM and post-surgical hypothyroidism who presented to our gastroenterology clinic with a 6 month history of diarrhea and weight loss. He noted up to 12 bowel movements (BM's) per day and a decrease in weight from 262 lbs to 218 lbs. Initial labs were remarkable for a TSH of 53.4 and free T4 of 0.57, a negative tissue transglutaminase (tTG) IgA, negative reticulin IgA, and mildly elevated Gliadin IgA (44) and normal total IgA level. Esophagogastroduodenoscopy biopsies showed nonspecific changes of duodenitis, but no increased intraepithelial lymphocytes or villous atrophy. No response was seen to increasing doses of synthroid, and so the patient was referred to endocrinology. Metformin was discontinued without improvement in the diarrhea. It was noted that the patient's synthroid dose had been increased over a one year period with failure to normalize his TSH. Given the patient's vitamin D deficiency (7.2) and with up to 16 BM's per day, the patient was encouraged to begin a strict gluten-free diet.. He initially noted improvement in BM frequency (from 16 to fewer than 8) and stabilization of his weight at 182 lbs, however, BM's returned to double digits. Subsequent tTG IgA antibodies were positive despite adherence to a gluten-free diet. Capsule endoscopy showed diffuse villous atrophy with multiple erosions and scalloping of folds of the small bowel. Ten months after transition to gluten-free diet, BM's were down to 3 per day, weight was 204 lbs and TSH normalized. Currently the patient weighs 277 lbs, is taking synthroid 175 mcg, with resolution of vitamin D deficiency (34.8) and iron deficiency anemia.
IMPLICATIONS/DISCUSSION: This case of celiac sprue demonstrates the importance of recognizing the variable manifestations of the disease. Studies have shown a link between celiac disease and autoimmune thyroid disease, with some presenting with only increased levothyroxine requirements. Recent studies and case reports suggest that tTG antibody lacks the same sensitivity in clinical practice. The diagnosis of celiac disease should be considered even in atypical patients who are tTG negative but have other manifestations of the disease.

IT'S ALL ABOUT HEART B. Hymel[1]; R. Beck[1]; C. Miller[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203879)*

LEARNING OBJECTIVES: 1. Identify the criteria for diagnosing systemic lupus erythmatosis (SLE) 2. Recognize the importance of vigilance in monitoring for life threatening complications associated with a SLE flare. 3. Identify the physiology explaining pulsus paradoxus
CASE INFORMATION: 43 year-old woman presented with rapidly progressive dyspnea and chest pain. It was not associated with cough or fever. She had been discharged from the hospital one week earlier after being diagnosed with mitral valve Staphylococcus aureus endocarditis. She was sent to a long-term acute care facility for completion of a six-week course of intravenous antibiotics. Upon return her blood pressure was 75/51 mmHg; her heart rate was 101 b/min., and her respiratory rate was 25 b/min. Jugular venous distention was difficult to discern because of her obese body habitus, though her arm veins were engorged when her arm was placed on her chest. There were no murmurs, but the heart sounds were muffled. The pulsus parasoxis was 18. There were no skin lesions, but peripheral edema was present. Her right knee was tender. There was no evidence of effusion, but mild soft tissue edema and erythema surrounded the knee. An enlarged cardiac silhouette was found on chestX-ray. An echocardiogram confirmed a large pericardial effusion that was not present during her previous admission. She immediately underwent pericardiocentesis and drainage. Pericardial fluid analysis was unremarkable and she underwent pericardial biopsy. Pathology revealed acute and chronic inflammation with granulation tissue. The antinuclear antibody (ANA) and dsDNA were highly positive. She was diagnosed with systemic lupus erythematosus (SLE) and started on high dose corticosteroids. Her knee complaints dramatically improved within 24 hours and her pericardial effusion did not return.
IMPLICATIONS/DISCUSSION: Dyspnea is a common clinical complaint encountered by the general internist. Our patient's elevated venous pressure, muffled heart sounds, elevated pulsus paradoxis and clear lungs prompted the consideration of a pericardial effusion and tamponade as the cause of her dyspnea. The observation of the inflammatory arthritis and facial rash further narrowed the diagnosis to lupus as the cause of the pericardial effusion. There are eleven criteria in the diagnosis of SLE; four of which are required to be present to confirm the diagnosis. Over the time frame described above, our patient displayed right knee pain/decreased mobility, pericardial effusion, a positive antinuclear antibody, and a malar rash. In this case, it was felt that an episode of bacterial endocarditis resulted in inordinate stress, initiating a SLE flare with pericardial effusion andtamponade. Cardiac tamponade is a clinical diagnosis presenting with Beck's triad of hypotension, muffled heart sounds, and jugular venous distension. The triad is a direct result of fluid surrounding the heart and decreased filling, preload and cardiac output. Pulsus paradoxus may also be present. This phenomenon can be explained by augmented venous return during inspiration coupled with a lack of cardiac compliance. As a consequence, there is transient enlargement of the right ventricle with obligate septal bulge into the left ventricle reducing the size and output of the ventricle.

LACTIC ACIDOSIS AS A COMPLICATION OF BETA-2 AGONIST THERAPY IN ACUTE ASTHMA EXACERBATION: A CASE REPORT. A.G. Kaliyadan[1]; A.A. Donato[1]. [1]The Reading Hospital and Medical Center, West Reading, PA. *(Tracking ID # 205760)*

LEARNING OBJECTIVES: 1.Recognize inhaled beta agonists may rarely cause lactic acidosis, which can be fatal if undiagnosed. 2. Excessive use of beta agonists may be fatal to a subset of asthma patients for unclear reasons.
CASE INFORMATION: A 56-year-old African American male with long-standing chronic persistent asthma presented with a five day history of worsening shortness of breath. He noted no relief from his albuterol inhaler which he used four times before presenting to the emergency department. On triage, the patient was found to be speaking in short

sentences with poor air movement and wheezes in his lungs bilaterally. Initial vital signs include temperature – 35.6 °C, blood pressure – 151/88 mmHg, pulse 112 bpm, and respiratory rate – 24 breaths/min with oxygen saturation of 86% on room air. Lab work was drawn and the patient was immediately placed on a one hour continuously inhaled levalbuterol nebulizer treatment and given solumedrol 125 mg of intravenously. Initial lab work revealed a WBC count of 12,500 CMM without a left shift, arterial blood gas pH – 7.37, pO2 – 67 mmHg, pCO2 – 41 mmHg, HCO3 – 25.4 meq/L, and normal electrolytes. The patient received a total of three one-hour inhaled levalbuterol nebulizers in succession along with five minute albuterol/ipratropium bromide nebulizers given once every hour for two hours after the initial levalbuterol treatments. Patient's respiratory rate initially improved, but then acutely worsened and he was noted to be tiring. A repeat arterial blood gas showed pH – 7.19, pO2 – 83 mmHg, pCO2 – 29.5 mmHg, and HCO3 – 11.2 meq/L. A stat lactate level obtained immediately after the ABG was 13.8 meq/L (normal : <2 meq/L). Blood pressure and pulse remained stable. Recognizing that this patient suffered from beta-2 agonist related lactic acidosis, the dosing interval of inhaled nebulizers was increased to every six hours standing and three hours as needed while serial lactate levels and ABG's were followed every six hours which subsequently normalized within the next 24 hours. Obtundation improved rapidly over a period of eight hours with a rapid decline in lactate levels from 13.8 meq/L to 4.4 meq/L. He was discharged to home in stable condition 48 hours later.

IMPLICATIONS/DISCUSSION: Studies in the literature point to an increase in mortality in patients using both appropriate and high doses of long and short-acting beta-2 agonists, especially in African-Americans. Proposed mechanisms include tachyphylaxis and arrhythmia secondary to hypokalemia and adrenergic stimulation. Lactic acidosis secondary to inhaled beta-2 agonists, is a rare and under-recognized side effect in the treatment of severe asthma exacerbations, and is a potential cause of beta-adrenergic related fatality. Failure to recognize the clinical picture of obtundation due to lactic acidosis during treatment of asthma can lead to more beta-2 agonist use, which has the potential to cause further harm to patients. Physicians should be aware of beta-2 agonist induced lactic acidosis in the setting of treatment of asthma exacerbation and further management, and should suspect this complication in all tiring acute asthma exacerbations with metabolic acidosis and hypocarbia. Prompt recognition and withholding of beta-2 agonists may be life-saving.

LATE-ONSET ASTHMA AND STRIDOR; THINK ABOUT ADENOID CYSTIC CARCINOMA! A. Kaako[1]; K. Stansell[1]; V.O. Kolade[1]. [1]University of Tennessee College of Medicine, Chattanooga, TN. *(Tracking ID # 203861)*

LEARNING OBJECTIVES: 1. Consider Adenoid cystic carcinoma of the trachea in differential diagnosis in patient presented with stridor with history of presumed late onset asthma. 2. Recognize the clinical course and treatment options for tracheal adenoid cystic carcinoma.

CASE INFORMATION: A 49 year-old white male presented with shortness of breath, cough, wheezing and stridor. His symptoms started one week prior to admission with associated fevers, chills, night sweats, increased heart rate, and fatigue. Cough was persistently productive of yellowish sputum and included one episode of hemoptysis one day prior. He reported dysphagia for solids that made him take only liquids for a few days. Review of systems was otherwise unremarkable. He had a history of asthma for five years and hypertension that have been treated with albuterol inhaler and enalapril respectively. He has a remote one-fifth pack year smoking history; he is an occasional drinker with no drug abuse. Family history is remarkable for CAD in his mother and prostate cancer in his father. On physical exam; he was in labored respiration and stridor, unable to complete a sentence. Vital signs were temperature 99.7 degrees Fahrenheit, BP 151/73 mmHg, HR 140/ min; RR 26/min and O2 sat 97% on 5 L nonrebreather mask. Chest exam was remarkable for diffuse crackles and wheezing in inspiratory and expiratory phases, with audible stridor over the trachea. He had tachycardia with no murmurs, rub or gallop appreciated, as well as multiple tattoos on his skin. The reminder of the physical exam was unremarkable. His laboratory data showed WBC 24400/dl, neutrophils 93.8%, bands 24%, and mild hyperglycemia of 176 mg/dl; otherwise the remainder of CBC and CMP were within normal limits. CXR showed hazy infiltrates involving the right lung base. CT scan of the chest demonstrated a nearly-completely occluded trachea with a mass just above the carina invading the trachea. There was initial hesitance to proceed with intubation, so the patient was started on CPAP, heliox, bronchodilators, methylprednisolone and racemic epinephrine. He underwent immediate bronchoscopy which confirmed a nearly-obstructive tracheal mass above the carina and about 7 cm below the epiglottis, which would permit intubation. Biopsies were not done due to patient instability and perceived high risk for bleeding. He was intubated shortly after bronchoscopy for worsening respiratory failure and he was started on broad spectrum antibiotics for pneumonia. He subsequently underwent trans-sternal tracheal resection with reconstruction. Pathology revealed adenoid cystic carcinoma with three lymph nodes negative for metastatic carcinoma. He was extubated a few days after surgery and discharged home with physical therapy. The follow-up plan included radiation oncology evaluation after six weeks for possible radiation therapy.

IMPLICATIONS/DISCUSSION: Cystic adenoid carcinomas of the trachea (cylindromas) are rare malignant tumors accounting for less than 1% of all respiratory tract cancers with slow, insidious progression and prolonged course. No association with smoking or consistent etiology has been found. The presentation is variable including dyspnea, cough, hemoptysis, asthma, and stridor; hoarseness and dysphagia are less common. Patients may present with catastrophic and even rapidly fatal airway obstruction. Surgical resection is the mainstay of therapy. The best survival results are with combined surgery and radiation therapy. Chemotherapy has a limited, poorly-defined role.

LEGIONELLA DIARRHEA? A CLASSIC CASE MASKED BY AN ATYPICAL PRESENTATION D.J. Mcfarlane[1]; A.R. Gonzaga[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204864)*

LEARNING OBJECTIVES: 1) To recognize the atypical presentation of a disease with high morbidity and mortality and increasing incidence 2) To recognize the necessity of considering the patient as a whole when searching for a unifying diagnosis

CASE INFORMATION: A 55 year old healthy man presented to clinic with 7 day history of nausea, vomiting, and non-bloody diarrhea. He was seen 2 days earlier for similar symptoms and was diagnosed with viral gastroenteritis. He returned for continued diarrhea, fevers, unsteady gait, dizziness, and confusion. He denied cough, SOB, rhinorrhea, abdominal pain, and dysuria. He smoked 1/2 pack per day and worked as a hospital ancillary staff member. On physical exam, he appeared ill with temperature of 38.5 °C and pulse of 123 with positive orthostatic hypotension. He had dry mucous membranes, clear lungs with good air entry bilaterally, and soft, non-tender abdomen with palpable liver edge 1 cm below the costal margin. Laboratory exams showed sodium 134, BUN 19, creatinine 1.7, AST 477, ALT 172, and WBC 14.8. The patient was directly admitted for dehydration, acute kidney injury, and transaminitis. He was hydrated and evaluated for diarrhea, confusion, and hepatitis. Laboratory exams showed sodium 132, BUN 29, creatinine 2.0, NH3<1 and viral hepatitis screens were negative. Urinalysis showed 3+ blood and 2+ protein, with 1–5 WBC. Given his fever, diarrhea, confusion, hepatitis, and hematuria, Legionella was suspected despite his lack of respiratory symptoms. A chest x-ray was obtained which showed a large area of right lower lobe consolidation and mild right pleural effusion. He was treated empirically with IV ceftriaxone and azithromycin. On day 2 urine legionella Ag was positive and azithromycin was continued orally. On day 3 he defervesced and on Day 5 he was discharged home.

IMPLICATIONS/DISCUSSION: Legionnaires' disease (LD) is a systemic illness that affects multiple organ systems including the lungs, GI tract, liver, kidneys, and CNS with significant morbidity and mortality. Legionella accounts for 2–9% of community-acquired pneumonia (CAP), but for 8–20% of CAP requiring ICU management. It has increased in incidence by 70% in the last 15 years and primarily affects males <65 years old. Among atypical causes of CAP, severe disease in a normal host is most often due to LD. Given the severity of the disease, it is imperative that it be diagnosed and treated promptly. However, there are no clinical features that are unique to LD, which can often delay proper diagnosis. Most often LD is thought of when considering a patient with respiratory symptoms or pulmonary infiltrate, but LD has many non-specific extrapulmonary manifestations and can rarely present without respiratory symptoms such as in this case. LD is commonly associated with systemic symptoms like diarrhea, nausea,

confusion, headache, lethargy, and relative bradycardia (Faget's sign), as well as non-specific lab abnormalities such as hyponatremia, hypophosphatemia, elevated transaminases, elevated creatinine, microscopic hematuria and proteinuria, and elevated C-reactive protein. As clinicians, it is common to become focused on the organ system producing the most symptoms, thus losing the big picture, but this case illustrates the importance of compiling data from all systems and viewing the patient as a whole when searching for a unifying diagnosis.

LEMIERRE'S SYNDROME- FORGET ME NOT N. Iroezi[1]; J. Shen[1]; N. El Farra[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 205035)*

LEARNING OBJECTIVES: To recognize the clinical features and clinical presentation of Lemierre's disease To highlight the medical evaluation necessary for it's diagnosis To broaden the differential for a young adult presenting with non resolving fevers and pharyngitis

CASE INFORMATION: This is a 19 year old male who presented with persistent high fevers and a sorethroat of 2 weeks duration. His symptoms initially begun with non resolving sore throat for 7 days, followed by fevers ranging up to 101.7 degree farenheit. Evaluation at an urgent clinic showed no lymphadenopathy or tonsillar exudates and a negative rapid strep throat and negative strep throat culture on two different occasions. He continued to have fevers up to 103.6 and further evaluation revealed a negative monospot test. He returned with left upper quadrant abdominal pain with pleurisy within a week of his initial evaluation. Review of system was notable for a mild headache, the absence of a cough, and no signs of meningismus. He endorsed sick contacts whose symptoms had since resolved. He denies a history of IV drug use, is sexually active with women. Physical exam was notable for stable vitals signs, submandibular lymaphadenopathy and an erythematous posterior pharynx were present with no ulcerations and exudates and the presence of splenomegaly. There was a positive monospot with a positive EBV VCA IgG, EBNA antibody and an EBV VCA IgM equivocal indicating that the acute infection of mononucleosis was at least 6 weeks ago. A chest xray showed evidence of a possible pneumonia and 1.5 cm nodule in the left upper lung. A CT chest showed multiple focal ill defined air space opacities in bilateral lung zones and changes consistent with septic emboli. An abdominal ultrasound showed splenomegaly otherwise normal. An echo was notable for no signs of vegetation. An MRI brain showed a subperiosteal abscess with no mass effect or intracranial hemmorrhage. MRI neck showed diffuse inflammatory changes with abscess collection measuring 5 mm×3 mm in the medial margin of the right mandibular body. Blood cultures in 2/2 anerobic bottles were notable for the presence of Fusobacterium Necrophorum that was pan sensitive. The patient clinically improved on Meropenam and Metronidazole, and was discharged on a 14 day course of intravenous Meropenam and Metronidazole followed by a two weeks of Metronidazole and Amoxicillin/Clavulanate.

IMPLICATIONS/DISCUSSION: Lemierre's syndrome is a septic thrombophlebitis of the internal jugular caused by Fusobacterium necrophorum. Fusobacterium necrophorum is an anerobic gram negative rod known to be part of the normal flora of the oral cavity, gastrointestinal and female genital tract. The pathogenesis is characterized by the seeding of Fusobacterium necrophorum from a peritonsilar abscess via a jugular vein thrombophlebitis into the blood. Classical findings in the literature of Lemierre's disease have include pharyngitis, a retropharyngeal abscess, septic embolic lung involement and in many cases thrombocytopenia. It has been hypothesized that immunosuppresion from a preceeding mononucleosis may predispose individuals to Lemierre's disease. It is known to occur in seemingly immunocompetent young adults and a thorough evaluation of a non resolving pharyngitis to include an infectious workup as well as imaging studies will preclude missing the almost forgotten disease- Lemierre's.

LEMIERRE'S SYNDROME: TOOTH PAIN YOU SHOULD NOT IGNORE J.D. Gonzalo[1]; S.J. Herzig[2]. [1]Beth Israel Deaconess Medical Center, Brookline, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205290)*

LEARNING OBJECTIVES: To recognize the presenting features of parapharyngeal space infections and potential complications, including cavernous sinus thrombosis (CST) and septic emboli from venous system involvement in the neck (Lemierre's syndrome).

CASE INFORMATION: An 18-year old female presented to her college health center complaining of fevers for 5 days. She additionally had sore throat and intermittent headaches. She had right cervical adenopathy but no tonsillar erythema or exudate. Throat culture was negative for streptococcus and a Monospot returned positive. Despite adequate fluid intake, her symptoms persisted with development of prominent rigors and inability to open her mouth due to right jaw pain, prompting presentation to an outside hospital. She had no medical history, took no medications, and denied drug allergies, alcohol, tobacco, or IV drug abuse. On presentation, she was non-toxic appearing, but had tender palpable right cervical adenopathy with left-sided uvula deviation. Twelve hours after admission, anaerobic blood culture Gram stain demonstrated Gram negative rods. Soon thereafter, she developed sudden onset right sided facial numbness, right ptosis, and right-sided gaze deficits of inability to look superiorly, inferiorly, or medially. Her right pupil was dilated; when the right eye was illuminated, only the left pupil constricted. She was transferred to our hospital for further evaluation. On arrival, she was hypoxic and hypotensive, requiring intubation and vasopressors. Lab values were consistent with disseminated intravascular coagulation and acute renal failure. A head MRA/MRV demonstrated a CST. Neck CT demonstrated right neck, soft tissue edema with intracranial extension, a superficial thrombosed vein, with abscesses within the pterygoid muscles and parapharyngeal space. Chest CT demonstrated diffuse bilateral septic pulmonary emboli. Blood cultures grew Fusobacterium species. An infected right 3 rd molar was removed by oral surgery (patient recalled tooth pain a week prior). She was treated with ceftriaxone, metronidazole, and anticoagulation for her CST. She recovered and was discharged after a two week hospital stay. On discharge, she had persistent right extraoccular movement deficits and pupillary dilation.

IMPLICATIONS/DISCUSSION: Lateral parapharyngeal space infections form secondary to dental infections, peritonsillar abscesses, tonsilitis, and otitis and are typically polymicrobial from upper respiratory tract microbes. Life threatening complications can include carotid sheath invasion, airway compromise, bacteremia, and Lemierre's Syndrome, as in this patient. Lemierre's Syndrome, or postanginal sepsis, is a septic thrombophlebitis of the internal jugular vein, commonly caused by anaerobic organisms such as Fusobacterium, Bacteroides, Prevotella, and anaerobic streptococci. Resultant hematogenous spread can cause pulmonary atery emboli, arthritis, splenic or hepatic abscesses, and glomerulonephritis. Clinical presentations include neck pain, dysphagia, tonsillar displacement, and palpable swelling within the neck musculature. By spread through the facial veins, thrombosis within the cavernous sinus can impact cranial nerves III, IV, V1, V2, and VI, causing focal cranial nerve findings. CT with contrast is the recommended diagnostic test, but thrombosis can also be diagnosed with MRI angiography. Treatment includes three to six weeks of intravenous, broad spectrum antibiotics. Anticoagulation remains controversial but should be considered.

LETHAL SORE MUSCLES. N. Otowa[1]; Y. Fujita[1]; M. Kawai[1]. [1]Toyota Memorial Hospital, Toyota, Aichi. *(Tracking ID # 205780)*

LEARNING OBJECTIVES: 1. Know atypical presentations of infective endocarditis (IE). 2. Recognize severe myalgia as one of many symptoms of IE.

CASE INFORMATION: A 65 year-old man with PMH of HT, DM, and HL was brought to the ED via ambulance for 5-day course of fever and severe myalgia in all four extremities that gradually deprived him of body movements. On physical exam, the patient complained of severe muscle pain and tenderness, chiefly in the proximal limbs. There was no meningeal sign or heart murmur on initial exam. Labs were significant for elevated WBC count of 21,400/mcL, serum sodium of 131 mmol/L, and chloride of 92 mmol/L. On day 2, nuchal rigidity was noted and head CT revealed subcortical hemorrhage in the right occipital lobe and subdural hematoma in the posterior longitudinal cerebral fissure. The patient never complained of headache throughout his course. Blood cultures drawn in the ED were positive for Gram positive cocci, which proved to be Staphylococcus aureus one day later. The patient was immediately started on intravenous vancomycin and gentamycin. UCG study, both TTE and TEE approaches, failed to demonstrate vegetations or significant regurgitations in any of the heart

valves. Despite treatment the patient died on day 4. Autopsy revealed vegetation in the septal leaflet of the mitral valve, approximately 1.5cmx1.5 cm in size, multiple micro-abscesses in the spleen and the kidneys, and hemorrhage in the occipital lobe of both cerebral hemispheres.
IMPLICATIONS/DISCUSSION: Myalgia is a relatively uncommon symptom of IE, present in 15–30% of proven cases. The mechanism of myalgia in IE is unclear but spread of infection to the muscles, systemic inflammation, or disseminated embolization has been suggested as probable causes. Atypical presentations of IE include embolic events such as myocardial, cerebral as well as renal infarctions, and metastatic abscesses in the kidneys, spleen, brain and soft tissues. In our case, even with autopsy, it was difficult to demonstrate direct evidence of muscle pathology, though micro-abscesses were seen in other organs. Staphylococcus aureus is known to cause acute IE with rapid progression with a mortality rate of 30–40% without valve replacement. Vegetation in the native valve is found in approximately 45–50% of IE. Echocardiogram findings are very helpful when present, but can be normal in about 10% of patients, even with TEE, as in our case. Differential diagnosis for myalgia is so broad, including rhabdomyolysis, fibromyalgia, polymyalgia rheumatica, infection, inflammation, neoplastic infiltration, trauma and drug-induced myalgia. Internists must recognize that myalgia can be a sign of acute IE, a lethal medical emergency which requires immediate action to avoid unexpected deaths, especially in a febrile patient without obvious sites of infection.

LICKING THE PROBLEM OF RECURRENT ABDOMINAL ABSCESSES
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LEARNING OBJECTIVES: 1. Recognize the importance of a specific microbiologic diagnosis in identifying the cause of unexplained abscesses. 2. Identify clinical infections caused by Eikenella corrodens
CASE INFORMATION: A 50-year-old woman presented to the Emergency room with two painful abdominal wall masses. The patient had a complex past medical history including recurrent abdominal wall abscesses, antithrombin III deficiency, multiple pulmonary emboli, cor pulmonale, Budd-Chiari syndrome and resulting cirrhosis, hypertension, insulin-requiring type 2 diabetes, and prior cocaine abuse for which she has been incarcerated. On exam the patient was afebrile and there were two fluctuant abdominal wall masses, approximately 3 cm× 4 cm×.5 cm in size, one in the left upper quadrant and one in the right lower quadrant. Incision and drainage was performed on the right lower quadrant mass, yielding 8 ml of blood-tinged mucopurulent fluid. Culture of the fluid revealed Eikenella corrodens. She was treated with amoxacillin-clavulanate. The patient confirmed that her abdominal abscesses occurred at insulin injection sites, and when asked about her insulin injection technique, admitted that she had run out of supplies and cleaned previously used insulin needles with "a little spit."
IMPLICATIONS/DISCUSSION: Eikenella corrodens is an anaerobic gram-negative rod that exists as a component of normal oral flora. It is often present in "clenched fist injuries" (caused when a person's closed fist strikes the teeth of another person), human bite infections, infections among chronic finger or nail biters, and in genital ulceration after a human bite to the penis. It has also been reported to cause infection in insulin-requiring diabetic patients and injection drug users who lick their needles. According to one study, up to one third of intravenous drug users lick their needles and/or the injection sites for reasons such as ritualistic practices, cleaning the needle, enjoying the taste of the drug, checking the "quality" of the drug, and checking that the needle was in usable condition. The presence of oral flora in this patient's abdominal abscess raised the question as to whether the patient might have been licking her insulin needles before injection. Despite the patient's denial that she ever used IV drugs, exposure to this culture both on the streets and in prison could have given her the idea that such practices were useful for needle-cleaning. Our case illustrates the importance of making a specific microbiologic diagnosis in order to identify the source of an infection and prevent recurrences.

LISINOPRIL INDUCED ISOLATED VISCERAL ANGIOEDEMA
S. Sridhara[1]; I. Peleg[1]; I. Hussain[1]. [1]University of Oklahoma, Tulsa, OK. *(Tracking ID # 204278)*

LEARNING OBJECTIVES: To recognize the temporal association between angiotensin converting enzyme inhibitor (ACE-I) and symptoms and in turn diagnose (ACE-I) induced visceral angioedema. To avoid unnecessary invasive procedures in these patients.
CASE INFORMATION: 47 year old white female presented to the emergency department with a 12-hour history of progressively worsening crampy abdominal pain and bloating associated with nausea, vomiting and diarrhea. She denied fever, chills, hematochezia and melena and genitourinary symptoms. The patient was recently diagnosed with hypertension and was started on Lisinopril/HCTZ (10/12.5 mg) one day prior to her presentation. Her past medical history was significant for lysis of adhesions for infertility 20 years back. On examination, she was afebrile and not tachycardic, with a slightly distended abdomen, tender in the periumbilical area without rebound. Laboratory testing revealed leukocytosis with left shift (17,700/mm3). Comprehensive metabolic panel, serum lactate, amylase, lipase and urine analysis were normal. A CT scan of the abdomen with contrast showed small bowel edema and moderate ascites. Ultrasound of the gallbladder and liver was normal. Patient was placed on bowel rest and analgesics. Ascitic fluid analysis was consistent with non-infectious exudate. Stool was negative for occult blood, ova, parasites and routine cultures. She gradually improved in the next 2 days and was discharged after 4 days of hospital stay. None of the diagnoses like ischemia, infection, mechanical obstruction or inflammatory bowel disease would have resolved in this fashion. Patient was seen in the gastroenterology clinic a week later and additional work up including esophagogastroduodenoscopy was normal. A diagnosis of ACE-I induced visceral angioedema was suspected based on the temporal association with lisinopril and exclusion of other diseases. Hereditary angioedema was ruled out subsequently with normal levels of C1 esterase inhibitor, quantitative and functional assay, C2 and C4. Thus far, she has not had any recurrence with a 5 month follow up.
IMPLICATIONS/DISCUSSION: There are 19 cases of ACE-I induced visceral angioedema reported in the literature. It is more predominant in middle age females (18/19). In comparison, ACE-Inhibitor induced peripheral angioedema is reported to have an incidence of <1% with no gender or age predilection, though it is more commonly seen in the Blacks. Out of the 19 patients, only 3 had both peripheral and visceral angioedema. The proposed mechanisms include Bradykinin related edema, ACE-I induced antibodies and ACE-I induced deficiency of C1 esterase inhibitor in susceptible patients. Demonstration of a temporal association between the initiation of medication and the appearance of symptoms, as well as their resolution on stopping the medication is the key to the diagnosis. The onset of symptoms usually occurs within 24–48 hours of ingestion, but in one patient it has been reported after 9 years. Around 50% of patients had surgical intervention prior to the diagnosis, underlying the importance of having a high index of suspicion for the diagnosis and thus avoid unnecessary invasive procedures. Though rare, angiotensin receptor blockers (ARB) can cause peripheral angioedema but there are no reports of ARB induced visceral angioedema. Angioedema of any kind has not been reported with the new direct renin inhibitors like aliskiren. We suggest to not replace ACE-I with ARB unless there is a definite need like proteinuria or heart failure.

LOCK, STOCK AND TOO MANY SMOKING BARRELS! : DIFFUSE ALVEOLAR HEMORRHAGE IN A PATIENT WITH PRIMARY APS AND SEVERE MITRAL REGURGITATION.
A.R. Ganta[1]; V.M. Alla[1]; W. Gonsalves[1]; J. Gorthi[1]; T. Wichman[2]. [1]Creighton University, Omaha, NE; [2]Creighton University Medical Center, Omaha, NE. *(Tracking ID # 205940)*

LEARNING OBJECTIVES: - To highlight the wide spectrum of pulmonary manifestations in primary APS - To outline the diagnostic approach and management strategies in diffuse alveolar hemorrhage
CASE INFORMATION: A 25 year old female was admitted to a local hospital with hempotysis, dyspnea and subsequently transferred to our center. Past medical history was significant for a stroke and primary Antiphospholipid Antibody Syndrome (APS).Over the preceding few years she had multiple adverse pregnancy outcomes despite therapy with aspirin and low molecular weight heparin. She was 5 weeks pregnant at the index admission and was averse to any therapy that would jeopardize the fetus. Chest X ray, CT chest showed diffuse alveolar and interstitial infiltrates and bronchoscopy with lavage was

consistent with alveolar hemorrhage and Hemophilus influenza was cultured from BAL. Heparin and aspirin were stopped; broad spectrum antibiotics and pulse methyl-prednisone were initiated. Further work up revealed hypocomplementemia, prolonged aPTT and positive anti-cardiolipin and anti-phopholipid antibodies. ANCA, beta 2 Glycoprotein antibody, cryoglobulin, anti GBM antibody, ANA and anti dsDNA were negative. She subsequently developed progressive respiratory failure needing mechanical ventilation and had a spontaneous abortion. An echocardiogram revealed severe mitral regurgitation and diuretics were started. She was also started on IV Immunoglobulins as her platelets continued to drop and respiratory failure persisted. Patient gradually improved and was successfully extubated after a week although her thrombocytopenia persisted and serum was negative for anti-platelet antibodies. At 3 month follow up she was asymptomatic on Hydroxychloroquine, weaning doses of prednisone and is awaiting mitral valve surgery.

IMPLICATIONS/DISCUSSION: The spectrum of pulmonary involvement in APS includes pulmonary embolism, capillaritis, pulmonary hypertension, DAH (diffuse alveolar hemorrhage) and ARDS. The precise mechanism of DAH in APS is not fully understood. Proposed pathogenetic mechanisms include vasculitis and microvascular thrombosis which lead to widespread alveolar wall destruction and hemorrhage. DAH often occurs in association with collagen vascular disorders and systemic vasculitides like lupus, Wegener's , Goodpasture's etc. DAH can secondary into inflammatory and non- inflammatory mechanisms and based on histology further categorized into : 1.Bland Alveolar hemorrhage without inflammation 2.Diffuse Alveolar damage with septal edema and hyaline membranes. 3.Pulmonary Capillaritis with vessel destruction . Primary APS is a very uncommon cause of DAH and to date only 17 such cases (with a male preponderance of 14:3) have been reported. Though bronchoscopic lavage with sequential aliquots is fairly sensitive to the diagnosis of DAH, biopsy evidence of capillaritis or microangiopathy is necessary to establish APS as the etiology. Severe pneumonia, acute lung injury and congestive heart failure are all potential causes of DAH and could have been either primary or contributory mechanisms in our patient. However, we were unable to perform an open lung biopsy in our patient due to the potential fetal jeopardy. Treatment of the underlying etiology and ventilator support are the cornerstones of therapy. As we could not ascertain the exact cause of DAH, we resorted to a multi-pronged approach using high dose steroids, diuretics and antibiotics to address APS, heart failure and pneumonia respectively.

LOOKING THROUGH THE GROUND GLASS: EVALUATING FEVER OF UNKNOWN ORIGIN M.S. Kale[1]. [1]New York University, New York, NY. *(Tracking ID # 205946)*

LEARNING OBJECTIVES: 1. Review the approach to the patient with fever of unknown origin. 2. Appreciate the differential diagnosis of diffuse ground glass opacities on Computed Tomography (CT) of the chest.

CASE INFORMATION: A 26 year old male from Mexico, with a history of End Stage Renal Disease secondary to Focal Segmental Glomeruloclerosis on hemodialysis for the previous two years, was referred for admission after he was noted to have fevers to 101 degrees on three consecutive hemodialysis sessions over one week. The patient had no focal complaints and no history of new medications, recent travel or toxic habits. Vital signs were notable for fever to 102.5 degrees, a heart rate of 110, normal blood pressure, respiratory rate, and oxygen saturation. Physical exam revealed a thin male with a normal cardiac and lung exam and no evidence of peripheral lymphadenopathy; his fistula site was unremarkable. A chest x-ray was unremarkable. Laboratory examination revealed a new pancytopenia: WBC count of 4.0 K/uL, Hgb of 8 g/dL, and a platelet count of 100,000 K/uL. The patient was persistently febrile with daily temperatures as high as 107 degrees for more than one week. Blood cultures were negative and further work-up included an ultrasound to rule out a fistula abscess, and a trans-esophageal echocardiogram to rule out endocarditis. Laboratory testing for CMV, EBV, VDRL, HIV, muscle enzymes, ANA, and RF were negative. A PPD was negative. A CT of the chest/abdomen/pelvis was performed to search for occult abscess and malignancy. The CT of the chest was notable for diffuse ground glass opacities without any other airspace processes. On bronchoscopy, the patient had diffuse alveolar hemorrhage, and a BAL was negative for acid fast bacilli (AFB.) Open lung biopsy revealed caseating granulomas, contained AFB organisms, and was Mycobacterium Tuberculosis PCR positive. We initiated treatment for tuberculosis and the patient gradually defervesced.

IMPLICATIONS/DISCUSSION: Fever in the absence of other clinical symptoms and signs carries a broad differential diagnosis. In light of out patient's history of ESRD, we initially pursued a focused work-up, which involved examining his fistula, ruling out endocarditis, and obtaining standard blood cultures. This patient's persistent fevers, despite a rational work-up, prompted us to approach this case as a fever of unknown origin. It is common to pursue laboratory testing that can serve as a diagnostic clue, such as tests for viral, fungal, collagen vascular diseases and vasculitis. In the absence of a diagnostic clue, a pan-scan CT of the chest/abdomen/pelvis with intravenous and oral contrast is a reasonable next-step. In our patient, the CT identified diffuse ground-glass opacities that were not appreciated on CXR and allowed us to pursue a more directed and invasive diagnostic test. The general internist often uses CT of the chest as a diagnostic study. As such, it is important to review the differential diagnosis of ground-glass opacities, a relatively common finding. Retrospective analyses have concluded that this finding falls into 1 of 4 categories: atypical pneumonia, chronic interstitial lung disease, acute air-space filling, and drug toxicity. The most common infectious causes include pneumocystis, CMV, and RSV pneumonia. In our patient, the ground glass opacities represented his tuberculous infection, a process which normally presents with a miliary pattern or as cavitary disease, and is an unusual CT finding of Mycobacterium Tuberculosis.

LOOKS CAN BE DECEIVING! M.F. Tanaka[1]; A. Kolpakchi[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 204354)*

LEARNING OBJECTIVES: 1. Recognize that cavitary sarcoidosis can be misdiagnosed as tuberculosis due to the similar clinical presentation and radiologic findings. 2. Realize the importance of timely diagnosis of cavitary sarcoidosis to prevent fatal outcome.

CASE INFORMATION: A 33-year-old African American man presented with progressive dyspnea, hemoptysis, and a 25-pound weight loss for one year. He was previously admitted at two different hospitals with these symptoms and treated with a short course of anti-tuberculosis medications. Blood, sputum, and bronchoalveolar lavage (BAL) cultures from these admissions were negative for Mycobacterium tuberculosis. He was anergic to skin testing. Patient denied fever, chills, night sweats, recent travel, and tuberculosis exposure. Social history was significant for a 10 pack-year of smoking and a history of incarceration from 1999 to 2003. Physical exam revealed no lymphadenopathy and decreased breath sounds in the upper lobes. Laboratory studies showed calcium 9.9 mg/dl, albumin 2.9 g/dL, and an elevated ACE level of 108U/L (nl 12–68). The HIV Ab (ELISA) was negative. CT scan of the chest showed bilateral apical cavitary lesions, a right intra-cavitary mass compatible with an aspergilloma, and calcified mediastinal lymph nodes. The endobronchial biopsy revealed non-caseating granulomas consistent with sarcoidosis. Blood and sputum cultures were negative. BAL culture was positive for Aspergillus. Resection of the aspergilloma was considered, but he was deemed as a poor surgical candidate due to poor respiratory status (FVC 36%, FEV1 33%, and DLCO 31%). The treatment with oral intraconazole and prednisone was started, but patient died as a result of massive hemoptysis one month later. Autopsy revealed diffuse non-caseating granulomatous inflammation of the lungs consistent with sarcoidosis without evidence of Mycobacterium infection.

IMPLICATIONS/DISCUSSION: Sarcoidosis in advanced stages may present with pulmonary cavitary lesions and can be misdiagnosed as tuberculosis due to the similar clinical and radiologic presentation. The estimated prevalence of cavitary sarcoidosis is 2.2%. It is more common in young patients with a male to female ratio of 13:3. Cavities probably result from ischemic necrosis of the granulomas or secondary to granulomatous angiitis. Clinical complications associated with cavitary sarcoidosis include pneumothorax, hemoptysis, bacterial infections, and aspergilloma. With early corticosteroid therapy, majority of patients with cavitary sarcoidosis improved, some with complete resolution of pulmonary cavities. The presence of an aspergilloma carries a poor prognosis due to increased risk of massive hemoptysis. Surgical resection of aspergilloma is recommended in patients with good pulmonary functional status. Delayed diagnosis can lead to fatal outcome. In essence, cavitary sarcoidosis should be considered in patients presenting with cavitary lesions and a negative Mycobacterium tuberculosis work up.

LOW BACK PAIN: A COMMON SYMPTOM RESULTING FROM AN UNCOMMON DIAGNOSIS S.A. Safo[1]; E. Sandman[2]; A.R. Carbo[2]. [1]Harvard University, Boston, MA; [2]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205555)*

LEARNING OBJECTIVES: Explain the evaluation, diagnosis and treatment of low back pain. Describe the pathophysiology and treatment of Pott disease.

CASE INFORMATION: A 40 year old Kenyan woman without a significant past medical history presented to clinic with a one year history of sharp low back pain that began after a fall. It was exacerbated by movement, and was minimally responsive to NSAIDs. The patient then became pregnant and attributed her continued low back pain to the pregnancy. She developed postpartum anterior thigh paresthesias that worsened with sitting. Plain films of the spine demonstrated nonspecific lumbar region abnormalities. MRI revealed T12 - L3 liquefaction, a left psoas abscess and cord compression. CT showed right pleural thickening and a pleural effusion. Given the findings, the patient's immigration from an area with endemic tuberculosis (TB) and the indolent nature of her symptoms, Pott disease was the leading diagnosis. The patient underwent debridement and spinal stabilization: Mycobacterium tuberculosis was seen in the surgical specimens and the sputum. The patient was subsequently treated with rifampin, isoniazide, pyrizinimide and ethambutol.

IMPLICATIONS/DISCUSSION: Low back pain affects up to 80% of the US population. Despite the wide differential diagnosis for low back pain, a focused history and physical can elicit findings that warrant immediate attention: age over 50 or under 20, history of trauma or cancer, unexplained weight loss, fever, neurological dysfunction, or unremitting pain should prompt diagnostic imaging with CT or MRI. In the absence of these features, treatment with NSAIDs is sufficient, although opiates or muscle relaxants may be warranted for severe cases. LBP unresponsive to conservative treatment may require steroid injections, physical therapy or surgery. In the United States, extrapulmonary tuberculosis is an uncommon cause of low back pain. Skeletal tuberculosis accounts for 10% of extrapulmonary TB. Pott disease (also known as Pott's disease), or spinal tuberculosis, comprises 50% of skeletal TB cases. In areas of high TB prevalence, Pott disease is seen in children, where it targets thoracic vertebrae. In the US, spinal TB occurs in the lumbar vertebrae of older adults, namely in immigrants from endemic countries and the immunocompromised. It occurs via hematogenous spread through the dense vasculature of cancellous bone into the anterior vertebral bodies. Lymphatic spread occurs less commonly. Up to 75% of infected individuals develop a nearby nidus of infection, commonly in the psoas muscle or as a paraspinal fistula. Left untreated, degeneration and inflammation of the vertebral body can lead to herniation into the cord space and to cord compression. Pott disease commonly presents as back pain with or without radiculopathy. Routine lab tests and the Mantoux skin test are of little diagnostic aid. MRI provides visualization of cord compression and paraspinal soft tissue involvement. Definitive diagnosis occurs when acid fast bacilli or pathognomonic caseating granulomas are seen on tissue examination. Individuals with early disease can be treated with an antibiotic regimen for six to twelve months. Surgical debridement, abscess drainage or vertebral fusion is indicated for patients with advanced neurological deficits, spinal kyphosis greater than 40%, or those who fail medical therapy. Thus Pott disease is an uncommon but treatable infectious condition that should be on the differential diagnosis of low back pain in select patients.

MANAGEMENT OF MASSIVE INFECTED PANCREATIC PSEUDOCYST D. Nikolic[1]; K. Rangelov[2]; S.S. Kaatz[2]. [1]Henry Ford Hospital Detroit, Sterling Heights, MI; [2]Henry Ford Hospital Detroit, Detroit, MI. *(Tracking ID # 205803)*

LEARNING OBJECTIVES: To appreciate the different options for draining large infected pancreatic pseudocysts.

CASE INFORMATION: We report a case of a 37 year old female with history of idiopathic chronic pancreatitis who presented with epigastric pain, bloody diarrhea and 40 pound weight loss over 2 months. Patient underwent illeal resection with right hemicolectomy with ileocolic anastomosis for biopsy proven Crohn's disease. Hospital course was complicated with persistent vomiting, secondary to development of a fast growing, massive pancreatic pseudocyst (19×16×21 cm). Percutaneous drainage was favored over the endoscopic approach due to concomitant Crohn's disease and a high suspicion for infection. Drained fluid was found to be infected with Candida albicans and Enterococcus fecalis. Two liters of turbid yellow fluid were initially removed from the pseudocyst, which continued to drain 800 ml/day for 8 days. The fluid was cultured and antibiotics with antifungals were started. The course was complicated by patient leaving against medical advice 4 days after admission. Due to the large amount of percutaneous drainage and discontinuation of the intravenous antibiotics, the patient was rehospitalized with dehydration and increasing white blood cell counts 5 days later. The patient was rehydrated and treated with intravenous antibiotics with marked improvement.

IMPLICATIONS/DISCUSSION: A pancreatic pseudocyst is a maturing collection of pancreatic secretions encased by reactive granulation tissue, occurring in or around the pancreas as a consequence of inflammatory pancreatitis or ductal leakage. There are two general approaches to the management of pancreatic pseudocysts: expectant management and drainage. In uncomplicated cysts, conservative management of six weeks is usually preferable to monitor for spontaneous resolution or to allow time for the pseudocyst wall to mature. Beyond that time, resolution rates are low and complication rates increase. Indications for drainage are rapid enlargement, compression of surrounding structures, pain or signs of infection. Drainage can be done surgically, endoscopically or percutaneously. Laparoscopic surgical drainage is shown to be very effective, with low risk of complications or recurrence. It remains the mainstay for multiloculated infected necrotic pancreatitis or acutely ill patients who are unable to wait for six weeks for the pseudocyst to mature. Endoscopic drainage is a nonsurgical invasive procedure with success rate greater than 90% in chronic and 70% in acute pancreatitis. Infected pseudocyst is not a contraindication to the procedure. However, a prerequisite for the procedure is six weeks of wall maturation time, permitting direct suturing of a cystenterostomy/gastrostomy connection. Percutaneous drainage is another nonsurgical approach if endoscopic drainage is not an option i.e. if the pseudocyst is not reachable through the stomach or deudonuem or drainage cannot be delayed 6 weeks. Disadvantages are prolonged external drainage, carrying the risk for dehydration and occasionally external fistula formation. In conclusion, we present a patient with massive rapidly expanding infected pseudocyst, which was successfully drained percutaneously resulting in marked improvement of her clinical course.

MASSIVE EMBOLIC CORONARY OCCLUSION IN A YOUNG MALE WITH A HYPERCOAGULABILITY DISORDER S. Reddy[1]; A. Dave[1]; J.A. Aboulhosn[2]; J. Moriguchi[1]. [1]University of California, Los Angeles, Los Angeles, CA; [2]University of California, Los Angeles, Torrance, CA. *(Tracking ID # 206104)*

LEARNING OBJECTIVES: 1. Recognize the importance of maintaining a broad differential diagnosis in a young patient with chest pain. 2. Understand different mechanisms causing acute coronary syndrome (ACS) in younger patients

CASE INFORMATION: A 27 year old Indian male presented to the ER with acute onset of severe substernal chest pain. A few days prior he had traveled cross-country with no complications. Past medical history was significant for prior pulmonary embolism (PE) and deep vein thrombosis (DVT) status post one year of anticoagulation, along with mild lupus anticoagulant positivity. He stopped Coumadin a few months prior and was not on any other medications. Exam was significant for mild tachycardia and the presence of the Levine sign. EKG showed ST elevations in leads I, aVL, and V2-V6 with heart rate in low 100 s. Labs were significant for troponins markedly elevated to 424. He was taken for a left heart cath that showed a thrombotic occlusion of the proximal LAD that was treated with aspiration thrombectomy. A small pulmonary artery to coronary fistula was found along with an occluded anomalous vessel from the proximal LAD that possibly represented another fistulous tract though its destination was not discerned. There was no evidence of right to left shunting by bubble study. Echo showed severe hypokinesis of the entire apical half of the heart along with the septum with left ventricular ejection fraction of 25–30%. A cardiac viability test showed no viable myocardium in the mid to distal anterior and septal walls, and apex. A chest CTA showed the presence of an acute PE in the right lower lobe. The patient was admitted to the CCU in carcinogenic shock requiring the use of

inotropes and intra-aortic balloon pump but was weaned off after four days. An extensive hypercoagulability workup revealed only a moderately positive lupus anticoagulant. He was started on lifelong Coumadin therapy with INR goal 2.5 to 3.5. A rheumatology workup only showed a mildly elevated ESR. Neoplastic and infectious disease workup failed to reveal anything significant. Patient's clinical course was complicated by Dressler's Syndrome, which was treated with high dose Aspirin.
IMPLICATIONS/DISCUSSION: This case illustrates the importance of being vigilant for ACS in young patients with chest pain by maintaining a broad differential diagnosis. Often in these young patients with ACS, typical CAD risk factors play a lesser role and other mechanisms that cause thromboses need to be evaluated. Usually these mechanisms have some underlying hematologic, autoimmune, or neoplastic pathology. Similarly, in patients with previously established hypercoagulability, thrombotic and embolic complications need to be considered and further evaluated. In this patient, his recent travel and positive lupus anticoagulant could have led to the formation of a venous thrombus that then would have propagated to the lungs and then, most likely via the fistula seen on left heart cath, entered the coronary circulation and occluded the LAD. The exact etiology was never fully established and other causes of arterial and venous embolization were entertained as well.

MASSIVE SPLENOMEGALY AND ARTIFACTUAL HYPOGLYCEMIA: TWO FINDINGS IN CHRONIC MYELOGENOUS LEUKEMIA K. Ard[1]; R. Ludwig[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205206)*

LEARNING OBJECTIVES: 1. Recognize massive splenomegaly and its implications for the differential diagnosis of splenic enlargement. 2. Identify the artifactual hypoglycemia of extreme leukocytosis.
CASE INFORMATION: A 34-year-old male with no chronic medical problems presented to his primary care physician with an unintentional 50-pound weight loss over one year. He otherwise felt well and denied gastrointestinal symptoms, fevers, chills, and night sweats. He was taking no medications, and his family history was unremarkable. The patient had never had sexual relations or traveled outside of the US. His physical examination on presentation was notable for the presence of a markedly enlarged spleen extending to the right lower quadrant of the abdomen. Lymphadenopathy was absent. With the exception of pre-existing strabismus, a detailed neurological examination was normal. A complete blood count revealed a hematocrit of 26.4%, platelets of 414/μL, and a white blood cell count of 432,600/μL with 29% polymorphonuclear leukocytes, 3% bands, 39% metamyelocytes, 9% myelocytes, 6% promyelocytes, 2% lymphocytes, and 2% eosinophils. A complete metabolic panel was remarkable for a glucose of 34 mg/dL. The patient was admitted to the hospital. Upon admission, he was given intravenous fluids and hydroxyurea. His fingerstick glucose was 83 mg/dL. Computed tomography of the abdomen confirmed a markedly enlarged spleen extending from the left upper quadrant to the iliac crests. A bone marrow biopsy revealed myeloid hyperplasia with fewer than 5% blasts, and cytogenetic analysis of peripheral blood disclosed a BCR-ABL translocation, all consistent with a diagnosis of chronic myelogenous leukemia (CML). Imatinib was begun, and the patient was discharged on the 7th hospital day. Two months after presentation, he was doing well with a white blood cell count of 12,100/μL and a serum glucose of 84 mg/dL.
IMPLICATIONS/DISCUSSION: We describe the case of a 34-year-old male who presented with marked splenomegaly and asymptomatic hypoglycemia. The detection of massive splenomegaly on examination, often defined as extension of the spleen below the umbilicus, helped focus the otherwise broad differential diagnosis of splenic enlargement (1). Only a few disorders – most notably hematologic neoplasms, Gaucher's disease, malaria, visceral leishmaniasis, and Mycobacterium avium complex (MAC) – cause massive splenomegaly (2). Of these, hematologic diseases, particularly CML, are the most common (1). Malaria and leishmaniasis were effectively ruled out in this patient given his lack of exposure, and MAC was considered unlikely without a history of immunocompromise. The patient's history and physical examination findings thus pointed to a hematologic disorder even prior to laboratory testing. His hypoglycemia on a laboratory sample but normal fingerstick glucose was recognized as an artifact of extreme leukocytosis. This well-described phenomenon has been attributed to glucose consumption in vitro by leukocytes during transport from the bedside to the laboratory (3). 1. O'Reilly RA. "Splenomegaly in 2,505 patients at a large university medical center from 1913 to 1995." WJM 1998; 169(2):78–97. 2. Abramson JS, Chatterji M, Rahemtullah A. "Case 39-2008: A 51-year-old woman with splenomegaly and anemia." NEJM 2008; 359(25):2707–2718. 3. Ybarra J, Isern J. "Leukocytosis-induced artifactual hypoglycemia." Endocrine Journal 2003; 50(4):481–482.

MASTITIS NOT RESPONDING TO ANTIBIOTICS - A CASE OF NON CASEATING GRANULOMA OF THE BREAST T.S. Pandey[1]. [1]John H. Stroger Jr. Hospital of Cook County, Chicago, IL. *(Tracking ID # 204020)*

LEARNING OBJECTIVES: (1) Describe clinical evaluation of Granulomatous Mastitis (2) Describe non surgical management of Granulomatous Mastitis with steroids
CASE INFORMATION: A 25 year old Hispanic female presented to the Breast Clinic with complaints of left breast lump with pain and redness for 10 days. She had an unremarkable past medical history and family history. She was born in Hidalgo, Mexico and received BCG vaccine. She has two children, the youngest was two years old at presentation and completed breast feeding one year ago. On physical examination, her temperature was 99.1 F and a 5 cm×5 cm firm erythematous tender mass was palpated in the upper outer quadrant of the left breast. Fine needle aspiration revealed acute inflammation. Empiric antibiotics were prescribed for two weeks. Bacterial, fungal and tuberculosis cultures were negative. After no clinical improvement a core biopsy was performed showing focal non caseating granulomas consistent with Granulomatous Mastitis. Prednisone was prescribed with symptomatic relief in one week.
IMPLICATIONS/DISCUSSION: Granulomatous Mastitis is described as an infrequent, benign, chronic inflammatory breast disease. The etiology of this disease remains unclear. It mimics infectious mastitis and breast cancer, resulting in unfortunate outcomes like prolonged and unnecessary treatment with antibiotics, lumpectomy and even mastectomy. Theories for its causation include an underlying autoimmune process, a lactation related disorder, hyperprolactinemia, Corynebacterium infection and a remote consequence from BCG vaccination. Recurrence rates of 16%-50% have been reported. A patient tailored approach including observation, tapering steroids, and surgery with local excision, or total mastectomy have all been recommended. No evidence based clinical guidelines for management exist but clinically useful management algorithms have been published recently based on case reports and small retrospective reviews. There are no randomized clinical trials comparing treatment options. The patient described above is one of a cohort of 27 patients with Granulomatous Mastitis seen in the Breast Clinic at John H. Stroger Jr. Hospital of Cook County Chicago, IL since 2008. The diagnostic and therapeutic challenges associated with this condition led us to examine this cohort more carefully. 23 patients were Hispanic and the average age was 34 years. 22 were born in Mexico and 21 were within five years of their last childbirth. None were currently breast feeding. Hispanics comprise 30–35% of the total referrals to the Breast Clinic whereas 85% of our Granulomatous Mastitis cohort was Hispanic. Ethnic predominance from Mediterranean and Asian countries has been reported previously. To avoid mutilating surgery in our cohort, treatment with tapering steroids over a period of 6–15 months was found to be effective in reducing pain, tenderness, erythema and lump size in 25 patients. Implications for subsequent clinical practice warrants further study of these results. Long term follow up of a large number of cases by a multidisciplinary team of specialists in a collaborative effort to precisely interpret clinical, radiologic and pathologic findings and avoid unnecessary surgery is needed.

MEDIASTINITIS FOLLOWING DENTAL EXTRACTION T.C. Gonzales[1]; P. Katyal[1]; J. Sweet[1]. [1]Carilion Clinic, Roanoke, VA. *(Tracking ID # 205359)*

LEARNING OBJECTIVES: 1) Recognize that descending mediastinitis can be caused by infections of the head and neck that spread via the pretracheal fascia. 2) Recognize that wisdom teeth extraction can lead to descending mediastinitis.
CASE INFORMATION: Mediastinitis is a well-recognized complication of chest surgery, especially cardiac surgery. It is a less well-known

complication of head and neck infections, and it rarely occurs following tooth extraction. A 23-year-old woman presented to the emergency department 2 days after undergoing extraction of her wisdom teeth. She developed redness and swelling of the face that rapidly spread to involve the neck, chest and left breast. She complained of fever, dyspnea and dysphagia. Her blood pressure was 64/41 mm Hg, pulse 140, temperature 99.7 F and respiratory rate 25. There was erythema and edema of the subcutaneous tissues of the face, neck and upper chest without crepitus or fluctuance. There were no signs of infection within the oral cavity. The rest of her examination was unremarkable. The WBC count was 6,800 per mm3 with 69% bands and 14% metamyelocytes. She had acute renal failure with lactic acidosis. She was treated initially with intravenous fluids, vasopressors, piperacillin-tazobactam, clindamycin and vancomycin. Plain radiographs showed marked soft tissue swelling of the mouth, chin, submandibular space and neck, with tracheal deviation and hypopharyngeal impingement. Computed tomography (CT) confirmed cellulitis and fasciitis involving the face, neck, strap muscles, anterior and middle mediastinum, and pericardium. There was no focal abscess. Blood cultures grew pan-sensitive group A beta-hemolytic streptococcus. Echocardiography was normal without pericardial effusion. Large, sterile, complicated pleural effusions with an LDH of 1972 IU/L developed, necessitating bilateral drainage with 19-French tubes. She improved gradually and was discharged on hospital day 12.
IMPLICATIONS/DISCUSSION: Successful treatment of descending mediastinitis from the head and neck region requires prompt recognition and institution of appropriate measures, as these infections can be rapidly progressive and fatal. Most cases of descending mediastinitis require aggressive surgical measures, but early intervention in this case necessitated only meticulous intensive care and tube thoracostomy. This case highlights the potential role of minimally-invasive management of descending mediastinitis from an odontogenic source. Additionally, surveillance by serial CT is important in following known or suspected mediastinitis.

MESENTERIC FIBROMATOSIS AS AN UNUSUAL CAUSE OF ABDOMINAL PAIN J. Wang[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 205956)*

LEARNING OBJECTIVES: 1. Review the background and risk factors of mesenteric fibromatosis. 2. Understand the treatment options for these unique, benign neoplasms.
CASE INFORMATION: A 61 year old African American male with past medical history of hypertension and hyperlipidemia presented with a 2 day history of sharp lower abdominal pain, nausea, non-bloody emesis, and watery diarrhea. These symptoms first occurred in 2006 when he presented to the ER, had unremarkable films, and was discharged. In 2007, he suffered 3 more similar episodes, each worsening in duration and severity. The patient had no fever, weight loss, dysphagia, odynophagia, or melena/blood per rectum/hematochezia. The patient has had no previous abdominal surgeries, has 20 pack years of tobacco, and family history is negative. On admission, vital signs are normal and physical exam is significant for mild abdominal distension and multiple firm, non-tender abdominal masses (largest 6 cm×6 cm). There was no hepatosplenomegaly, rebound, or guarding, and rectal exam was negative for masses or occult blood. Labs: CBC, BMP, LFTs, coagulation panel, UA, amylase, lipase, CEA, CA19-9, CA-125, and β2-microglobulin were normal. An Abdomen/Pelvis CT showed large soft tissue masses in the mesentery and omentum. The patient had an exploratory laparotomy with unresectable masses given extensive intestinal involvement. Biopsies revealed spindle cell lesions consistent with fibromatosis. The patient presented three more times after the initial diagnosis, twice with partial small bowel obstruction that resolved with conservative management, and the third time with bowel perforation. He went to the operating room, was found to have multiple small bowel masses, multiple areas of obstruction, peritonitis, and mesenteric abscess, and had a small bowel resection. Surgical pathology again revealed mesenteric fibromatosis.
IMPLICATIONS/DISCUSSION: Mesenteric fibromatosis, also known as mesenteric desmoid tumors, are rare, benign fibroblastic neoplasms that account for 0.03% of all neoplasms. These tumors most commonly occur in the abdominal wall and extremities, but can occur in the mesentery. They have no metastatic potential, but can be locally aggressive. The clinical presentation varies and includes masses, abdominal pain, nausea, vomiting, diarrhea, hematochezia, and small bowel obstruction. Risk factors include familial adenomatous polyposis, high estrogen, and trauma or surgery. FAP increases the risk by almost 1000-fold, and with the added risk from prophylactic surgery, desmoid tumors are becoming an increasing cause of morbidity and mortality in this population. Treatment is a clinical challenge because the natural history is variable and it is unclear whether intervention improves survival. Close observation is acceptable for stable, asymptomatic desmoids. Although surgery can be an option, it is often technically difficult for intra-abdominal desmoids. Even after complete removal, there is a high rate of recurrence with multiple tumors. For unresectable masses, there are a few systemic treatment options, which include tamoxifen, NSAIDS, chemotherapy (for rapidly growing or symptomatic tumors), and preliminary data for imatinib. Mesenteric fibromatosis is a rare, benign neoplasm that can lead to significant morbidity and should be considered as a cause of gastrointestinal symptoms. Treatment can be challenging given its predilection for surgical sites and tendencies for recurrence, and its management truly mandates individual tailoring.

METASTATIC ATYPICAL BRONCHIAL CARCINOID PRESENTING AS ECTOPIC ACTH-DEPENDENT CUSHING'S SYNDROME IN A 26 Y/O WAR VETERAN: LESSONS LEARNED. G. Shull[1]; H. Hussain[2]; W. Fowler[1]. [1]Kansas City Veterans Affairs Hospital, Kansas City, KS; [2]Kansas City Veterans Administration Hospital, Kansas City, KS. *(Tracking ID # 205105)*

LEARNING OBJECTIVES: 1. To understand a typical flow of evaluation associated with diagnosing an ectopic ACTH producing tumor 2. To recognize that psychological and physical symptoms of Cushing's syndrome can easily be mistaken for stressors of war in a soldier
CASE INFORMATION: A 26-year-old man returning from the Iraq war on no medications with no past medical history presented with multiple classic symptoms of Cushing's syndrome (CS), including severe depression and anxiety as well as multiple physical stigmata. Progressive testing revealed ACTH-dependent CS; initial 24-h urine free cortisol (UFC) was 3799.4 mcg/24 h and 9433.8 mcg/24 h (normal<4.0–50.0 mcg/24 h), late afternoon cortisol of 43 mcg/dl and 35 mcg/dl (normal 3–16 mcg/dl) corresponding to ACTH of 187 pg/ml and 191 pg/ml (normal 7–50 pg/ml), respectively. Serum cortisol partially suppressed after overnight high-dose dexamethasone (HDDST) to 11.7 mcg/dl, and UFC was 1244.4 mcg/24 h. Profound refractory hypokalemia ensued compounding the urgency for diagnosis. CT-scan of the chest revealed a left upper lobe bronchial lesion which intensified on somatostatin-receptor scintigraphy. Left upper lobe resection revealed atypical bronchial carcinoid tumor metastatic to local lymph nodes. Cortisol and ACTH lessened to subnormal values within the same hospital stay. Tertiary adrenal insufficiency resolved after 4 months of corticosteroid replacement. A year later he remains without signs or symptoms of hypercortisolism.
IMPLICATIONS/DISCUSSION: Ectopic ACTH secretion (EAS) from non-pituitary tumors causes about 10% of CS. EAS can present at any age with variable features including weight gain, menstrual irregularities, fractures, cognitive disorders, depression, hypertension and weakness. Small cell lung cancer, bronchial, thymic, and pancreatic carcinoids can cause ectopic corticotropin secretion. Of all carcinoid tumors, 25% are located in the respiratory tract. CS is present in about 2% of patients with pulmonary carcinoid. When CS is suspected, if initial screening with 24-h UFC, DST or late night salivary cortisol (2 samples) is positive, corticotropin dependency is detected by elevated plasma ACTH levels with concurrent high plasma cortisol levels. Furthermore with HDDST, patients with EAS fail to suppress their cortisol levels. However, not all bronchial carcinoids are resistant to suppression. Chest CT, MRI or somatostatin analogue scintigraphy can be used for localization. Resection provides cure, but recurrence can occur. For patients with non-resectable tumors or where primary tumor cannot be identified, hypercortisolism can be controlled with medications that reduce adrenal cortisol production. Tertiary adrenal insufficiency can occur after surgical resection of EAS tumor. The chronically high serum cortisol concentrations before treatment suppress the HPA axis in the same manner as chronic administration of high doses of glucocorticoids. It is important to recognize the typical presentation of EAS CS. Often these tumors are indolent and make for an atypical, perhaps subtle presentation. This case gives us the chance to highlight a typical flow of evaluation associated with diagnosing such a tumor

and highlights the importance of not being fooled by masked symptoms, such as depression, in those returning from war. Psychological and physical symptoms of CS can easily be mistaken for the stressors of war in a soldier.

MILK-ALKALI SYNDROME- A RESURGING CAUSE OF HYPERCALCEMIA S. Nadipineni[1]; H. Garapati[2]. [1]University of Alabama-Montgomery internal Medicine residency program, montgomery, AL; [2]University of Alabama Montgomery Internal medicine residency program, Montgomery, AL. *(Tracking ID # 205971)*

LEARNING OBJECTIVES: Milk-alkali syndrome is caused by excessive ingestion of calcium or alkali. It consists of the triad of hypercalcemia, metabolic alkalosis and renal failure. It is now a resurging cause of hypercalcemia and obtaining a detailed history is crucial in making the diagnosis

CASE INFORMATION: A 48 year old female with history of bipolar disorder, hypertension, hypothyroidism presented with complaints of nausea, vomiting, severe weakness and confusion for 4 days. On admission, vitals were stable. She was lethargic and had dry mucous membranes. Physical examination did not reveal any breast or pelvic masses. Labaratory data revealed severe hypercalemia of 20.3 mg/dl, creatinine 3.6 mg/dl and bicarbonate level of 36 mmol. Work up for the cause of hypercalcemia was initiated which revealed low intact parathyoid hormone and 25 OH vit D. Other diagnostic tests like chest x-ray, serum and urine protein electrophoresis, thyroid profile, ck level and serum cortisol level were normal. Patient was admitted to intensive care unit for close monitoring and treated with intravenous hydration and diuresis. Patient responded well with resolution of her symptoms, normalization of serum calcium level and improved renal function. Mean while, additional history revealed that she was taking excessive amounts of calcium carbonate for dyspepsia.

IMPLICATIONS/DISCUSSION: Milk-alkali syndrome was a common cause of hypercalcemia in early 1900 s when sippy regimen (a powder containing magnesium carbonate, sodium bicarbonate and bismuth subcarbonate) used as treatment for peptic ulcer disease (PUD). With the advent of other drugs for PUD, it became a rare cause of hypercalcemia. Milk alkali syndrome now became the third leading cause of hypercalcemia behind primary hyperparathyroidism and malignancy. The reasons for this resurgence are readily available over the counter calcium carbonate preparations; using calcium preparations to treat conditions like secondary hyperparathyroidism in chronic kidney disease and as supplement in treatment of osteoporosis and dyspepsia. This case emphasizes the importance of obtaining detailed history including over the counter medications and considering milk-alkali syndrome as a potential common cause of hypercalcemia.

MIMICKING COMMUNITY-ACQUIRED PNEUMONIA (CAP): THE DIAGNOSIS IS AS CLEAR AS BLOOD H. Kim[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 204196)*

LEARNING OBJECTIVES: Recognize that many inflammatory conditions including Wegener's granulomatosis may present with clinical, radiological and laboratory findings similar to pneumonia.

CASE INFORMATION: A 60-year-old male with a past medical history of rheumatoid arthritis (RA) and a 40-pack-year smoking history presented to the Emergency Department (ED) with a 6-day history of fevers, chills, shortness of breath and nonproductive cough. He was seen at an outside ED 4 days prior and was found to have a right-sided opacity on a chest x-ray. He was given antibiotics and discharged. His fevers and chills persisted, and he presented to our ED. He denied sick contacts, recent travel history, or use of immunosuppressive medications. Vitals were temp: 38.5 °C, HR 103, RR 20, BP 151/77, O2 sat 91% RA. On physical examination, bilateral crackles were present in the mid/upper lung fields. Laboratories tests were the following: WBC count 5.9 K/MM3, Hgb of 9.9 g/dl, BUN 23 mg/dl, Cr 1.0 mg/dl, UA with 250/ul blood, 5–10 RBCs/HPF, no casts. He was started on ceftraixone and azithromycin for CAP. His dyspnea improved initially but he continued to have fevers and chills. He underwent a high-resolution CT of chest which showed multifocal areas of consolidation primarily in the right upper lobe with surrounding groundglass opacification. A bronchoscopy was performed which showed bloody secretions in the left and right upper lobes with serial bronchoalveolar lavage demonstrating bloody return concerning for pulmonary hemorrhage. He was started on methylprednisolone with resolution of his symptoms. Due to concern for systemic vasculitis, he subsequently underwent further evaluation including a renal biopsy which was diagnostic of Wegener's granulomatosis.

IMPLICATIONS/DISCUSSION: CAP that is non-responsive to antibiotic treatment warrants a careful evaluation. Host factors, such as comorbidities, age, and humoral immunity may affect the patient's response, but resistant or unusual infectious pathogens should also be considered. Non-infectious etiologies that can mimic pneumonia include neoplastic disorders as well as inflammatory disorders such as Wegener's granulomatosis. Wegener's granulomatosis is a systemic vasculitis that primarily affects the upper and lower respiratory tracts and the kidneys. Alveolar hemorrhage can be a prominent pulmonary manifestation of Wegner's granulomatosis, estimated to occur in about 5 percent of cases, and may be the initial finding. Diffuse alveolar hemorrhage most often presents acutely (less than 7 days) and hemoptysis may be absent in up to 33 percent of patients.

MISDIAGNOSIS OF ACUTE ABDOMINAL PAIN: REVISITING RECTUS SHEATH HEMATOMA. S.M. Karnam[1]; V.M. Alla[1]; J. Porter[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 204056)*

LEARNING OBJECTIVES: 1. Recognize Rectus Sheath Hematoma (RSH) as a cause for acute abdominal pain 2. Recognize risk factors and identify appropriate diagnostic tests 3. Understand that early recognition can be life saving in anti coagulated patients

CASE INFORMATION: A 78y male with h/o mitral valve replacement and ischemic heart disease was admitted for decompensated heart failure. He was started on heparin due to sub therapeutic INR. Patient then developed severe abdominal pain. Examination revealed no obvious swelling, normal bowel sounds, diffuse tenderness and guarding predominantly in the LLQ. He became hypotensive, had a drop in hemoglobin (from 10 to 8.4) and a negative FOBT. Patient was transferred to the Intensive care unit and resuscitated with crystalloid and PRBC. Emergent Ultrasound revealed a large complex fluid collection in the lower abdominal wall. CT abdomen-pelvis showed a large fluid collection deep to the lower abdominal wall consistent with rectus sheath hematoma. Anticoagulation was reversed and patient improved with supportive management. Anticoagulation was later restarted and therapeutic INR achieved without complications.

IMPLICATIONS/DISCUSSION: Acute abdominal pain is common emergency. Medical training rightfully emphasizes the recognition and treatment of common intra abdominal emergencies like appendicitis and pancreatitis etc. There is a however a relative lack of emphasis and awareness about parietal problems presenting as acute abdomen. RSH denotes collection of blood in the rectus sheath. Trauma (accidental or surgical) is the usual cause. A sizeable number of patients have no antecedent trauma or have minor strain like severe cough. Such spontaneously occurring RSH is usually associated with anti coagulant and anti platelet therapies. Hematomas above the arcuate line are generally caused by damage to the superior epigastric artery. They are small, unilateral and self limited due to tamponade by the rectus sheath. On the other hand hematomas below the arcuate line are caused by damage to the inferior epigastric artery, bleed more profusely and extend across the midline. This extensive dissection is atributable to the absence of posterior sheath wall (here the rectus muscle is supported only by the transversalis fascia). Physical exam reveals tender swelling in the parietal wall which usually does not cross the midline. Typically the swelling and pain increase with the head raising maneuver and have been named Fothergill's and Carnett's sign respectively. A fall in hemoglobin and abdominal pain in a patient on anticoagulation should prompt evaluation for RSH apart from other possibilities like retroperitoneal bleed. Non contrast CT scan is the imaging of choice. However ultrasonography is a useful initial test due to its portability. Management is usually conservative as the natural course of this problem is self limiting and involves reversal of coagulopathy and RBC transfusion whenever appropriate. Coil/gel foam embolization of the epigastric arteries is occasionally needed for securing hemostasis and stabilizing hemodynamics. Prognosis is usually benign and resolution without sequelae is the rule when recognized and treated early.

MORE THAN JUST SKIN DEEP K.A. Cook[1]; V. Peterson[2]; J.N. Wainaina[3]. [1]Medical College of Wisconsin, Wauwatosa, WI; [2]Medical College of Wisconsin, Milwaukee, WI; [3]Medical College of Wisconsin, Evanston, IL. *(Tracking ID # 204044)*

LEARNING OBJECTIVES: Recognize the clinical features of multicentric Castleman's disease in AIDS patients
CASE INFORMATION: A 30 year-old Caucasian male with untreated HIV infection since 2005 presented to our facility with a four month history of malaise, unintentional 20 lb weight loss, shortness of breath, low-grade fever and diarrhea. Three weeks earlier he had noticed painless, non-pruritic skin lesions. On exam, he was afebrile, tachycardic and normotensive. He was noted to have pallor, anterior and posterior cervical chain lymphadenopathy, and massive splenomegaly. He had purple and erythematous papules on his trunk, extremities, face and posterior pharynx. He was also found to be profoundly anemic and leukopenic with a hemoglobin of 5.6 G/dL and white blood cell count of 2.1×103/μL. His CD4 count was 36/uL and HIV viral load was 61,242 copies/mL. CT scans showed retroperitoneal, porta hepatis, gastrohepatic, cervical and mediastinal lymphadenopathy. Biopsy of the lesions revealed Kaposi's sarcoma (KS). Lymph node biopsy showed positive immunohistochemistry for human herpesvirus 8 (HHV-8), and was consistent with plasma cell variant multicentric Castleman's disease (MCD). A bone marrow biopsy was consistent with untreated HIV. He was treated with epogen and blood transfusions for his anemia and filgrastim for leukopenia. He was discharged home with outpatient initiation of both HAART and MCD treatment.
IMPLICATIONS/DISCUSSION: Castleman's disease, also known as angiofollicular lymph node hyperplasia, is a lymphoproliferative disorder, the multicentric form of which can present in association with KS and HHV-8 in HIV patients. The presentation of MCD is vague and is difficult to discern from HIV. KS in the setting of HIV, anemia and diffuse peripheral lymphadenopathy should lead to further investigation as 40% of MCD is associated with KS in the HIV positive population (Oksenhendler, et al. AIDS 1996 Jan;10(1):61–7). While MCD in HIV may not present with overt KS, nearly all patients are HHV-8 positive. The diagnosis of MCD can only be made histologically, so a high degree of suspicion is imperative to making the correct diagnosis. Due to the relatively low incidence of MCD there is no recognized standard of care, however a variety of therapies have been described. In the post-HAART era, the median survival is 48 months from diagnosis (Aaron, et al. Clinical Infectious Disease 2002 Oct;35(7):880–2). Mortality is often related to infection, progressive disease, or other malignancies such as non-Hodgkin's lymphoma.

MULTIORGAN SYSTEM FAILURE IN A 77 YEAR OLD MALE FOLLOWING ADMINISTRATION OF THE YELLOW FEVER VACCINE J.D. Thomas[1]; W.A. Brzezinski[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 204880)*

LEARNING OBJECTIVES: · Recognize the potential complications of yellow fever vaccine administration
CASE INFORMATION: 77 year old white male with diabetes, hypertension, and factor V leiden who presented to his primary care physician complaining of gait unsteadiness, urinary urgency, and fatigue approximately six days after receiving the yellow fever vaccine. At the time of presentation the patients' only lab abnormality was a slight bump in his creatinine from a baseline of 1.0 to 1.4. The patient was admitted to the hospital the following day after he began running a fever and complaining of nausea and vomiting. Over the next 24 hours the patient continued to spike fevers in excess of 103, and he quickly progressed to hemodynamic instability and sepsis syndrome. Continued cardiopulmonary support with pressors and intubation was required, as multiple other organ systems failed. The patient experienced oliguric renal failure requiring hemodialysis with a peak creatinine of 4.5, as well as acute hepatitis (AST 312, ALT 106), and a coagulopathy (INR 5.1) that did not resolve with fresh frozen plasma. Other lab abnormalities included a leukocytosis (25 k), associated with lymphopenia (<1%), and thrombocytopenia (45 k). The patients' neurological status also declined to the point where he no longer withdrew to pain. Multiple cultures and viral PCR's were sent to identify a source of sepsis, but none was ever identified. CT scans and MRI's of the patients entire body were also unremarkable. The patient continued to require cardiovascular support despite broad spectrum antibiotics, antiviral, and antifungal coverage, and he required volume resuscitation until the point of diffuse anasarca with a weight gain of greater than 120 pounds. After more than a week of continued cardiopulmonary support, the patients' family decided to withdraw care, and the patient passed away.
IMPLICATIONS/DISCUSSION: Within the last several years, the CDC has noted a serious adverse reaction syndrome with the administration of the yellow fever vaccine. The illness is now termed yellow fever vaccine associated viscerotropic disease and has been characterized by fever, hepatitis, lymphocytopenia, thrombocytopenia, hypotension and respiratory failure. Between 1996 – 2001 only seven case reports of this syndrome were identified, and six of the patients experienced multiorgan system failure and eventual death. According to unpublished data from the CDC, an additional 24 suspected cases have been identified worldwide as of August 2006. The disease is clinically and pathologically very similar to naturally acquired yellow fever and all cases reported thus far, have occurred in patients receiving their primary vaccination. The risk of acquiring yellow fever for United States travelers is often comparable to the risk of severe adverse events from the vaccine. Therefore, because severe adverse events can follow yellow fever vaccination, the CDC recommends that physicians should be careful to administer the vaccine only to persons truly at risk for exposure to yellow fever. Currently the CDC is conducting a multiple studies to help determine the rate, risk factors, and any genetic risk factors associated with the adverse effects of the vaccine. References: Yellow Fever Vaccine Recommendations of the Advisory Committee on Immunization Practices (ACIP), 2002; Centers for Disease Control and Prevention. Health Information for International Travel 2008. Atlanta: US Department of Health and Human Services, Public Health Service, 2007.

MY MYSTERIOUS MYXOMA C. Burns[1]; M. Glass[1]. [1]Tulane, New Orleans, LA. *(Tracking ID # 203876)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of myxoma 2. Identify non-ischemic causes of chest pain
CASE INFORMATION: A 46-year-old man presented with three months of progressively worsening, sharp chest pain radiating to his back. The pain was worse with deep breathing, and with sitting in an erect position. He also reported shortness of breath at rest and with exertion but no other symptoms. He had no sick contacts or recent travel. With the exception of tachypnea and tachycardia, his vital signs, including oxygen saturation, were normal. He had a normal heart, lung, and abdominal exam. The chest pain was reproducible with palpation of the chest wall. Laboratory studies were notable for a normal white blood cell count; his hemoglobin was 8 g/dl. A transthoracic echocardiogram revealed an ejection fraction of 40% and a 2.5-cm×1-cm, freely mobile mass in the left ventricle attached by a small stalk to the distal inferior septum. On the second day of hospitalization, he underwent cardiac arrest and died. The patient's family declined an autopsy, so tissue diagnosis was not obtained.
IMPLICATIONS/DISCUSSION: Chest pain is one of the most common chief complaints handled by internists. Though often related to standard pulmonary or cardiac disease, it can sometimes involve more unusual processes, such as the cardiac mass observed in this case. Chest pain and dyspnea in the presence of platypnea should prompt the internist to consider two pathophysiologic categories: 1) Interstitial lung disease with basilar predominance, and 2) Myxoma. In the apical lung disease, the flat position shunts blood to the undamaged apical portions of the lung, increasing oxygenation and improving the dyspnea. As with our patient, the flat position allows the myxoma to roll off the mitral value, relieving the obstruction of blood flow from the left atrium to the left ventricle, thereby improving oxygenation. Although tissue confirmation was not possible, a likely diagnosis of myxoma was established based upon its radiographic appearance. Cardiac myxomas are neoplasms of endocardial derivation, which originate from primitive, multipotent, mesenchymal cells present in the heart wall as embryonic remnants. Constitutional disturbances, such as fatigue, fever, erythematous rash, arthralgias, myalgias, and weight loss, along with anemia and elevations in the erythrocyte sedimentation rate and the serum C-reactive protein and globulin levels, have been observed in many patients with this condition. Cardiac myxomas usually develop in the atria. About 75 percent originate in the left atrium, and 15 to 20 percent in the right atrium. Ninety percent of tumors arise in the atrial septum in the region of fossa ovale, but they can also originate, in descending

order of frequency, from the posterior atrial wall, the anterior atrial wall, and the atrial appendage. Ventricular location, as observed in this case, is rare. Echocardiogram should be considered for all patients presenting with chest pain and may reveal unsuspected pathology.

MY SPLEEN IS BIG, WHAT THE "C"? R.E. Wiltfong[1]; M. Meholli[2]; J. Chuy[1]; A.P. Burger[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Jacobi Medical Center, Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205871)*

LEARNING OBJECTIVES: 1) Review the diagnosis of Hemoglobin CC disease as a cause of splenomegaly and hemolysis. 2) Recognize the importance of non-patient history sources in the young adult.
CASE INFORMATION: A 20-year-old African American male with a history of sickle cell trait presented to the ED with intermittent, diffuse abdominal pain for one month, worsening the past two days. He denied fever, chills, weight loss, sore throat, sick contacts, or travel history out of the NYC area. His father and other family members had sickle cell trait. Review of systems was negative. Physical Exam: Afebrile BP 160/10 HR 68 RR 12. The abdomen was diffusely tender with no distention. The spleen was palpable 10 cm below the costal margin. Bowel sounds were present. Otherwise the exam was normal. Initial labs: WBC was 9.7 k/uL with 73%G, 20%L, 5%M, and 1%E. Smear showed polychromasia, occasional target cells, and atypical lymphocytes. Hgb was 12.5 mg/dl with MCV of 89 fL. Sickle cell screen was negative in 1994. Tbili was 3.0 mg/dL (nl<1 mg/dL) and Dbili was 1.0 mg/dL (nl< 0.1 mg/dL). Remaining LFTs were normal. Direct Coombs test was negative. Tests for EBV, CMV, HIV, and viral hepatitis were negative. Splenomegaly was seen on CT. Reticulocyte count was 3.5%. On day 4, haptoglobin was <8 mg/dL (nl 27 to 139 mg/dL). On day 5, the patient's mother stated that the patient was diagnosed as a child with hemoglobin CC disease. This was confirmed with a previously ordered hemoglobin electrophoresis. Patient underwent splenectomy. The spleen was 508 g (nl 70 g to 180 g) with extramedullary hematopoiesis.
IMPLICATIONS/DISCUSSION: Hemoglobin C (HbC) results from a substitution of lysine for glutamine in the 6th position of the beta globin chain, as compared to the classic substitution of valine for glutamine at the same position in Hemoglobin S (HbS), the cause of sickle cell disease. The HbC gene is common in Western Africa with a prevalence of 40% to 50%. It has been shown to reduce malaria susceptibility. People may have one or both beta globin chains affected. Homozygotes (HbCC) may have mild microcytic, hyperchromic anemia, which is generally asymptomatic. Like HbS, HbC forms crystals in red blood cells, but does not form large polymers. Therefore, people with HbCC disease do not have vaso-occlusive events and rarely seek medical care for the disease itself. Over time, the spleen's function as a filter for abnormal red cells may cause splenomegaly. This may result in rupture. As in our patient the treatment is splenectomy if the concern for rupture is high. Complex heterozygotes with 1 HbC gene and 1 HbS gene have HbSC disease. Although the vaso-occlusive events of HbSC disease are often less severe than classic HbSS disease, HbSC disease may also present with splenomegaly. Hemolysis with subsequent splenomegaly can result from many other red blood cell disorders as well, including autoimmune hemolysis, membrane defects such as hereditary spherocytosis, and metabolic defects such as G6PD deficiency. History, CBC, peripheral blood smear, and ethnic background largely guide diagnosis. Specific tests such as hemoglobin electrophoresis, osmotic fragility, and metabolic tests are confirmatory. As our case shows, when treating adolescents and young adults, it is important to confirm the history with multiple sources such as family members and old records, as the patient may not be aware of childhood diagnoses or events.

MY STYMIED HEART: AN UNCOMMOM COMPLICATION OF CONGENITAL HEART DISEASE D.C. Weir[1]; R. Jani[1]; C. Yoon[1]. [1]New York University, new york, NY. *(Tracking ID # 206066)*

LEARNING OBJECTIVES: 1. Review the differential diagnosis of dyspnea in a young adult. 2. Recognize the late presentation of congenital heart disease such as infundibular pulmonary stenosis.
CASE INFORMATION: A 39 year-old Guyanese woman with a history of congenital VSD presented with three days of worsening dyspnea and atypical chest pain. She reports having "a hole in [her] heart" that was diagnosed in Guyana twenty years ago and more recently, a 0.5 cm VSD on echocardiography (ECHO). At presentation, her vital signs were unremarkable. Physical exam revealed a normal S1, an S2 obscured by a grade IV/VI harsh holosystolic murmur, best heard in the left upper sternal border. EKG showed normal sinus rhythm, right atrial enlargement, and right ventricular hypertrophy (RVH). Laboratory data including cardiac enzymes were within normal limits. Repeat ECHO demonstrated concentric RVH and accelerated flow in the right ventricular outflow tract suggestive of infundibular stenosis with a peak gradient of 100 mmHg; there was no evidence of a VSD. Left heart catheterization showed no obstructive coronary artery disease. Right heart catheterization demonstrated a normal pulmonic valve without evidence of a VSD. However, it did reveal elevated proximal and normal distal systolic pressures within the right ventricle along with muscular bundles consistent with a double-chambered RV. This confirmed the diagnosis of infundibular pulmonary stenosis, an uncommon finding occurring in 5–10% of patients with a congenital VSD. The patient underwent surgical resection of the right ventricular outflow tract obstruction with a post-operative ECHO demonstrating a decreased peak gradient of 15 mmHg.
IMPLICATIONS/DISCUSSION: Shortness of breath is a frequent complaint whose origin is inherently connected to the cardiopulmonary system. However, systemic and non-cardiopulmonary diseases cannot be neglected. In non-elderly patients, shortness of breath is often secondary to pulmonary infections, asthma, anemia, chronic pulmonary embolism, valvular dysfunction, and left or right ventricular outflow tract obstructions. Infundibular pulmonary stenosis is an obstruction of the right ventricular outflow tract from anomalous fibrous or muscular bands at the level of the infundibulum. Patients with right ventricular outflow tract obstructions usually present with chest pain or dyspnea with infundibular stenosis accounting for 2–10% of these lesions. Approximately 75% of patients with infundibular stenosis have an associated perimembranous VSD; however, isolated infundibular stenosis is posited to be the result of a closed VSD with residual outflow tract obstruction. The diagnosis of infundibular pulmonary stenosis can be made by echocardiographic demonstration of RVH and Doppler evidence for a midventricular gradient; frequently confirmed by cardiac MRI or catheterization. Although the natural progression of infundibular stenosis is poorly understood, patients with a mean gradient greater than 50 mm Hg who undergo surgical repair have significant improvement in biventricular performance and ultimately in symptoms and functional status. Patients who do not undergo surgery may be treated with beta-blockers or calcium channel blockers to reduce the possibility of dynamic obstruction contributing to the gradient. This case highlights the importance of staying attuned to late consequences of congenital heart disease, despite its rarity beyond the second decade of life.

MYCOBACTERIUM AVIUM INTRACELLULARE (MAI) INFECTION IN A TUBERCULOSIS OUTBREAK J.A. Marsh[1]; J. Bachmann[2]; L.S. Feldman[2]. [1]Johns Hopkins University, md, MD; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 206021)*

LEARNING OBJECTIVES: 1. To review the epidemiology and risk factors for NTM 2. To review the diagnosis and clinical manifestations of NTM 3. To review the management of NTM
CASE INFORMATION: A 69-year-old man with a history of chronic obstructive pulmonary disease, hypertension, inhaled cocaine abuse, alcohol abuse, and a positive protein purified derivative (PPD) diagnosed one year prior to admission presented with progressively worsening dyspnea on exertion as well as a nonproductive cough for one week. He had chronic wasting with significant weight loss over six months. The patient had been squatting in a region of Baltimore with a known tuberculosis (TB) outbreak. On physical exam, he was cachectic with temporal wasting. Lung auscultation revealed diffuse, scattered expiratory wheezes as well as pronounced egophony of the left upper lobe. Computed tomography scan of the chest revealed thick-walled cavities in the apices, diffuse emphysema, cystic bronchiectasis and consolidation in the left upper lobe. Induced sputum was positive for AFB, but an rRNA probe for tuberculosis was negative. Bactec Middlebrook cultures grew mycobacterium within seven days. Speciation revealed Mycobacterium avium intracellulare complex (MAI), and treatment with rifampin, ethambutol, and azithromycin was initiated.

IMPLICATIONS/DISCUSSION: The varied etiologies of cavitary pulmonary lesions include infectious diseases such as TB and MRSA, autoimmune disorders such as Wegener's granulomatosis, septic emboli, and malignancies. Given our patient's chronic wasting, recently positive PPD, and a residence in a neighborhood with an active TB outbreak, TB was the most likely diagnosis. However, his sputum TB probe was negative (sensitivity 98.7%), which suggested the presence of a nontuberculous mycobacterial (NTM) infection. NTM are free-living organisms that are found in a variety of environmental reservoirs. Initially thought to represent benign colonization or contamination, the NTM have been increasingly recognized as pathogens affecting the elderly and immunocompromised. M. abscessus, M. Kansasii, and MAI are the most common pathogens in NTM pulmonary disease, with MAI accounting for about 61% of these infections. There is no evidence for human transmission of MAI, as it is acquired from environmental exposures. MAI typically causes four distinct clinical syndromes: cavitary lung disease in elderly men with underlying structural lung disease, nodular bronchiectasis in slender women (Lady Windermere syndrome), pulmonary disease in patients with cystic fibrosis, and a hypersensitivity-pneumonitis syndrome associated with hot tubs or medicinal baths. Initially presenting with cough and fatigue, patients with MAI develop fever, weight loss and occasionally hemoptysis. The majority of MAI infections, as was the case with our patient, are diagnosed during an evaluation for tuberculosis. About 50% of the patients with MAI pulmonary disease have apical cavitary lesions. Macrolides are the most effective antimicrobials for MAI. Monotherapy cures 60% of patients. Because of the emergence of drug resistance, a multidrug regimen containing a newer macrolide (clarithromycin or azithromycin), rifampin (or rifabutin), and ethambutol is typically used for treatment and can achieve sputum conversion rates of up to 90%. Treat until sputum cultures are negative for at least one year. Surgery may be considered in patients who have localized disease or who have failed medical therapy.

MYCOTIC ANEURYSMS, BONE MARROW SUPRESSION & DISSEMINATED HISTOPLASMOSIS E.P. Dowling[1]; R.R. Cader[2]. [1]Cedars Sinai VA Program in Internal Medicine, Los Angeles, CA; [2]University of California, Los Angeles, North Hills, CA. *(Tracking ID # 204264)*

LEARNING OBJECTIVES: 1.To learn about the clinical presentations of disseminated histoplasmosis, including mycotic aneurysms and bone marrow involvement. 2.To learn about the treatment options for patients with disseminated histoplasmosis

CASE INFORMATION: Mr. G is a 59 y/o male admitted to medicine with an oral mass. The pt c/o throbbing pain in his lower jaw which worsened when chewing or fitting his lower denture. He also endorsed a 40-pound weight loss over the past year, as well as 1 week of fevers, chills and non-productive cough. On physical exam, he appeared cachectic weighing 143 lbs. His vital signs were normal. He had an oral mass on his mandibular alveolar ridge that extended from canine to canine. It was erythematous and edematous with multiple purple vesicles. There was tenderness to palpation. Lung exam revealed good air movement with scattered rhonchii. Heart was regular rate and rhythm. Abdomen was soft and nontender. Extremities revealed no clubbing, cyanosis or edema. Initial labs were remarkable for pancytopenia with wbc 3.5, hgb 8.3 and plt 98. Chemistry panel was significant for a creatinine of 3.5. Chest films were notable for an ill-defined nodular density overlying the left sixth rib. Further chest imaging including CT Scan and Echocardiogram revealed a saccular aneurysm of the distal thoracic aortic measuring 8.8 cm in maximum transverse diameter. Biopsy of the oral mass revealed the presence of diffusely distributed intracellular fungal yeast form of Histoplasma Capsulatum. Bone marrow bx revealed "variably hypocellular bone marrow showing several small noncaseating granulomas" as well as "mold". HIV testing was negative. Hospital course was complicated by the finding of a large aneurysm of the thoracic aorta (likely mycotic) that required urgent endovascular graft repair. His kidney function continued to deteroriate but he never required hemodiaylsis. He was treated with Itraconazole for disseminated histoplasmosis with the presumption that the mold in his bone marrow was histoplasmosis and that his renal failure be secondary to granulomatous infiltrative disease from the histoplasmosis as well.

IMPLICATIONS/DISCUSSION: Our patient had a complicated hospital course due to disseminated histoplasmosis. The decision of which antifungal therapy to use for disseminated histoplasmosis is based on the clinical severity of the disease. Patients with mild to moderate disease may be treated oral Itraconazole while patients with moderate to severe disease should be managed on Amphotericin B. Although our patient had severe disease, we elected to use Itraconazole due to the nephrotoxicity of Amphotericin B in the setting of our patient's declining renal function, with creatinine going up to 5.3. Six cases of histoplasma infection of thoraco-abdominal aneurysms have been reported in the literature. It is postulated that histoplasma capsulatum has a predilection for diseased intimal linings of the aorta seen in atherosclerotic disease. Although our patient was fortunate in that his aneurysm was diagnosed and repaired, he is at risk for histoplasma infection of his graft and needs to be followed closely in the future. After 4 months of therapy his counts improved with wbc 6.79, hgb 9.13, plt 266, and creatinine down to 2.9. It is our hope that his pancytopenia and renal failure completely resolve with continued treatment.

MYOCARDIAL INFARCTION:AN EXTREMELY RARE COMPLICATION OF FOAM SCLEROTHERAPY. A.M. Sharma[1]; S. Toram[1]; B. Hubbard[1]; H.D. Aronow[1]. [1]Saint Joseph Mercy Hospital., Ypsilanti, MI. *(Tracking ID # 205693)*

LEARNING OBJECTIVES: To recognize and discuss the risk of myocardial infarction or stroke as a complication of foam sclerotherapy used for treating chronic venous insufficiency (CVI).

CASE INFORMATION: A 54 y/o non-smoking female with CVI and no prior cardiac history underwent cosmetic foam sclerotherapy to treat superficial varicosities of the lower extremities. Minutes after a 6 mg intravenous sclerofoam injection, she developed precordial chest pain and a transient visual disturbance. She was transferred to emergency department where an electrocardiogram demonstrated sinus bradycardia at 51 bpm with no ST T wave changes. The troponin I was 0.35 ng/ml one hour after onset of chest pain. The chest pain resolved in the emergency department after administration of aspirin, nitroglycerin and morphine sulfate. She was transferred to the cardiac intensive care unit where accelerated idioventricular rhythm was observed, consistent with reperfusion phenomenon. The troponin I peaked at 5.13 ng/ml within 24 hours of onset of chest pain. A coronary angiogram revealed normal coronary arteries with impaired left ventricular systolic function and apical akinesis. A transesophageal echocardiogram revealed a left ventricular ejection fraction of 45% with apical akinesis and medium sized patent foramen ovale (PFO) with bidirectional shunting. She was treated with carvedilol 3.125 mg twice daily and lisinopril 5 mg once daily for management of heart failure and with warfarin to prevent thrombus formation due to apical akinesis. Later on,she did not report any more episodes of acute coronary syndromes.

IMPLICATIONS/DISCUSSION: CVI is the seventh leading chronic debilitating disease in United States (US). 10 to 35% of US adult population has CVI. Foam sclerotherapy is frequently used for the treatment of CVI. Systemic life threatening complications such as stroke, cardiac arrest and myocardial infarction are extremely rare. We report a case of myocardial infarction secondary to foam sclerotherapy. Only 6 cases of cardiac toxicity with sclerotherapy have been reported. Micro embolization remote from the target vein occurs commonly after foam sclerotherapy. A recent study demonstrated cardiac micro emboli on echocardiography undergoing foam sclerotherapy in all patients. Micro-emboli were seen in the left atrium in the prescence of a right to left or bi-directional shunting PFO .The combination of simultaneous chest pain and visual disturbances, troponin elevation,and impaired left ventricular systolic function in the setting of bi-directional shunting through a PFO is suggestive of a non ST elevation myocardial infarction secondary to an embolic event from sclerotherapy, Nevertheless, a vasospastic phenomenon cannot be entirely ruled out. The prevalence of PFO in the general population is approximately 26%. With the increasing use of foam sclerotherapy for chronic venous insufficiency. The risk of paradoxical embolism culminating in stoke or myocardial infarction should be considered when balancing the risks and benefits of these procedures.

MYXEDEMA COMA: A RARE BUT IMPORTANT CAUSE OF ALTERED MENTAL STATUS IN ELDERLY PATIENTS A. Mustafa[1]; A. Donato[2]; A. Pimentel[3]; B. Olaoye[3]. [1]The Reading Hospital and Medical Center, Wyomissing, PA; [2]The Reading Hospital and Medical Center, West Reading, PA; [3]The Reading Hospital and Medical Center, Reading, PA. *(Tracking ID # 205883)*

LEARNING OBJECTIVES: 1. Consider myxedema coma in elderly patients who present homodynamic instability and change in mental status. 2. High cardiovascular abnormality caused by myxedema coma can be reversed by thyroid hormone replacement. 3. Early diagnosis and appropriate treatment of myxedema coma can reduce mortality from 60–70% to 20–25%.
CASE INFORMATION: 84 year-old female with type 2 diabetes, hypertension, CHF, paroxysmal atrial fibrillation and no prior diagnosis of thyroid dysfunction was brought to the emergency by her daughter with increased lethargy and failure to thrive. She was hypothermic (temperature 30.7), bradycardic (pulse 30 bpm) and hypotensive (90/40 mmHg). Physical exam showed obtunded white female minimally responsive to painful stimuli with periorbital non-pitting edema and no gross thyroid gland enlargement or nodules. A distended abdomen with hypoactive bowel sounds, as well as cold and dry extremities. Lab showed WBC of 2400 CMM with 36% bands, Hgb 6.6 g/dl and platelet 98,000 CMM. Blood gas showed severe acidosis requiring intubation with PH of 7.13, PCO2 59.6 mmhg and HCO3 of 20.5 meq/l. Additional labs showed TSH of 189 IU/ml, freeT4 0.3 ng/dl, total T3 0.2 ng/ml and morning cortisol 26.3 mcg/dl. The patient was given Synthroid (200 mcg iv), single dose of T3 (10mcg iv) and aggressive supportive care. She was then continued on synthroid 25 mcg iv daily. She responded very well to the treatment and returned to her base line in few days.
IMPLICATIONS/DISCUSSION: Myxedema coma is a rare disorder in the United States because of readily available screening tests. Nevertheless, it can still be seen with advance manifestations of the disease and should be considered in all elderly patients with hemodynamic instability and change in mental status. Myxedema coma results in multi-organ dysfunction including cardiovascular abnormality like diastolic dysfunction, decreased heart muscles contractility, low cardiac output and pericardial effusion. Complications associated with myxedema coma can be fully reversed by thyroid hormone replacement.

NEUROCYSTICERCOSIS S. Poonuru[1]; C.K. Mamillapalli[1]; S. Nekkanti[1]. [1]Marshfield Clinic, Marshfield, WI. *(Tracking ID # 205877)*

LEARNING OBJECTIVES: 1. To consider neurocysticercosis in the differential diagnosis of seizures. 2. To discuss the management of neurocysticercosis.
CASE INFORMATION: A 41-year-old, healthy male presented to emergency room after an unwitnessed seizure like episode. When he was out in the woods cutting trees, he had an episode of loss of consciousness followed by confusion for an undetermined period of time. He denied headache, visual changes, nausea or vomiting. The patient was born and raised in Mexico and moved to USA about 18 years ago. On examination blood pressure was 136/78 mm Hg, heart rate was 73 beats per minute, and respiratory rate was 16 breaths per minute, temperature 96.9F, oxygen saturation 99% on room air. Neurological exam disclosed normal mental status, motor, sensory and cerebellar function. Significant laboratory tests at presentation include hemoglobin 14.2 g/dL, white cell count 7400/ml. CT head revealed several calcific lesions in the right parietal region. MRI brain showed multiple small calcific lesions, some with small cystic structures around them, and a large cystic structure with the calcific lesion in the right temporoparietal region consistent with neurocysticercosis. Serum cysticercosis IgG antibody was positive. He was started on prednisone 60 mg, orally once a day which was slowly tapered over 4 weeks. Albendazole 15 mg/kg twice a day was given for 8 days. He was also initiated on Levetiracetam for his seizures.
IMPLICATIONS/DISCUSSION: Cysticercosis is caused by the larval stage of the tapeworm Taenia solium. Approximately 50 million people worldwide are estimated to have cysticercosis infection, which is endemic in Central and South America, sub-Saharan Africa, India, and Asia. Cysticercosis is transmitted by ingestion of T. solium eggs shed in the stool of a human tapeworm carrier. Following ingestion, embryos (oncospheres) hatch in the small intestine, invade the bowel wall and disseminate hematogenously to brain, striated muscles, liver, and/or other tissues. The most common symptoms of neuro cysticercosis include seizures, focal neurological signs, and intracranial hypertension. For initial evaluation, the recommend imaging is CT and serology with an enzyme-linked immunoelectrotransfer blot assay. Intraventricular cysts, subarachnoid cysts, leptomeningeal enhancement, or hydrocephalus with ventricular enlargement, can also be detected with cerebral imaging, depending upon the location of the lesions If the CT scan is negative or non-specific, MRI imaging is recommended due to its increased sensitivity in detecting small lesions, brainstem or intraventricular lesions, and better visualization of the scolex. No routine laboratory studies are necessary. Patients often have no peripheral eosinophilia unless a cyst is leaking. Anticonvulsants are recommended for patients who present with seizures. Antiparasitic and corticosteroid therapy are initiated in patients with 5 to 50 cysts. The typical dose of albendazole is 15 mg/kg per day (usually 800 mg/day) in two divided doses for 15 days. Corticosteroids are usually recommended for patients during anthelminthic therapy. A typical dose is 30 to 40 mg prednisolone or 12 to 16 mg daily in divided doses. Surgical procedures are required in some patients based on complicating factors, such as hydrocephalus or giant cysts in the setting of intracranial hypertension.

NEUROLEPTIC MALIGNANT SYNDROME DUE TO DOPAMINE WITHDRAWAL IN A PATIENT WITH PARKINSON'S DISEASE. SHAWN BRICKNER (MS IV), DR. TIFFINY DIERS AND DR. JOYCE LIPPE. UNIVERSITY OF CINCINNATI ACADEMIC HEALTH CENTER, CINCINNATI, OHIO. S.E. Brickner[1]; T. Diers[1]; J. Lippe[1]. [1]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 203745)*

LEARNING OBJECTIVES: · Recognize that neuroleptic malignant syndrome can be caused by the withdrawal of dopaminergic agents in patients with Parkinson's disease. · Differentiate rigidity caused by Parkinson's disease versus rigidity caused by neuroleptic malignant syndrome.
CASE INFORMATION: Introduction: Withdrawal of dopaminergic agents in patients with Parkinson's disease can precipitate neuroleptic malignant syndrome (NMS). I present a lethal case of NMS in a Parkinson's patient. Case Description: A 71-year-old male with Parkinson's disease treated with high-dose levo/carbidopa presented with delirium. The patient had felt weak and lethargic and been treated for dehydration two days prior. On admission, he was rigid and his mental status fluctuated widely. A full work-up for delirium including infectious or metabolic causes, or changes in medication, was unrevealing. On hospital day three, it was discovered that the patient had not actually ingested his medications since arrival, nor likely for two days preceding admission. His mental status continued to deteriorate and he was given 5 mg of intravenous haloperidol and was restrained for agitation and aggressive behavior. A nasogastric feeding tube was placed and all medications were restarted. Over the next two days, his entire body became increasingly rigid, he became unable to follow commands, and responded only to painful stimuli. The patient's blood pressure became increasingly labile and he developed fever that progressed to 103 °F. He was diagnosed with NMS and was transferred to the MICU, where intravenous dantrolene and bromocriptine were started. After brief improvement, the patient died from cardiovascular collapse on hospital day ten.
IMPLICATIONS/DISCUSSION: NMS is characterized by mental status changes, severe muscle rigidity, fever, and autonomic instability. NMS is most commonly associated with use of typical antipsychotics causing dopamine receptor blockade. In Parkinson's patients, withdrawal of exogenous dopamine can also induce NMS. This patient did not receive levo/carbidopa for several days, contributing to his delirium. Delirium and other neurological signs precede systemic signs in most cases of NMS. Muscle rigidity may be overlooked in a patient with Parkinson's disease, despite differing characteristics of the rigidity in each condition. With NMS, muscular rigidity is generalized, showing stable resistance through all ranges of movement. In Parkinson's disease, muscular rigidity is found primarily in the limbs in an oscillating fashion. It is important to realize that NMS can present in Parkinson's patients without the use of typical antipsychotics, especially since mortality is much improved by rapid treatment. Finally, this case serves as a reminder that Parkinson's patients should never be treated with typical antipsychotics, as they cause dopamine receptor blockade in patients with little endogenous competitive substrate to reverse the effect.

NO GOOD DEED GOES UNPUNISHED S. Helbig[1]; A.P. Burger[1]. [1]Jacobi Medical Center, Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205906)*

LEARNING OBJECTIVES: 1. To recognize possible adverse effects of Moxifloxacin, including acute interstitial nephritis (AIN) and eosinophilia. 2. To review therapy and prognosis of AIN.
CASE INFORMATION: A 51 year old Male with history of alcohol abuse, focal segmental glomerulosclerosis with CKD, HTN, discoid lupus presented with abdominal pain, nausea, vomiting for 3 days after binge alcohol use. He denied tobacco or drug use. No allergies were known. He traveled to the Dominican Republic 2 years ago. PE: afebrile with stable vital signs. There was diffuse abdominal tenderness. Labs: Lipase 826U/l, Amylase 928 U/l, Cr 1.8 mg/dl, WBC 7 K /ul, normal LFTs. Non-contrast CAT Scan showed pancreatic inflammation. He was admitted for acute pancreatitis. The patient was given Moxifloxacin (Moxi) 400 mg twice over the first 24 hours for a left lower lobe infiltrate on CXR, later attributed to atelectasis. The pancreatitis resolved uneventfully. On day 6 he had a fever of 101.9F. Moxi was resumed. The next day eosinophilia of 600/ul with WBC of 8 K /ul and a decline in renal function developed. The urine smear showed eos. AIN was diagnosed. Moxi was held. His renal function further deteriorated. Hemodialysis was started on day 11. A kidney biopsy was not done due to intractable hiccups. The patient continued to have fever, tachycardia and fluid-responsive hypotension. On day 13 labs showed an AST 125 U/l, ALT 185 U/l, d.Bili 2 mg/l. Ultrasound was negative. A leukocytosis and a generalized maculopapular rash sparing palms and soles developed. Skin biopsy showed exanthematous pustulosis consistent with drug reaction. On day 21 WBC peaked at 42 K /ul, with eos of 17 K /ul. Cultures were negative. The peripheral smear showed a leukemoid reaction without malignancy. He declined a bone marrow biopsy. Antibodies for ANA, anti-DNA, strongyloides, schistosomiasis, HIV were negative. C3 and C4 were normal. On day 22 an elevated IgE level was 1035 U/ml. AIN, fever, leukocytosis, hepatitis and rash were attributed to an allergic reaction to Moxi. Prednisone was started. The eosinophilia immediately regressed and symptoms improved. The patient was on dialysis for 7 weeks with incomplete recovery of renal function.
IMPLICATIONS/DISCUSSION: Moxifloxacin, a fluoroquinolone antibiotic, has broad activity against gram positive, gram negative and atypical organisms and is used commonly for a wide range of infections. Serious adverse reactions are rare (<0.1%). and include renal failure particularly AIN, eosinophilia, rash and hepatitis. AIN is defined by injury of the tubules, interstitium and glomeruli. Drug toxicity accounts for 90% of cases. The likely mechanism is a delayed hypersensitivity reaction, occurring after multiple doses or as with our patient on a second exposure to the drug. Discontinuing the offending agent is the mainstay of therapy. Early use of steroids in AIN may increase chances of complete recovery. In our case steroids were delayed due to a concern about an infectious cause of fever. Dialysis is needed in about 60% of cases. Eosinophilia has a role in many immune and inflammatory responses. Causes include allergies, antibiotic related AIN, parasite infections, collagen vascular diseases, Churg Strauss syndrome and malignancies are common causes. Allergic reactions to drugs commonly cause mild (500–1500 /ul) to moderate (1500–50000 /ul) eosinophilia. Moxifloxacin is a commonly used drug. It is important to recognize it as a cause of severe reactions with the potential to affect many organ systems.

NOCARDIA CRYIACIGEORGICA SEPTIC ARTHRITIS OF THE KNEE : A CASE REPORT S. Gogineni[1]; M. Toumeh[1]. [1]University of North Dakota, Fargo, ND. *(Tracking ID # 205054)*

LEARNING OBJECTIVES: 1.Recognize the increased risk of Nocardial infections in immunosuppressed patients. 2.Identify the importance of performing not only aerobic and anaerobic culture but also fungal and acid fast bacilli in immunosuppressed patients.
CASE INFORMATION: Patient is an 81 year old male with past medical history significant for steroid dependent COPD presented to the ER with a 3 week history of left knee pain and swelling. There was no history of preceding trauma. Physical exam showed a warm, swollen, erythematous and tender left knee with limited range of movement .The radiograph of the knee showed soft tissue swelling without any evidence of osteomyelitis. His initial lab work showed an ESR of 93 mm/hr, CRP of 22 mg/l and a near normal leukocyte count. 75 ml of cloudy fluid was aspirated which revealed a leukocyte count of 108,000 with 75% segmented neutrophils, no organisms were identified. Patient was empirically started on Vancomycin and Cefepime .Patient underwent an arthroscopic debridement and synovectomy.Intraoperative findings revealed extensive fibrinoid material . The samples were sent for aerobic ,anerobic fungal and acid fast bacilli cultures. Histopathology revealed a gram positive beaded, partial acid fast ,branching filamentous organisms suggestive of Nocardia.His antibiotics were changed to Rocephin 2gm every 24 hrs and Bactrim DS one tab three times a day orally.The DNA sequencing later identified the species as N.Cyriacigeorgica . In vitro sensitivity testing showed that the organism was sensitive to both the antibiotics.CT scan of the chest and MRI of the brain didn't show any evidence of pulmonary or CNS Nocardiosis. Patient was discharged and received 2 months of Rocephin and 6 months of Bactrim . A serum level of Bactrim was checked regularly to monitor drug toxicity. Patient regained full active and passive extension of his knee joint with significant improvement in ESR.
IMPLICATIONS/DISCUSSION: Nocardia are branched slow growing partially acid fast gram positive rods.The risk of nocardial infection is increased in immunocompromised patients. The most common disease sites are the lung, central nervous system and skin. Nocardia is a very rare cause of septic arthritis. Case reports of Nocardia Asteroides and Farcinia septic arthritis have been described in the literature. Nocardia Cyriacigeorgica is a newly described member of this complex. Establishing a diagnosis of nocardiosis is problematic because of its fastidious nature and slow growth. Polymerase chain reaction provides rapid results for the diagnosis of nocardiosis . Precise speciation and susceptibility testing of clinical isolates is important because resistance patterns vary by species. Trimethoprim-sulfamethoxazole is considered the drug of choice. Other alternatives include doxycycline, minocycline, amikacin and some second and third generation cephalosporins. No prospective randomized trials have determined the most effective therapy for nocardiosis. In vitro studies demonstrated that combination therapy is preferred in severe infections. The treatment duration istypically for six to twelve months .Patients with nocardiosis should be monitored for the response to therapy as it has the ability to disseminate to virtually any organ and has tendency to relapse or progress despite appropriate therapy.The successful management of this case emphasizes the difficulty in identifying the organism and the importance of aggressive management of this uncommon cause of septic arthritis.

NOT ALL PULMONARY INFILTRATES ARE PNEUMONIA. I. Nasir[1]. [1]Crystal Run Healthcare, New York, NY. *(Tracking ID # 203790)*

LEARNING OBJECTIVES: 1) To state the diagnostic criteria for Churg-Strauss Vasculitis (CSV). 2) To name CSV in the differential diagnosis of infiltrates with peripheral eosinophilia. 3) To outline the effect of leukotriene receptor antagonists (LTRA) on the development of CSV.
CASE INFORMATION: A 51 year old man with allergic rhinitis, sinusitis, nasal polyposis, and a 15 year history of asthma treated with montelukast, salmeterol and fluticasone presented with fever, shortness of breath, sinus congestion, a productive cough, and malaise x1 week. He had no chest pain, abdominal pain, weight loss, arthritis, dysesthesias, or rash. There was no history of recent travel, exposure to tuberculosis, toxins, or history of autoimmune disorders. On exam, he was febrile at 101.5, BP113/84, HR 113, 88% on RA. He had LLL crackles with prolonged expiratory wheezing, no rashes, and no neurological deficits. Labs revealed a WBC of 14 (50% PMNs, 15% eosinophils) and ESR of 100. CXR showed a LLL infiltrate. Ceftriaxone and azithromycin were started for CAP. The patient continued to be febrile with increasing eosinophilia and a CT scan revealed worsening bilateral transient patchy infiltrates. He developed acute kidney injury with a peak Cr of 3 with microscopic hematuria and proteinuria. With these findings, a diagnosis of CSV was made. Montelukast was discontinued and high-dose systemic corticosteroids were started. The myeloperoxidase antineutrophil cytoplasmic autoantibody (MPO-ANCA) titer was significantly elevated with a titer of 1:120. A renal biopsy revealed focal segmental necrotizing and crescentric glomerulonephritis (pauci-immune type) with interstitial inflammation, abundant eosinophils, and focal vasculitis. The patient dramatically improved on steroid therapy. He was discharged on a 6 month course of prednisone and cyclophosphamide for induction and switched to azathioprine and prednisone for maintenance therapy. After 6 months, the renal function, ESR, and the MPO titer normalized.
IMPLICATIONS/DISCUSSION: CSV is an ANCA-associated vasculitis characterized by both asthma (a cardinal feature) and allergic rhinitis in the prodromal phase, a characteristic peripheral eosinophilia in the

eosinophilic phase, and life-threatening systemic vasculitis. Although 66% of patients have skin lesions on extensor surfaces and 75% have a peripheral neuropathy, our patient had neither, but still fulfilled the ACR criteria for CSV with at least 4 of the 6 criteria of asthma, >10% eosinophilia, mono or polyneuropathy, migratory pulmonary opacities, sinus abnormality, and a biopsy with necrotizing granulomatous vasculitis with extravascular eosinophilia. About 50% of patients are ANCA positive and the majority of them have antibodies directed against myeloperoxidase with a perinuclear staining pattern. Induction and maintenance of remission of CSV with the standard regimen of cyclophosphamide and high dose steroids is about 90% effective at 6 months. Several case reports have described CSV in association with the treatment of asthmatic patients with an LTRA. The proposed mechanism is the "unmasking" of CSV after reduction of corticosteroid use, rather than a direct causative role. Importantly, our patient had been on multiple prednisone tapers and was recently started on montelukast 6 months prior. Although there is no evidence for a direct pathogenic role, our case illustrates that clinicians should be vigilant when initiating treatment with an LTRA in patients who are developing systemic symptoms.

NOT ALL WHITE COUNTS ARE CREATED EQUAL- GRANULOCYTOSIS IN A POORLY DIFFERENTIATED ADENOCARCINOMA. M. Foote[1]; J. Anna[1]; G. Eric[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205593)*

LEARNING OBJECTIVES: 1. To recognize malignancy as a cause of leukocytosis 2. To understand the mechanism of cancer-related leukemoid reaction

CASE INFORMATION: A 79 year-old female was admitted when, after evaluation for a fall she was noted to have an abnormal white blood cell count. She reported 2 days of anorexia and subjective fever for which she was treated by her employer (a urologist) for a urinary tract infection with an unknown antibiotic. She had a past history of well-controlled diabetes mellitus, hypertension, hypothyroidism, and a history of left-breast cancer treated with a mastectomy in 1999. On close review of systems she noted a 30-pound weight loss over 3 months. Physical exam reveled a cachectic appearing but pleasant, woman. She had no appreciable lymphadenopathy, her lungs were clear to auscultation, and no murmurs were auscultated on cardiac exam. She was noted to have mild epigastric and right upper quadrant tenderness with a palpable liver edge. The rest of the physical exam was unremarkable. Labs were significant for a white blood count of 61, (manual differential 95% granulocytes, 7% bands). She had hemoglobin of 10 (MCV 90) and platelets were 330. An erythrocyte sedimentation rate was >130 and Leukocyte alkaline phosphatase level was 244 (reference range: 50–100). The remainder of lab values was notable for BUN/Cr of 59/2.2 (increased from her baseline), a normal urinalysis, and normal liver injury tests. A mammogram four months prior to presentation was normal. A CT scan of chest, abdomen, and pelvis revealed bilateral fractures of the pelvis and a cystic mass in the left lobe of the liver. A fine needle aspiration of the lesion revealed a poorly differentiated adenocarcinoma. The pathologic findings suggested a possible origin as pancreatobiliary system, upper GI tract, lung or breast.

IMPLICATIONS/DISCUSSION: This case describes a rare paraneoplastic phenomenon of cancer-related leukemoid reaction. Leukemoid reactions in advanced malignancy are usually myelocytic although eosinophilia, basophilia or monocytosis may also be seen. Tumors and tumor cell lines from patients with non-hematopoietic tumors including sarcomas, lung, ovarian, gastrointestinal and genitourinary cancers have been documented to produce granulocyte colony-stimulating factor (G-CSF), granulocyte-macrophage colony-stimulating factor (GM-CSF), and/or IL-6. However, the etiology of granulocytosis has not been characterized in most patients. G-CSF tends to be produced by poorly differentiated adenocarcinomas rather than the well-differentiated types and is often associated with a poor prognosis and more aggressive disease. The leukemoid reaction is distinguished from chronic myelogenous leukemia by an increased leukocyte alkaline phosphatase and general lack of thrombocytopenia. Several case reports have shown that leukocytosis in these tumors can act as a marker of recurrent or progressive disease. The patient in this case was hospitalized 3 months later with a WBC count of 90 and subsequently passed away.

NOT ALWAYS AN INNOCENT KISSING DISEASE C.K. Mamillapalli[1]; S. Nekkanti[1]; S. Poonuru[1]. [1]Marshfield Clinic, Marshfield, WI. *(Tracking ID # 205937)*

LEARNING OBJECTIVES: 1. To recognize spontaneous rupture of spleen is a rare complication of infectious mononucleosis (IM). 2. To discuss management of spleen rupture in infectious mononucleosis.

CASE INFORMATION: A 50 year old lady was admitted with 2 week history of intermittent fever, 2 day history of myalgias and intermittent headaches, and 1 day history of abdominal pain. Abdominal pain is sudden onset constant pain, generalized but more prominent in left upper quadrant and was radiating to the left shoulder. There was no history of trauma. On examination her temperature was 101F, pulse rate was 110, blood pressure 130/80, oxygen saturation was 97% on room air. Respiratory examination and cardiovascular examination was unremarkable, abdomen examination was significant for diffuse tenderness more pronounced in the left upper quadrant, there was no guarding and bowel sounds were normal. Significant labs on admission include hemoglobin 9.5 mg/dl, white cell count 6300/uL with 73% lymphocytosis, peripheral smear revealed abnormal looking lymphocytes, Monospot test is positive, EBNA IgM is positive and Ig G was negative. CT scan of the abdomen revealed intraperioneal fluid which was heterogeneous in nature, splenomegaly and subcapsular splenic hematoma. Ultrasound guided paracentesis revealed frank blood. She was diagnosed to have spleen rupture secondary to IM. Patient was closely monitored with serial hemoglobin checks. She reported improvement in her symptoms and was discharged after 6 days. Follow up ultrasound in 2weeks revealed resolution of splenomegaly..

IMPLICATIONS/DISCUSSION: Clinical features of IM include fever, pharyngitis and lymphadenopathy. Abdominal pain is uncommon in IM and splenic rupture should be high on the differential diagnosis whenever abdominal pain occurs. Clinical features of spleen rupture include abdominal pain, left shoulder pain (kehr's sign) and some patients may present with symptoms of hypovolemia such as hypotension and tachycardia. Splenomegaly is seen in 50 to 60 percent of patients with IM and usually begins to recede by the third week of the illness. Splenic rupture is extremely rare with reported incidence of 0.1–0.2%. In a Mayo clinic retrospective analysis of 8116 patients with IM only 5 patients had atraumatic splenic rupture. When splenic rupture occurs, it does so spontaneously in over one-half of patients. It mostly occurs between the fourth and twenty-first day of symptomatic illness, but can be the presenting symptom. The management of splenic rupture is similar to other forms of splenic injury. Nonoperative management is recommended in haemodynamically stable patients. Patients managed conservatively require close clinical monitoring and serial hemoglobin checks. Diseased spleen remains susceptible to rupture and patients must avoid physical activities for a considerable length of time at least until spleen has returned to normal size. In patients who are haemodynamically compromised splenectomy is warranted.

NOT YOUR TYPICAL ANEURYSM B. Goldwasser[1]; M. Mitre[1]; L. Latterman[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 204385)*

LEARNING OBJECTIVES: 1) To outline the pathophysiology of salmonella arteritis. 2) To recognize the different therapeutic options available for salmonella arteritis.

CASE INFORMATION: A 48 year old man presented with severe lower back pain and a 30 pound unintentional weight loss. Upper endoscopy and colonoscopy were unremarkable. CT scan demonstrated a right iliac artery aneurysm requiring an endovascular graft repair. Unfortunately, his abdominal pain persisted. We pursued another CT scan, which showed periaortic lymphadenopathy concerning for lymphoma. Next, a PET scan demonstrated increased uptake around the right iliac artery. He underwent a biopsy of the periaortic lymphadenopathy. The pathology demonstrated atypical lymphoid hyperplasia, but the bone marrow biopsy showed no evidence of a lymphoproliferative disorder. During that hospitalization, he became febrile and cultures confirmed salmonella bacteremia. Interventional radiology then performed another biopsy of the periaortic tissue; the cultures grew salmonella. Lastly, he underwent an axillobifemoral bypass graft with resection of his infected graft. He has remained asymptomatic since the procedure.

IMPLICATIONS/DISCUSSION: Salmonella arteritis is a rare condition with a high mortality rate; 40% of patients die from arterial vessel rupture or sepsis. Salmonella occurs after the ingestion of contaminated food and causes gastroenteritis, sepsis and less commonly arteritis. Salmonella have a propensity for infection of vascular sites such as the aorta and other large- and medium-sized vessels. The clinical picture consists of recurrent fever and chills, with other symptoms related either to the primary source of infection, such as diarrhea, or to the site of the aneurysm itself, such as chest discomfort, dyspnea, or hemoptysis. The primary source of the bacteremia is often unknown.The recommended management of mycotic aneurysms includes combined surgical and antibiotic treatment. There are usually two options for operative treatment of mycotic aneurysms; extra-anatomic or in situ reconstruction. The standard surgical procedure for the treatment of mycotic aneurysm involves aortic or arterial ligation, excision of all infected tissue and then extra-anatomic bypass grafting through a clean non-infected plane. Multiple operations are usually required for restoration of the usual direction of blood flow. In recent years, in situ reconstruction, with cryopreserved homografts, has received coverage. It offers the potential to treat the disease with one single operation and preliminary results are encouraging, since it may reduce postoperative infection rates and improve survival. The optimal duration of systemic antimicrobial therapy has not been clearly established, but experts advocate 4–6 weeks of intravenous antibiotics. However, in cases involving aneurysm repair with prosthetic material, some have recommended permanent antibiotic treatment since late recurrent infections have been reported. Untreated thoracic mycotic aneurysms due to Salmonella species are invariably fatal. There have been no reports of long-term survival without surgical intervention. Conclusion: A high degree of suspicion is necessary for diagnosis of salmonella arteritis, because it presents insidiously with fever and low back pain, with rapid progression to aneurysm formation and rupture. Therefore a timely diagnosis of this entity is of utmost importance.

NOT YOUR TYPICAL CASE OF NSAID GASTRITIS J.Y. Shah[1]; J. Robbins[1]; J. Bagley[1]; L.V. Maramattom[2]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI; [2]Medical College of Wisconsin, Wauwatosa, WI. *(Tracking ID # 205354)*

LEARNING OBJECTIVES: 1. Review the etiologies of gastrointestinal bleeding, 2. Consider the importance of a broad differential even when a patient portrays a "classic presentation" for a common ailment

CASE INFORMATION: A previously healthy 31-year-old gentleman presented to the emergency department with melena, left-sided chest pain, and shortness of breath. One day prior to admission, the patient had three dark brown stools with visible blood in the toilet, and he reported taking 5–6 ibuprofen and naproxen daily for the past few months. The patient's vital signs on admission were significant for hypotension and tachycardia. Initial physical exam showed an enlarged liver, decreased breath sounds and tactile fremitus in the left lung base, and a 2–3 cm supraclavicular lymph node. Admission labs showed anemia (hemoglobin 7 g/dl) and an elevated white count (13,100). The patient was transferred to the intensive care unit and underwent an emergent esophagogastroduodenoscopy. Endoscopy showed no active bleeding but did identify a white ulcer in the antrum of the stomach with a clean base and elevated edges. Chest x-ray showed opacification of the left hemithorax, and chest CT showed a large left lung mass with associated pleural effusion, mediastinal shift, and erosions of several thoracic vertebral bodies. Biopsies of the gastric ulcer obtained during initial endoscopy reveated diffuse large B-cell lymphoma (DLBCL), and the patient was immediately started on chemotherapy, which he tolerated well.

IMPLICATIONS/DISCUSSION: This case illustrates how specific elements of the history and early findings can falsely direct clinicians away from a correct diagnosis. In this patient, nonsteroidal anti-inflammatory drug (NSAID)-induced peptic ulcer seemed to be the likely diagnosis but further investigation identified the underlying pathologic process. DLBCL can present with GI bleeding, and the stomach is the most common site of extranodal involvement. DLBCL accounts for 30–45% of all extranodal lymphomas and represents 1%–7% of all gastric cancers. Approximately 60% of patients present with advance stage disease, and bone marrow or extranodal involvement occur in 30–40% of cases. DLBCL can be highly invasive with the potential to compress vessels, obstruct airways, destroy bone, and compress the spinal cord, so early diagnosis is essential in order to prevent tragic complications. Prognosis is determined using the International Prognostic Index score which uses five criteria: age >60, elevated serum lactate dehydrogenase, Stage III or IV, ECOG score $\geq$2, and number of extranodal sites $\geq$2. An increased number of adverse criteria correlate with poorer prognosis. Patients with DLBCL usually receive doxorubicin-containing regimens like CHOP chemotherapy. Recently the addition of rituximab, a chimeric monoclonal antibody against CD20, has improved the prognosis, even patients with advanced disease (3–5 risk factors), to a 50% progression free survival at five years.

"NOTHING TO DO, AWAITING PLACEMENT." TEACHING THE PREVENTION OF HOSPITAL ACQUIRED COMPLICATIONS IN PATIENTS WITH PROLONGED HOSPITALIZATIONS: A MULTIDISCIPLINARY RESIDENT INTEGRATED APPROACH. A.E. Miranda Maldonado[1]; N. Gleason[1]; H.K. Seligman[1]; E. Davis[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 205016)*

LEARNING OBJECTIVES: 1) Teach residents a multidisciplinary team approach to the care of hospitalized patients. 2) Prevent hospital acquired complications in patients with prolonged hospitalizations.

CASE INFORMATION: An 87 year old Chinese man with depression was admitted to the medical service after attempting suicide by stabbing his neck with a knife. His stab wound was superficial and he was admitted to the medicine service for management of hypoxia associated with an aspiration event which resolved quickly. His depression was treated with mirtazapine. The patient had poor nutritional intake, and required supplemental tube feeds with a pureed diet. It was determined that the patient was "failing to thrive," he was referred for long term placement in a skilled nursing facility for total custodial care. After five weeks of hospitalization the patient lay in bed twenty-four hours a day, was minimally interactive, and required full assistance including one-to-one feeds. Physical therapy "signed-off," citing limited potential recovery. While awaiting placement, the patient was transferred to the "Transition Team." The Transition Team is a pilot program designed to focus care and resident education on management of patients with prolonged hospitalizations awaiting transfer to a long term care facility. The daily team consists of nursing staff (bedside nurses and nurse managers), a social worker, a utilization review nurse, a nurse practitioner, medicine residents and an attending. The team is supported by liaisons in physical therapy, occupational therapy, speech, nutrition, wound care, psychiatry, and pharmacy each of which round with the team weekly. On review of the patient's medications, mirtazapine was discontinued with concern for oversedation. The following day, the patient was significantly more awake and able to interact with staff. With physical therapy, the patient got up to a chair daily, and was able to participate with therapy repeatedly. The team determined that the patient was able to feed himself independently, and with encouragement the patient began feeding himself every meal. The nurse manager arranged for a Cantonese speaking nursing assistant to work with the patient daily. Within one week's time the patient's functional status had improved substantially with the implementation of small key interventions designed by medical residents and a multidisciplinary team.

IMPLICATIONS/DISCUSSION: The Transition Team is a unique innovation to improve the care of low-acuity patients with long-term hospitalization, and build rich educational opportunities around this care. By rounding daily with nursing staff, social work, and members of consulting disciplines, residents learn to apply key aspects of these disciplines. Cases such as the one presented here suggest that a Transition Team could substantially improve outcomes. The multidisciplinary expertise, combined with the consolidation of relatively low-acuity patients, allows the team to focus on preventing complications. Each patient is discussed on daily multidisciplinary rounds with an emphasis on the following items: skin break down/wound management, functional status, bowel/bladder function, nutrition, and polypharmacy. These are not new ideas, but systematic implementation of each, in cooperation across the disciplines, differs markedly from usual care. As medicine becomes more specialized it is imperative physicians-in-training learn an integrative quality-focused approach to the care patients with prolonged hospitalizations.

NOW YOU SEE IT, NOW YOU DON'T. A CASE OF CHARLES BONNET SYNDROME. L. Wasson[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203903)*

LEARNING OBJECTIVES: 1) To recognize the signs and symptoms of Charles Bonnet Syndrome 2) To highlight the differential diagnosis of Charles Bonnet Syndrome

CASE INFORMATION: A 78-year-old veteran presented to his provider with visual hallucinations. The patient described four episodes over four days of "seeing things that I know are not there." The patient recognized that the visions did not make sense. For example, one of the visions was of a soldier and yet the patient knew that this was impossible as no young military persons lived nearby. These visions lasted a few minutes. The patient's son, who brought the patient to his primary care visit, did not note a temporal nature associated with the visions and stated that the patient had been in his usual state of health prior to the onset of these hallucinations. The patient had angina, well-controlled diabetes, obesity, hypertension, atherosclerotic cardiovascular disease, and history of a thalamic stroke with residual left-sided dysasthesias. The patient did not have noticeable visual impairment. The patient took isosorbide dinitrate, metformin, glyburide, metoprolol, fentanyl patch, and gabapentin with no recent change in medications. The patient lived with his wife and son who carefully administered and recorded the patient's medications, blood pressures, and blood sugars. When asked the son stated that the patient's blood pressure averaged 120/80 with sugars as low as 60 on several occasions. Glyburide was discontinued with increasing of the patient's sugar nadir to greater than 90. The hallucinations never recurred.

IMPLICATIONS/DISCUSSION: This patient may have manifested Charles Bonnet sydrome. This syndrome is rare with an estimated prevalence of 0.8% in low vision individuals, 0.6% in the elderly, and 0.4% in Asians. This syndrome manifests as "visions" in people who are have insight into the disease and are neurologically stable. The syndrome must be differentiated from other causes of transient complex visual hallucinations such as epileptic phenomenon, migraine, treated Parkinson's disease, Lewy body dementia, and hypnogogic hallucinations and causes of persistent complex visual hallucinations such as peduncular hallucinations due to the brainstem damage or delirium tremens. The pathophysiology is unclear but is thought to relate to abnormal visual cortex activity. Poor vision and sensory deprivation are common precipitants. In the case of our patient it is likely that low blood sugars precipitated abnormal visual cortical activity. This syndrome is rarely recognized by health care providers and the people experiencing associated symptoms often do not speak of their symptoms for fear of being classified as mentally ill. By being aware of this syndrome, providers can avoid unnecessary invasive neurologic procedures and psychotropic medications.

NOW YOU SEE IT...NOW YOU DON'T: TRANSIENT BRAIN LESIONS ON MAGNETIC RESONANCE IMAGING S. Ragbir[1]; A. Kolpakchi[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 205376)*

LEARNING OBJECTIVES: 1. To be familiar with posterior reversible encephalopathy syndrome (PRES). 2. To recognize that PRES is completely reversible if the cause is promptly addressed.

CASE INFORMATION: A 23-year-old African American female with systemic lupus erythematosus (SLE) and chronic kidney disease secondary to lupus nephritis presented with a two-week history of progressive bilateral leg edema and dyspnea. She was diagnosed with SLE and lupus nephritis in 2002. Recently, she has had multiple admissions for dyspnea and recurrent pleural effusions due to lupus serositis. Her medications included oral prednisone, mycophenolate mofetil, and hydroxychloroquine. Vital signs on admission included blood pressure of 192/110 mm Hg, heart rate of 140, and respiratory rate of 22. Physical examination was significant for decreased bibasilar breath sounds and 2+ pitting edema of both lower extremities. Laboratory studies showed a creatinine of 2 mg/dL; her baseline is 1.5. She was diagnosed with SLE flare and admitted for intravenous steroids. On hospital day seven, she acutely developed bilateral vision loss, became lethargic, and subsequently had a tonic-clonic seizure. Her blood pressure at that time was 215/134 mm Hg. She was intubated for airway protection. A non-contrast CT of the brain showed nonspecific lucencies in bilateral parietal cortices and subcortical white matter. Non-contrast MRI revealed subacute cortical and subcortical infarcts in posterior parietal lobes bilaterally and the left occipital lobe, as well as several small cortical and subcortical foci of increased signals in the frontal lobes. The patient's blood pressure was controlled and she was extubated one day later. Her vision returned to normal and she experienced no further seizures. Repeat MRI one week later was unremarkable. The patient was diagnosed with acute exacerbation of PRES.

IMPLICATIONS/DISCUSSION: PRES was originally known as reversible posterior leukoencephalopathy syndrome (RPLS). The term RPLS was first coined by Hinchey et al in 1996 when they reported a series of 15 patients with altered mental status, malignant hypertension, and similar presentation on imaging that completely resolved within days. Since then, the name of this syndrome has evolved to the more commonly used terminology, PRES. The incidence is not well known. The syndrome has been reported in patients with abrupt hypertensive crisis and concomitant renal failure, eclampsia, systemic inflammatory disorders, or immunosuppressant therapy (e.g. cyclosporine, tacrolimus). The exact pathogenesis is not known. The proposed mechanism involves the sudden rise of blood pressure exceeding the autoregulatory system, leading to vascular leakage and vasogenic edema. Posterior circulation is more susceptible due to its minimal sympathetic adrenergic innervation. Clinical presentation includes headache, confusion, visual disturbance, and seizures. Non-contrast head CT and brain MRI reveal hypodense lesions in bilateral parietal and occipital lobes. Treatment includes blood pressure control and/or removal of the offending agents (e.g. discontinuation of immunosuppressant therapy), and most patients recover completely within days. If not treated promptly, the intracranial vascular involvement may progress to infarction and hemorrhage, resulting in irreversible neurological deficits. PRES is rare but completely reversible if promptly recognized, diagnosed, and treated.

NUMBNESS IN A 39 YEAR-OLD MAN F. Makdsi[1]; T. Kadrie[1]; V.O. Kolade[1]. [1]University of Tennessee College of Medicine, Chattanooga, TN. *(Tracking ID # 203824)*

LEARNING OBJECTIVES: 1-To recognize Vitamin B12 deficiency as a cause of spinal lesions 2-To describe the clinical manifestation and the MRI findings of B12 deficiency

CASE INFORMATION: A 39 year-old man presented to the outpatient clinic with a two-month history of distal upper extremity numbness and fine motor movement difficulties. He denied any neck pain, lower extremity symptoms, vision loss or any other neurological deficit. He had no past medical history. His physical exam was normal. Laboratory evaluation revealed a hemoglobin of 11.9 g/dl six weeks prior. Cervical and thoracic MR imaging showed extensive posterior cervical cord flame-shaped lesions. His repeat Vitamin B12 level was 41 pg/ml, methylmalonic acid 5.7 umol/l, homocysteine >50 nmol/l; intrinsic factor antibody was positive. EGD and colonoscopy were normal. He received vitamin B12 replacement therapy. His symptoms resolved after six months; repeat spinal MRI showed resolution of the previously seen lesions.

IMPLICATIONS/DISCUSSION: Deficiency of Vitamin B12 leads to degeneration of the dorsal and lateral white matter of the spinal cord (subacute combined degeneration). It also can affect the brain, the peripheral and optic nerves. The initial symptoms are usually paresthesiae, and can progress to gait ataxia due to loss of vibration and position sense, severe weakness, spasticity, clonus, paraplegia, and even fecal and urinary incontinence. In patients with myelopathy, MRI may reveal regional T2 and fluid-attenuated inversion recovery (FLAIR) hyperintensities mainly in the thoracic posterior columns with possible extension into the brain stem. Brain MRI may show T2 and FLAIR hyperintensities in the cerebral white matter and around the fourth ventricle. The differential diagnosis of a spinal lesion is broad and includes demyelinating disorders (multiple sclerosis, Devic's disease), infectious causes (HIV vacuolar myelopathy and herpes viruses), inflammatory processes (sarcoidosis, transverse myelitis), ischemia, and neoplasm. In subacute combined degeneration, the abnormal signal intensity is particularly prominent in the dorsal columns and usually contiguous in length over several vertebral bodies. However, in demyelinating lesions having other causes, lesions often do not exceed two vertebral bodies in length and are frequently multiple. It is important to distinguish B12 deficiency from other causes of myelopathy as it is curable and early detection is necessary for full clinical

recovery. We recommend that every patient presenting with cord lesions on MRI of the spine should have Vitamin B12 checked. MR imaging may be a useful addition to the clinical assessment in monitoring the efficacy of treatment if vitamin deficiency is diagnosed.

OMENTAL INFARCTION: A NON SURGICAL ACUTE ABDOMEN
K.S. Garcha[1]; J. Sra[1]. [1]Robert Packer Hospital, Sayre, PA. *(Tracking ID # 205982)*

LEARNING OBJECTIVES: 1. Omental infarction is a rare but important cause of acute abdomen. 2. Early diagnosis by CT scanning can avoid unnecessary surgery.
CASE INFORMATION: A 68 year old female presented to emergency room with sudden onset right lower quadrant pain of four days duration. The pain was sudden in onset, sharp, constant, 10/10 in intensity with radiation to the right upper quadrant. There were no increasing or decreasing factors. Patient had associated nausea but no history of vomiting or diarrhea. She denied eating any outside food or similar symptoms in family members or recent trauma. Initial vitals revealed a temperature of 97.6 Fahrenheit, heart rate of 120/minute and a BP of 102/60 mm Hg. On examination there was tenderness noted in the right lower quadrant without any evidence of guarding or rigidity. Bowel sounds were present. Initial labs revealed a WBC count of 15,600 with slight left shift, elevated creatinine at 2.3 mg/dL from a baseline of 1.1. Other labs including electrolytes, amylase and lipase were within normal range. Initial differential included acute appendicitis and cholecystitis. An ultrasound showed no evidence of cholecystitis. CT scan revealed a region of indurated fat between the hepatic flexure the colon, lower part of the liver, gallbladder and anterior abdominal wall consistent with omental infarction. Twisting of the surrounding structures suggested torsion as etiology. Patient was treated conservatively and discharged after four days. She continues to do well in follow up.
IMPLICATIONS/DISCUSSION: Omental infarction is a rare cause of acute abdomen and mimics acute appendicitis or cholecystitis. Two types are recognized; primary,with no known risk factors and secondary, when it may be due to torsion, vasculitis or thrombophilia. Anomalous blood supply, kinking of veins due to increased intra-abdominal pressure and vascular congestion after large meals may be other predisposing factors. The right side predilection is thought to be related to the omentum being longer and more mobile on that side. Symptoms usually consist of acute or aubacute onset of pain in right lower (or sometimes upper) quadrant. Nausea and vomiting is rare and most patients are afebrile. Localized tenderness may be observed with or without a mass. Hyperesthesia of overlying skin (Ligat's Sign) has been historically described. Slight elevation of white cells is usual. CT scan of the abdomen is diagnostic in which omental infarction appears as triangular or oval heterogenous mass located between anterior abdominal wall and the transverse or ascending colon fat density. A "whirled pattern" suggests concomitant torsion. Absence bowel thickening helps to rule out other differentials such as appendicitis and inflammatory bowel disease. Most cases can be managed conservatively. Spontaneous and complete resolution of symptoms occurs typically within two weeks. Early diagnosis by CT scan obviates the need for surgical intervention which carries risk of adhesion formation.

ORBITAL CELLULITIS, WHAT YOU DON'T WANT TO MISS!
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LEARNING OBJECTIVES: Learning Objectives: 1. Know when to refer a patient with orbital cellulitis. 2. Be aware of the atypical presentations of Mucormycosis.
CASE INFORMATION: A 51-year old Hispanic female with recent diagnosis of diabetes and hypertension was evaluated for a one-week history of left eye pain, swelling and erythema. The patient was immediately seen by Ophthalmology and admitted to the ICU with a diagnosis of orbital cellulitis for treatment with IV antibiotics (piperacillin/tazobactam and vancomycin). Significant laboratory data includes WBC count of 21.5 with left shift and bandemia, hemoglobin A1C of 16, and no evidence of diabetic ketoacidosis on admission. During the next several days, her cellulitis failed to improve and she experienced worsening of her vision, left greater than right side. MRI of the brain was obtained to evaluate for extent of involvement and showed cavernous sinus thrombosis; she was started on IV heparin as per neurology recommendations. Aside from the inflammation in the left orbit, repeat ENT examinations failed to demonstrate any signs of rhino-orbital-cerebral mucormycosis (ROCM). Because of her continued symptoms, Amphotericin B and micafungin was added for coverage of possible mucormycosis due to high suspicion despite negative exam. Seventy-two hours after admission, repeat ENT examination demonstrated small areas of necrotic tissue in her nares, biopsy of this tissue showed invasive mucormycosis. During the next 48 hours, the opthalmological exam progressed with left sided opthalmoplegia and decreased vision in both eyes (Left eye: loss of vision; right eye: shadows only). Although initially resistant to surgery, the patient consented to radical enucleation of the left globe, a necessary procedure considering the high mortality associated with antibiotic therapy alone. After surgery she continued to receive IV amphotericin B and micafungin. She was enrolled in an experimental protocol of an iron chelator (Exjade) as an adjunctive treatment in mucormycosis. Following these measures, the patient did well with decreased fever, headache and improved vision in her right eye. She was subsequently discharged and received outpatient amphotericin B (TIW) treatment in conjunction with daily oral posaconazole.
IMPLICATIONS/DISCUSSION: The diagnosis of rhino-orbital-cerebral mucormyosis may be difficult if the patient lacks classic findings of nasal or palatal involvement (e.g. bleeding, tissue necrosis). In this case, the initial diagnosis of bacterial orbital cellulitis proved misleading. Careful, daily evaluation by ENT demonstrated the development of tissue necrosis leading to the diagnosis of ROCM. Despite the development of cavernous sinus thrombosis, the patient survived with a combination of radical surgery (exeneration of the left globe) and early aggressive antifungal therapy (amphotericin B and micafungin). In diabetic patients, orbital infection can be devastating and is associated with high morbidity and mortality. In a diabetic patient with fever, headache and inflammation of the eye, early referral to ophthalmology and ENT is necessary, and always keep in mind the possibility of ROCM and consider addition of antifungal therapy until the diagnosis is excluded.

ORTHOPNEA AS THE PRESENTING SYMPTOM OF AMYOTROPHIC LATERAL SCLEROSIS
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LEARNING OBJECTIVES: 1. Review a broad differential for the dyspneic patient, and be able to recognize those with dyspnea related to neuromuscular issues. 2. Discuss the role of Maximal Inspiratory Pressure testing for screening patients with clinically suspected respiratory neuromuscular involvement.
CASE INFORMATION: A 78 year old male with good functional status, presented with generalized fatigue, progressively increasing shortness of breath and orthopnea over a period of 5 months. Review of symptoms revealed a mild hoarseness of speech, frequent awakenings at night and a weight loss of 15 lb over the last few months. He denied swallowing dysfunction. Work up for a cardiac etiology for dyspnea was negative. Neurological examination revealed normal cranial nerve exams, diffuse 4/5 muscle power in hand muscles, hip & knee flexors, mild hyperreflexia, bilateral upgoing plantar reflexes and normal sensations. Chest imaging via CT was unremarkable for mass or embolic disease and overnight pulse oximetry was negative for desaturations. Pulmonary functional studies revealed a moderate restrictive pattern with low vital capacity. Respiratory muscle weakness was suspected with the Maximal Inspiratory Pressure well below 5th percentile for age matched normal. A neuromuscular etiology was confirmed by nerve conduction studies demonstrating significant latency, decreased amplitudes and slowed nerve conduction. EMG studies demonstrated extensive denervation changes including defibrillation waves in multiple muscle groups in the limbs confirmed the possibility of motor neuron disease.
IMPLICATIONS/DISCUSSION: Amyotrophic Lateral Sclerosis is a progressive disorder of anterior horn cells that typically presents with a combination of upper motor neuron and lower motor neuron signs and symptoms.. In up to 20% of the cases, bulbar involvement may be

the predominant symptom, manifesting as dysarthria and dysphagia. Less commonly, respiratory muscle weakness may be predominant, manifesting as orthopnea along with disturbed nocturnal sleep with frequent awakenings. Maximal Inspiratory Pressure is a useful screening tool for assessing the strength of Inspiratory muscles to rule out any neuromuscular diseases. Dyspnea is a common symptom, but dyspnea in conjunction with bulbar signs should point the clinician toward a neuromuscular etiology.

OSMOLYTIC DEMYELINATION SYNDROME : AN UNUSUAL PRESENTATION S. Jain[1]; K. Vipul[2]; A.A. Donato[2]. [1]The Reading Hospital and Medical Center, reading, PA; [2]The Reading Hospital and Medical Center, West Reading, PA. *(Tracking ID # 205603)*

LEARNING OBJECTIVES: 1) Recognize that osmotic demyelination syndrome can have varied neurological presentations. 2) Recognize underlying conditions that can predispose to the development of this disorder.
CASE INFORMATION: A 44 year-old male with history of chronic alcohol use presented with a sub-acute onset of gait dysfunction manifested by unsteadiness during walking, dizziness and paraesthesias. He was discharged three weeks earlier after being treated for ulcerative esophagitis, hypokalemia, hyponatremia and mild alcohol withdrawal. An incidental finding of spiculated, 2 centimeter right upper lobe nodule was detected on chest imaging. Neurologic examination revealed no defects in memory or orientation. Cranial nerves were intact. A wide, unsteady gait was noted with a positive tandem walking, negative Romberg's sign, mild degree of dysdiadokinesia, worse on left than right. Motor and sensory examination was normal and reflexes were intact. Initial differential of cerebellar findings included alcohol-related vitamin deficiency, alcoholic cerebellar disorder or a paraneoplastic syndrome, secondary to his lung nodule. Labs revealed an elevated MCV, with a low pre albumin but normal range of vitamin B 12 and serum folate. Biopsy of his nodule was negative. A MRI of the head revealed the classical finding of osmotic demyelenation, a hyperintense "Poseidon triangle" in a T2 weighted image in the central pons. Retrospectively, we reviewed plasma sodium levels during previous admission. Initial sodium of 107 MEQ/L was corrected by 12 MEQ/L in first 24 hours. His gait dysfunction improved slowly over the 6-day hospital course with physical therapy and his was discharged to home.
IMPLICATIONS/DISCUSSION: Osmotic demyelination syndrome is a non-inflammatory demyelination often seen in the central pons, though extrapontine regions are involved in 10% of patients. Predisposing causes include alcoholism, liver disease, malnutrition, and hyponatremia. Prolonged hyponatremia followed by rapid sodium correction results in cellular edema, inducing demyelination. Change in mental status 48–72 hours post correction of hyponatremia is typical, with, horizontal gaze paralysis, pseudobulbar palsy or spastic quadriplegia or sometimes coma and "locked in" syndrome seen in severe cases. Patients with extrapontine lesions may exhibit tremor and ataxia. Physicians should be careful in correction of hyponatremia, with a goal of correction less than 12 MEQ/Liter for 24 hours and 18 MEQ/Liter for 2 days. Patients with history of alcoholism and hyponatremia, presenting with any neurological deficit should be evaluated for osmotic demyelination syndromes.

OVER-THE-COUNTER MEDICATIONS CAN BE TOXIC: SALICYLATE TOXICITY FROM ALKA-SELTZER. O. Hungerford[1]; M.S. Cratty[1]. [1]AGH, Pittsburgh, PA. *(Tracking ID # 204847)*

LEARNING OBJECTIVES: 1. Recognize the use of over-the-counter medication as a potential cause of serious morbidity. 2. Outline the presentation and treatment of salicylate toxicity.
CASE INFORMATION: A 59 year old female with Diabetes Mellitus type 2, coronary disease, atrial fibrillation presented with generalized weakness, abdominal pain, nausea for one week. Her history revealed that she had taken over-the-counter Alka-seltzer (about 15 pills daily/5000 mg of salicylic acid, 75 mg/kg/day). On initial presentation, she was found to be lethargic with mild abdominal tenderness. She was afebrile and vitals were stable. The patient's physical exam was nonspecific and her neurological exam was nonfocal. She had elevated levels of salicylate (50 mg/dL) and ammonia (31 mcmol/L) with abnormal liver function test (ALT 210 U/L, AST 306 U/L, alkaline phosphatase 79 U/L). Arterial blood gas showed mild respiratory alkalosis with nonanion gap metabolic acidosis (7.473/32.8/133/23.7). The CT head exam was negative for an acute intracranial event. Other possibilities of altered mental status were excluded by history and laboratory findings. The patient was diagnosed with salicylate intoxication with encephalopathy and transaminitis. Treatment was initiated with IV fluids with sodium bicarbonate and lactulose. Hemodialysis was considered. After treatment, her salicylate level decreased and her mental status improved. She was discharged home.
IMPLICATIONS/DISCUSSION: This case demonstrates a patient with salicylic acid induced encephalopathy secondary to chronic use of the over-the-counter medication, Alka-seltzer. Recognition of complications of OTC medications and knowledge of a patient's complete medications list are crucial. Multiple sources of OTC salicylate containing medications exist. Alka-seltzer consists of aspirin 325 mg, sodium bicarbonate 1916 mg, and citric acid 1000 mg. Chronic salicylate toxicity occurs when 100 mg/kg/day of ASA ingested for more than 2 days. Our patient was taking over-the-counter Alka-Seltzer (about 75 mg/kg/day) for more than 2 weeks. Twenty-seven percent of chronic salicylate overdoses are originally misdiagnosed. Chronic ASA poisoning is associated with 25% mortality and 30% morbidity. High dose of aspirin causes neurological changes (tinnitus, vertigo, altered mental status, coma, and seizures) and a variety of acid-base disturbances. Salicylate stimulates the respiratory center directly, resulting in respiratory alkalosis. An anion-gap metabolic acidosis then follows secondary to accumulation of organic acids (lactic acid and ketoacids). While, the serum level of salicylic acid is helpful in diagnosis of toxicity, severity of intoxication should be based on clinical presentation. Mortality from salicylate poisoning is strongly correlated with CNS salicylate level. Treatment includes prevention of absorption (epecac, lavage, charcoal and cathartic) and enhancement of elimination (forced alkaline diuresis, hemodialisis, hemoperfusion). Our patient slowly improved with sodium bicarbonate drip and hemodialisis was considered.

PAGET-SCHROETTER SYNDROME: SPONTANEOUS UPPER EXTREMITY VENOUS THROMBOSIS M.D. De La Pena[1]; F. Sanchez[1]; N. Abbasian[2]. [1]Saint Francis Hospital, chicago, IL; [2]Univesity of Illinois at Chicago, Chicago, IL. *(Tracking ID # 205490)*

LEARNING OBJECTIVES: Understand the clinical significance and importance of early detection of Axillo-subclavian Vein Thrombosis (ASVT). Identify the best treatment option based on patient individual characteristics.
CASE INFORMATION: A 24 year old male was admitted to the hospital for pain and swelling in the right arm for four days, associated with left sided chest pain, and left arm pain shooting to the shoulder and pectoral muscles. The pain began when the patient was playing basketball and had been gradually increasing since then. On admission, the pain was rated at 7/10 on the right side and 2/10 on the left side. His symptoms were not relieved by pain medications and were aggravated by taking deep breaths and movement. The patient had no history of fever, IV injections, or trauma. He is a 4.5 pack year smoker with no significant past medical history, not taking medications, and has no family history of any clotting disorder. On admission his vital signs were stable and examination was significant for pain in left arm on active movement. His right arm was swollen and mildly erythematous; tortuous veins on the right upper extremity and right upper chest were noted. On palpation, tenderness at the wrist level was elicited and pulses were present. A venous doppler of the right upper extremity revealed right axillary vein thrombosis. Laboratory tests including sugar water test, homocysteine level, CK, PT/INR, PTT, Prothrombin Mutation Gene, Fibrinogen, Factor XII, Anti-Thrombin III, Protein S, Factor V Leiden, Lupus Anticoagulant, and Protein C levels were performed. All tests were negative or within normal limits except: CK 221, Fibrinogen 581, Protein S 130, Lupus Anticoagulant Positive (low level). The patient was diagnosed with ASVT and immediately started on LMWH and warfarin. After 3 days, patient was discharged for close follow up and INR monitoring as outpatient. The patient was also advised to avoid extensive use of upper limbs, weight lifting, or any strenuous physical activity.
IMPLICATIONS/DISCUSSION: Paget-Schroetter syndrome, or 'effort' thrombosis of the axillary-subclavian vein, is an uncommon deep vein thrombosis usually caused by excessive upper limb activity and most

often affecting young, active adults. The cause is multifactorial but almost always involves extrinsic compression of the subclavian vein at the thoracic inlet, causing venous stenosis from repetitive trauma. ASVT, if undetected or inadequately treated, is associated with considerable morbidity (29–40%) due to potential risks of pulmonary embolism, post-thrombotic syndrome and loss of vascular access. Simple anticoagulation is suitable for the majority of patients. Thrombolysis/thrombectomy is often successful but less frequently used. Surgical decompression, venous angioplasty and superior vena cava filters have some role in recurrent cases.

PAINFUL OPHTHALMOPLEGIA AS THE FIRST MANIFESTATION OF LUNG CARCINOMA B. Mocanu[1]; B. Obaid[1]; V.O. Kolade[1]. [1]University of Tennessee College of Medicine, Chattanooga, TN. *(Tracking ID # 203821)*

LEARNING OBJECTIVES: To review the differential diagnosis of diplopia associated with painful ophthalmoplegia.
CASE INFORMATION: A 66 year-old male was admitted after one week of sudden onset of diplopia, severe pain in both eyes, headache, and dizziness on standing. He denied nausea, vomiting, dysarthria, dysphagia or focal weakness. His past medical history was significant for peripheral artery disease status post bilateral femoral endarterectomies and hypercholesterolemia. His cardiac stress test was normal 6 months before. He was noncompliant with aspirin and clopidogrel. He was a heavy smoker and worked in a factory. Laboratory data showed hyponatremia. On physical exam vital signs were stable; both eyes were deviated medially with slight proptosis, pupils were equal, round and reactive to light. He had vertical and horizontal diplopia, no nystagmus, normal reflexes and no motor or sensory deficits. There was concern for intracranial pathology causing bilateral abducens nerve palsy. The initial head CT was read as negative. Due to a diagnosis of presumed vasculitis a lumbar puncture was performed. This was negative for inflammation and malignant cells. An endocrine pathology was excluded by normal thyroid tests and blood glucose. Furthermore, a MRI/MRA head and neck with contrast illustrated chronic small vessel ischemic disease and unremarkable globes and orbits. Due to the persistence of the patient's symptoms, a MRI brain using orbit protocol showed a 27×20×26 mm enhancing mass arising from the clivus and an old 2 mm lacunar infarct in the right thalamus. The pattern of bony changes of the clivus was consistent with an infiltrative tumor, likely metastatic disease, rather than chordoma or chondroblastoma. A CT thorax/abdomen/pelvis with contrast showed a 4.9×4.4 cm cavitary irregular mass in the left upper lobe with surrounding emphysematous changes and a 12×8 mm nodule in the right apex. A bronchoscopy with transbronchial needle aspiration of the lung lesion was consistent with poorly differentiated squamous cell carcinoma of the lung. Due to the metastatic lesion to the clivus with involvement of the surrounding cranial nerves, treatment with steroids and radiotherapy was started, with improvement of the patient's symptoms.
IMPLICATIONS/DISCUSSION: Diplopia associated with painful ophthalmoplegia may result from traumatic, vascular, infectious, inflammatory, endocrine or neoplastic etiologies. Clivus tumors are relatively rare and involve the posterior cranial fossa. Metastatic tumors that involve the clivus are less common than the benign causes. Due to the entrapment of the cranial nerves by osseous metastasis, the presenting symptom is cranial neuropathy, usually sudden in onset. Subtle bony radiographic abnormalities of the clivus could be easily overlooked. Systemic workup should be performed for a metastatic lesion in order to define the primary lesion. A team approach, involving the internal medicine physician, neurologist, neurosurgeon, oncologist and radiation oncologist, is required for diagnosis and subsequent management. Surgical access for a biopsy is a challenge due to likely involvement of neural structures; empiric treatment is indicated when symptoms are persistent and the clinical picture is suggestive for a metastatic lesion of the clivus.

PAROXYSMAL HEMIPLEGIA TIA! CRYPTOCOCCOSIS IN AN IMMUNOCOMPETENT PATIENT? T. Yoshida[1]; N. Furuhashi[1]; H. Tsuji[1]; A. Kawabata[1]; M. Kawai[1]; Y. Ito[1]. [1]Toyota Memorial Hospital, Toyota, Aichi. *(Tracking ID # 204312)*

LEARNING OBJECTIVES: 1. Recognize cryptococcus as a possible cause of meningitis in immunocompetent patients. 2. Diagnose cryptococcal meningoencephalitis in a patient with atypical neurological presentation.
CASE INFORMATION: A 55 y.o. man with hypertension and high cholesterol presented with two episodes of paroxysmal right hemiplegia. Both episodes started as weakness of the right leg, proceeded to the right arm and resolved in 30 minutes without residual symptoms. He had anorexia and a few episodes of headache with photophobia during the past few days. Social history revealed 17.5 pack-year of smoking and a pet cat but otherwise insignificant. Physical exam during the attack showed right hemiparesis stronger in the lower extremity but with no sensory disorder nor abnormal reflex. Laboratory test showed white blood cell count of 11200/μL. MRI obtained 1 day prior to admission was unremarkable. He was initially diagnosed as TIA. The transient hemiplegia without loss of consciousness recurred for 2–4 times every day after admission. The patient developed low grade fever from the 4th day of admission. Re-examined MRI on the 4th day showed cerebral edema in the left parietal lobe. Electroencephalogram (EEG), obtained during another episode of right hemiplegia, did not show seizure activity or focal abnormalities. Lumbar puncture (LP) performed on the 8th day revealed opening pressure of 23 cmH_2O. Cerebrospinal fluid (CSF) analysis showed cell count of 54/μL (100% monocytes), protein of 78 mg/dL and glucose of 69 mg/dL. Gram/India ink/acid-fast stain, **M. tuberculosis** PCR, and routine/fungal culture were all negative. Later, Cryptococcus neoformans antigen came back positive and the 2nd LP performed on the 14th day yielded positive India ink stain. The patient was diagnosed as cryptococcal meningoencephalitis (CME) and a consequent focal seizure causing paroxysmal hemiplegia. He was started on amphotericin B, flucytosine, and prednisolone. His symptoms resolved after treatment.
IMPLICATIONS/DISCUSSION: CME can present with various neurologic deficits such as hearing defects, diplopia, dysarthria, hemiplegia, cranial nerve palsy, lethargy, personality changes and seizures. Among common signs of meningitis, headache is mostly seen while high fever and neck stiffness are uncommon. Diagnostic evaluation for CME requires an LP with measurement of opening pressure, CSF analysis including cell counts, protein and glucose levels, India ink staining, fungal culture and cryptococcal antigen. CT scan or MRI may reveal diffuse atrophy, cerebral edema or occasionally cryptococcomas. EEG may not show electrographic seizure when seizure activity remains focal. Additional workups may be required to differentiate syphilis, tuberculosis, sarcoidosis and chronic benign lymphocytic meningitis. If suspicion high and initial CSF/serum results are negative, LP should be repeated. Since the advent of HIV/AIDS, cryptococcosis has been recognized as a serious opportunistic infection in HIV patients. Other risk factors include malignant disease, organ transplantation, sarcoidosis, collagen vascular disease, splenectomy, chronic organ failure and systemic corticosteroid treatment. However, cases are reported rarely in immunocompetent patients and tend to be insidious resulting in significant mortality and long-term morbidity. In conclusion, although uncommon, CME needs better disease recognition and should be considered in a patient with nonspecific neurological deficits even in immunocompetent patients.

PHRENIC NERVE STIMULATION RESULTING FROM A DISLOGED PACEMAKER LEAD S.I. Sharma[1]; S.M. George[1]; A.C. Marte-Grau[2]; T.J. Martin[3]. [1]Carilion Clinic, Roanoke, VA; [2]Salem VA Medical Affairs, Roanoke, VA; [3]Veterans Affairs Medical Center, Salem, VA. *(Tracking ID # 205891)*

LEARNING OBJECTIVES: With the elderly population projected to increase by 126% by 2050, hospitalists and primary care physicians are bound to encounter an increasing number of complications from pacemaker placement. Pacemaker dislodgement is very rare, but can present in a number or ways. High suspicion and simple investigations such as EKG and radiographs can identify it and ensure timely intervention.
CASE INFORMATION: An 87 year old African American male presented to the Emergency Department with complaints of positional right upper quadrant discomfort, which was described as spasms, and also dizziness. His past medical history was significant for hypertension, peripheral vascular disease, and chronic kidney disease. He was recently admitted for symptomatic bradycardia and underwent a DDDR

pacemaker implantation. Examination now revealed a blood pressure of 110/70 mmHg, pulse of 70/minute, and respirations of 20/minute which were sporadically paradoxical. Cardiorespiratory exam was otherwise normal. ECG demonstrated normal sinus rhythm with atrial and ventricular spikes which were not being captured, indicating a malfunctioning pacemaker. Chest radiograph revealed atrial lead dislodgement to the superior vena cava whereas the ventricular lead appeared to be in the proper position. Atrial pacing was then deactivated and ventricular pacing was continued. Echocardiography ruled out pericardial effusion and chamber perforation but also did not visualize the pacer leads. During atrial pacing, fluoroscopy revealed right hemidiaphragm contractions which were in synchrony with cardiac contractions, while the left hemidiaphragm contracted normally. The vigorous contraction of the right hemidiaphragm created sporadic paradoxical motion of the relaxed left hemidiaphragm. The patient subsequently had the pacemaker leads repositioned operatively, with radiographic and fluoroscopic confirmation. Pacemaker interrogation and ECG demonstrated proper pacemaker functioning.

IMPLICATIONS/DISCUSSION: We report a case of phrenic nerve stimulation from pacemaker lead dislodgement . The displaced atrial lead stimulated the right phrenic nerve from its position in the superior vena cava, resulting in paradoxical contralateral diaphragm motion and right upper quadrant spasms. About 70% of pacemakers and intracardiac devices are placed in the elderly, as they have a higher incidence of atrioventricular block, sick sinus syndrome, sudden cardiac death and heart failure. These implants can lead to complications, with lead dislodgement being the most common. Pacemaker lead dislodgement can present in various ways: presyncope, syncope, intercostal muscle retraction, or paradoxical breathing. Other complications include lead fracture, acute myocardial perforation, Twiddler's syndrome, phrenic nerve stimulation, insulator breaks, exit block and poor sensing, and lung parenchymal damage. The incidence of lead dislodgement varies from 1–13%. Pacemaker dislodgment can occur immediately or as a late complication. It can be identified by radiographs, echocardiogram, ECG, or fluoroscopy.

PHYSICIAN, DON'T HEAL THYSELF: AN UNUSUAL CAUSE OF HIP PAIN. E. Merkle[1]; H.F. Mechaber[1]; A.J. Mechaber[1]. [1]University of Miami School of Medicine, Miami, FL. *(Tracking ID # 205006)*

LEARNING OBJECTIVES: 1) Recognize a highly unusual presentation of a common diagnosis 2) Identify that physicians often minimize or rationalize their own physical complaints, which can lead to delays in diagnoses

CASE INFORMATION: A 36-year-old previously healthy, white female general internist experienced sudden onset right hip pain. The pain was dull, constant, nonradiating, without associated symptoms, and located at the pelvic brim and "deeper" in the hip joint. The pain was exacerbated by movement of the right lower extremity and weight-bearing on the right leg. There was no history of trauma or recent vigorous exercise; the patient took no medications. That evening the hip pain intensified, became sharp and stabbing in nature, was not alleviated by rest, and was excruciating upon flexion and external rotation of the hip. The following morning the pain was unchanged; the physician-patient sought a "curbside consult" with a rheumatologist for the severe hip pain. A focused exam of the hip confirmed joint involvement without evidence of bursitis, but no clear diagnosis was evident. Both consultant and patient were puzzled by onset of symptoms and neither could explain a probable etiology. Naproxen was prescribed with recommendation for follow up if the pain persisted. After one 500 mg dose the pain decreased in severity but again became excruciating that evening. The following morning, hip pain was minimal in intensity after the second dose of naproxen. The patient continued treatment for 48 hours, and discontinued medication after resolution of hip pain. Three days later, the patient had another recurrence of right hip pain, now a mild, dull ache, without associated symptoms. Eight hours after her dinner, the patient had sudden onset of new, crampy, diffuse abdominal pain unrelieved by normal bowel movement. She attributed the symptoms to a high-fiber meal , but the abdominal pain progressed in intensity with associated nausea without fever or chills. By morning, now 6 days after initial hip pain, the abdominal pain was severe, diffuse and crampy, and the patient vomited. She immediately sought a "formal" office visit with a general internist. On physical exam, she was afebrile and normotensive; abdomen was soft, diffusely tender, with guarding, rebound and RLQ pain to light palpation with a positive Rovsing's sign. Leukocyte count was 14,000 with a left shift; amylase, lipase and liver chemistries were normal. A stat CT was highly suggestive of a retrocecal, acute appendicitis. Patient underwent laparoscopic appendectomy without perforation or complications and had complete resolution of symptoms.

IMPLICATIONS/DISCUSSION: Undiagnosed acute appendicitis can result in significant morbidity and mortality. Delays in diagnosis, often the result of failure to recognize an atypical presentation, are associated with higher rates of perforation and abscess formation. Complications are also more common in patients with appendicitis who delay seeking medical attention for their symptoms. The unusual presentation of this physician-patient resulted in a 6-day delay between onset of symptoms and diagnosis. Furthermore, when more typical, abdominal symptoms did appear, the patient did not consider possible appendicitis, and tried to rationalize away her symptoms. This case illustrates an unusual presentation of a common diagnosis, and is an important reminder that physicians should not rely on their own acumen to treat themselves.

PINNING A CONNECTION BETWEEN NEUROSURGERY AND STRESS-INDUCED CARDIOMYOPATHY. M. Cruz[1]; J. Gotts[1]; L. Mazotti[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204068)*

LEARNING OBJECTIVES: 1. Use systematic review guidelines to identify specific diagnostic criteria for Takotsubo's cardiomyopathy. 2. Recognize negative outcomes associated with subcutaneous epinephrine use.

CASE INFORMATION: A 65 yo woman with a history of asthma, hypertension and mild left ventricular diastolic dysfunction was admitted for elective surgical repair of a 14 mm basilar aneurysm. Prior to admission, hypertension was well-controlled on felodipine, metoprolol and olmesartan. She underwent induction of general anesthesia without incident but became markedly hypertensive to BP of 250/150 during pinning and subcutaneous injection of lidocaine and epinephrine into the scalp. Hypertension was sustained for 8–9 minutes, after which she was sedated with propofol with subsequent hypotension and PEA arrest. Dependent on three pressors, she was transferred to the ICU. Emergent head CT was negative for acute intracranial processes, and PE protocol chest CT was notable only for pulmonary edema. An EKG showed NSR with new poor R wave progression, prolonged QT and anterior TWI, and a bedside TTE showed depressed LV function with new septal and apical wall motion abnormalities. She was brought to the cardiac cath lab for urgent right and left heart catheterization, which identified a reduced cardiac index of 1.38 but found no obstructive coronary artery disease. Left ventriculogram revealed an EF of 25% with preserved basal constrictor function and anterior apical ballooning consistent with Takotsubo's cardiomyopathy.

IMPLICATIONS/DISCUSSION: First reported in 1990, Takotsubo's cardiomyopathy has been described with increasing frequency over recent years, and is now thought to account for up to 2% of patients presenting with suspected ACS. Also referred to as stress-induced cardiomyopathy and transient LV apical ballooning syndrome, Takotsubo's is defined by reversible LV dysfunction, often precipitated by acute emotional or physical stressors. Specific diagnostic criteria, as proposed by the Mayo Clinic, include: 1) transient dyskinesis of the LV apical and mid-ventricular segments with WMA extending beyond a single vascular territory, 2) absence of obstructive CAD or acute plaque rupture, 3) new EKG abnormalities, and 4) absence of recent significant head trauma, intracranial bleeds, pheochromocytoma, myocarditis or hypertrophic cardiomyopathy. The pathophysiology underlying Takotsubo's cardiomyopathy is generally considered to be catecholamine-mediated myocardial stunning, and treatment is aimed at minimizing sympathetic stimulation while managing systolic heart failure with diuretics, vasodilators, ACE inhibitors and beta blockade as tolerated. Several groups have recently reported stress-induced cardiomyopathy following modest intravenous (Collen et al., 2008) or subcutaneous (Saeki et al., 2006; Tomcsányi et al., 2008) epinephrine use. We believe that either subcutaneous epinephrine or physiological stress from head pinning precipitated the development of cardiomyopathy in our patient. She was intially managed with low-dose pressors and diuretics, then started on beta blockers and ACE inhibitors as she hemodynamically improved. Repeat TTE four days after presentation found an EF of 65% and no wall motion abnormalities.

PIPERACILLIN/TAZOBACTAM-INDUCED THROMBOCYTOPENIA: A CASE REPORT T.A. Rousan[1]; I.T. Aldoss[2]; J. George[1]; B.D. Cowley[1]. [1]University of Oklahoma, Oklahoma City, OK; [2]Creighton University, Omaha, NE. *(Tracking ID # 205666)*

LEARNING OBJECTIVES: Piperacillin/Tazobactam as a cause of thrombocytopenia

CASE INFORMATION: A 30 year-old man with end stage renal disease on hemodialysis was admitted with an infected left arm graft. Part of his antimicrobial treatment was Piperacillin/Tazobactam which was given intermittently during his hospitalization. It was started on 11/30/08 with a dose adjusted to his creatinine clearance. On 12/10 it was noted that his platelet count dropped to 70 from 201 on the previous day. At that time, peripheral blood smear was sent and showed decreased platelet count, occasional giant platelets, and no platelet clumps. There was no evidence of thrombotic microangiopathy or other hemolytic anemia. LDH was low and haptoglobin level was high. Iron studies were consistent with mixed iron deficiency and anemia of chronic disease. Other peripheral blood smear parameters were stable with a normal white blood cell count and stable low hemoglobin. Heparin-induced anti-platelet antibody ELISA assay was negative. Review of his medication list showed many potential etiologies of thrombocytopenia including, but not limited to, Phenytoin, Gabapentin, Pantoprazole, Sertraline, Heparin, and Piperacillin/Tazobactam. The patient had been exposed to all of these medications in the past without thrombocytopenia. On 12/12 the decision was made to stop the Heparin although Heparin-induced anti-platelet antibody assay was negative and the patient has been receiving heparin on regular basis. Piperacillin/Tazobactam was stopped on 12/11. On 12/12, the platelet count started to recover with a count of 42; it kept on increasing to normalize on 12/15 with a count of 198. The cause for the thrombocytopenia was still not certain at that time. All other medications were continued (including Heparin which was given intermittently) except for the Piperacillin/Tazobactam. On 12/19, blood cultures were reported as positive with gram negative rods; therefore Piperacillin/Tazobactam was restarted. On the next day platelet count dropped from 377 to 91 then to 18 on 12/21 and the patient complained of upper and lower gastrointestinal bleeding. Piperacillin/Tazobactam was stopped and the patient was given 2 units of blood and one unit of single donor platelets urgently.

IMPLICATIONS/DISCUSSION: Thrombocytopenia is an uncommon adverse effect of many common medications, typically caused by drug-dependent anti-platelet antibodies. A systematic review by George, et al. established clinical criteria for assessing reports of drug-induced thrombocytopenia that defined four levels of evidence; definite, probable, possible and unlikely (http://www.ouhsc.edu/platelets). In our case, we provide a definite level of evidence as therapy with Piperacillin/Tazobactam preceded thrombocytopenia, recovery was complete and sustained after the drug was discontinued, other drugs were continued with a sustained normal platelet count, other causes for thrombocytopenia were excluded, and re-exposure to the drug resulted in recurrent thrombocytopenia. Piperacillin/tazobactam is a widely used antibiotic during hospitalization as a definitive and empiric therapy for different types of infection syndromes. It has numerous common and rare side effects. By reviewing the literature, only one case report was found that documented the occurrence of thrombocytopenia after administrating Piperacillin/Tazobactam with Level 2 evidence. Our case represents a definite diagnosis of Piperacillin/Tazobactam-induced thrombocytopenia based on George et al criteria.

PNEUMOCOCCAL BRAIN ABSCESS: A PATH LESS TRAVELLED R.S. Hira[1]; A.L. Kolpakchi[2]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX; [2]Baylor College of Medicine and MEDVAMC, Houston, Houston, TX. *(Tracking ID # 205361)*

LEARNING OBJECTIVES: 1) To report a case of a brain abscess caused by a rare pathogen. 2) To highlight the importance and methods of identifying the primary source of a brain abscess

CASE INFORMATION: A 55-year-old white female was admitted with a 2-week history of severe frontal headache followed by an acute onset of confusion on the day of admission. She was recently treated with levofloxacin and prednisone for presumed sinusitis with minimal improvement. There was no prior history of sinusitis or sinus trauma. Physical examination revealed a disoriented and lethargic female with no focal neurological deficits or sinus tenderness. A head CT followed by an MRI brain showed a large ring-enhancing lesion in the right frontal lobe adjacent to the ethmoid sinus. Sinus views on the head CT and MRI were unremarkable. She underwent neurosurgical excision, and "creamy pus" with a thin-walled cavity was noted. Cultures grew Streptococcus pneumoniae sensitive to ceftriaxone, which was started and she was discharged. She was readmitted 11 days later with fever and headache and diagnosed with recurrence of the brain abscess. A multiplanar CT of the maxillofacial area revealed opacification of the right ethmoid air cells along with a defect in the adjacent cribriform plate, allowing a communication with the right frontal lobe. Neurosurgery drained the abscess again and ENT closed the cribriform plate defect. She was treated with a six-week course of intravenous antibiotics.

IMPLICATIONS/DISCUSSION: Brain abscesses can be caused by direct spread or via the hematogenous route. Direct spread occurs from the middle ear, mastoid, paranasal sinuses or dental infection. Organisms causing the brain abscess are dependent on the primary source. In the paranasal sinuses these are Streptococcus milleri, Haemophilus, Bacteroides and Fusobacterium. Streptococcus pneumoniae is a rare cause of a brain abscess. In a recent retrospective analysis of 49 cases of brain abscess, only one was found to be caused by Pneumococcus. Patients typically present with headache and altered mental status. Fever is seen in only 50% of cases. For imaging, MRI is preferred to CT scan due to its higher sensitivity to detect early stage of acute cerebritis and small satellite lesions. Culture and histology from stereotactic CT-guided aspiration or surgical excision are used to establish the diagnosis. Treatment requires a combination of antibiotics and surgical drainage. For paranasal sinuses, metronidazole plus penicillin G or ceftriaxone or cefotaxime are recommended for empiric therapy, while waiting for cultures and sensitivity. Needle aspiration is preferred to surgical excision due to the reduced neurological sequelae. To prevent recurrence, the primary source of brain abscess needs to be identified. In paranasal sinuses, the anterior ethmoid air cells are common foci of persistent infection. Multiplanar sinus CT scan is preferred since the head CT may not be able to visualize the small size of ethmoid cells and the septae. Hence, this case reports a brain abscess caused by a rare pathogen by direct spread from the ethmoid sinus and reinforces the need of identifying the primary source of a brain abscess.

POLYARTERITIS NODOSA R. Yoe[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205747)*

LEARNING OBJECTIVES: 1. Understand the diverse and complex disease manifestations associated with polyarteritis nodosa as well as discussing the various types of available treatments. 2. Review the diagnostic criteria for polyarteritis nodosa as well as the various pertinent labs, radiographic studies, and biopsies needed to evaluate the disease progression.

CASE INFORMATION: Thirty eight year old white female with no significant past medical history presents to the emergency department with recurrent right leg ulcers. The first ulcer was noted approximately one year ago and was described as a welt that was ulcerated. Patient originally went to an outpatient physician who felt that this was most likely secondary to infection and she was placed on oral antibiotics. Over the next few months, patient notes more ulcers were starting to form on her right leg. Patient was tried on a variety of different antibiotics over the past months to no avail. At admission, patient states that the ulcers are starting to occur more frequently and she feels as if they are spreading up to her abdomen. Patient complains of severe pain in her right leg on presentation. Patient denies any fever or chills but does endorse abdominal pain and weight loss. At presentation she had close to twenty coin shaped erythematous ulcerations over entire right lower extremity surrounded by erythema. Patient received a biopsy that showed necrotizing vasculitis consistent with polyarteritis nodosa. CT angiogram of abdomen showed small aneurysms and multifocal abnormal narrowing in the hepatic arteries, left renal artery and branches of the superior mesenteric artery.

IMPLICATIONS/DISCUSSION: Polyarteritis nodosa (PAN) causes transmural necrotizing inflammation of small-sized or medium-sized muscular arteries. The associated inflammation process may cause weakening of the arterial wall, aneurysmal dilatation, and localized rupture. Although any organ can be affected, PAN most commonly involves the skin, joints, peripheral nerves, gastrointestinal (GI) tract,

and kidney. Disease manifestations are diverse and complex, ranging from a benign cutaneous form to a severe disseminated form. There is no specific test to diagnose polyarterits nodosa. Diagnosis is based upon physical examination, lab tests, and biopsy of the affected area. Patients with PAN have elevated erythrocyte sedimentation rate and c reactive protein levels as well as having non positive anti-neutrophilic cytoplasmic antibodies (ANCA) levels. The criteria of the classification of polyarteritis nodosa includes weight loss, livedo reticularis, testicular pain, diffuse myalgia, neuropathies, hypertension, renal failure, presence of hepatitis B, arteriogram demonstrating aneurysm or occlusions of visceral arteries. It also includes a biopsy of small-sized or medium-sized arteries showing histological changes demonstrating the presence of granulocytes and mononuclear leukocytes in the artery wall. Currently, corticosteroids plus cyclophosphamide is the standard of care for idiopathic PAN and for patients with more severe disease. This combination can provide prolonged survival for these patients. In contrast, for hepatitis B–related PAN, treatment consists of schemes that include plasmapheresis and antiviral agents.

POLYPHARMACY IN THE ELDERLY: METFORMIN ASSOCIATED LACTIC ACIDOSIS PRECIPITATED BY ZOLEDRONIC ACID INDUCED ACUTE RENAL FAILURE S.S. Leung[1]; B. Stahl[1]; A. Kriegsman[1]; L. Eisen[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 204844)*

LEARNING OBJECTIVES: · Recognizing adverse effects of intravenous zoledronic acid · Recognizing that patients with severe metformin associated lactic acidosis can respond to aggressive therapy

CASE INFORMATION: A 78 year old woman with a history of hypertension, type 2 diabetes mellitus with microalbuminuria and osteoporosis was found unresponsiveness at home after her family members could not get in touch with her for nine hours. Initial assessment from emergency medical services showed that blood pressure was 40/20, pulse was 26 and respiration rate was 10. Her medications included amlodipine, glimepiride, rosuvastatin, ergocalciferol, metoprolol, metformin, nateglinide, indapamide and furosemide. She had no history of alcohol or recreational drug use. Upon arrival to the emergency room, temperature was unmeasurable (below 84 F). The patient's skin was dry, pale and cold. She moved all extremities with painful stimuli. Because of the profound hypothermia, pleural, intraperitoneal and bladder lavage with warm saline was initiated. Initial laboratory results showed serum sodium 139, potassium 6.5, chloride 97, bicarbonate <6, BUN 104, creatinine 5.7, pH of 6.68, and lactate of 11.1. The spot protein was 5.5 g/day. Because of the severe metabolic acidosis, continuous venovenous hemofiltration (CVVH) was started. Her primary care physician revealed that the patient received a once-a-year IV bisphosphonate (zoledronic acid, Reclast, Novartis Pharmaceuticals) infusion 22 days prior to admission because of the persistent osteoporosis. Her creatinine had been stable at 1.0 prior to the infusion. Nineteen days after the infusion, bilateral pitting leg edema was noted and the creatinine was raised to 3.6. A review of her medications showed metformin as the only medication that could cause lactic acidosis. Two serum metformin levels prior and after the start of CVVH were 19, 17.5, 3.0 and 1.6 respectively (normal range: 1–2 mcg/ml). The patient's hemodynamic status improved while on CVVH. The patient survived, but required long term hemodialysis.

IMPLICATIONS/DISCUSSION: The patient developed acute renal failure 16 days after the zoledronic acid infusion. Her newly pitting edema and profound proteinuria (5.5 g/day) was consistent with nephrotic syndrome. Zoledronic acid (Reclast) received FDA approval in August 2008 for the treatment of osteoporosis in postmenopausal women. The general side effects include fever, chills, headache, muscle, bone and joint pain, eye inflammation and nephrotic syndrome. Acute renal failure is rare. The renal toxicity of zoledronic acid is dose and infusion time dependent. Drug interactions include aminoglycosides, loop diuretics, and other nephrotoxic drugs. The renal failure possible precipitated by zoledronic acid may have led to severe toxicity from metformin. Metformin associated lactic acidosis is an uncommon but severe complication. It can occur in patients without chronic renal insufficiency, even in young patients. An extremely high metformin level is not necessary to cause lactic acidosis. Despite the very severe toxicity, our patient responded to aggressive therapy. The issue of polypharmacy and medication adherence in the elderly has been a long-standing challenge. Vigorous post-marketing surveillance of elderly patients who have multiple comorbidities and are taking multiple nephrotoxic medications is warranted.

PORPHYRIA CUTANEA TARDA IN A HEPATITIS C PATIENT AND THE IMPACT ON TREATMENTS C.E. Gibson[1]; J. Olmert, Md[2]. [1]Creighton University, Omaha, NE; [2]St. Joseph Mercy Hospital, Phoenix, AZ. *(Tracking ID # 204878)*

LEARNING OBJECTIVES: Porphyria cutanea tarda (PCT) is the most common porphyria subtype worldwide and is commonly seen in Hepatitis C (HCV) patients, with a prevalence of 64% in the U.S. While the common diagnostic marker of PCT, urinary porphyrins, is rarely screened in HCV patients, most patients with PCT are tested for HCV RNA. Our case report discusses a PCT patient with a past medical history of HCV infection. We will demonstrate the common association between HCV and PCT and how their simultaneous presence complicates the outcomes and sequence of available treatments.

CASE INFORMATION: A 48 year-old Hispanic male, with a history of Hepatitis B, Hepatitis C, decompensated cirrhosis, and thrombocytopenia presented with a seven-month history of multiple hyperpigmented, macular, firm, non-tender, non-erythematous, and pruritic skin lesions on the arms, shoulders, and legs. Laboratory data: AST of 75 IU/L, Hepatitis C viral load of 536,000 with a 1a genotype, and AFP of 55.11 IU/L; 24-hour urine porphyria specimen: uroporphyrins of 40 mcg/24 h, coproporphyrins of 710.2 mcg/24 h, pentacarboxyporphyrins of 5.3 mcg/24 h, heptacarboxyporphyrins of 8.5 mcg/24 h, and total porphyrins of 764 mcg/24 h; Iron of 188 mcg/dL, saturation of 62.4%, and ferritin of 391.49 ng/mL. Based on clinical symptoms, past medical history, and elevated urinary porphyrins, the patient was diagnosed with porphyria cutanea tarda.

IMPLICATIONS/DISCUSSION: This patient's development of PCT represents a unique extrahepatic sequelae of HCV. A meta-analysis of fifty studies of HCV in PCT cases found a weighted mean prevalence of 47% by serology and 50% by polymerase chain reaction, suggesting a pathophysiologic role of HCV in PCT. The same authors argue that the potentially lethal hepatotoxic effects of HCV warrant an HCV screening in all PCT patients. However, recent studies have not shown an increased prevalence of PCT in HCV patients, failing to support routine urinary porphyrin screening. Data vary on the treatment of these comorbid conditions. The current standard treatment for HCV is interferon (IFN) therapy. A 2003 multivariate logistic regression analysis revealed a statistically significant increase in the sustained virologic response to IFN therapy in HCV patients without PCT versus HCV patients with PCT (27.3% vs. 4.5%, p-value<0.01). However, the increased failure in the response of PCT patients' HCV loads to IFN therapy has yet to be officially established. Additionally, there have been some case reports which reveal conflicting evidence on the efficacy of IFN therapy in the treatment and response of PCT symptoms. The standard therapy for PCT alone is weekly phlebotomies until ferritin levels fall to the lower limits of normal and total plasma porphyrin concentration normalizes. However, studies have been inconclusive as to whether IFN therapy or phlebotomy should be administered first in PCT patients with HCV. In conclusion, HCV is a common finding in PCT patients and its simultaneous presence complicates the sequence of available treatment options. Whether PCT is a poor prognostic marker for HCV is unclear. However, some data suggest that it is and further studies are therefore required. Our patient's concurrent PCT indicates that his viral counts would probably respond unfavorably to IFN therapy. Because HCV and PCT seem to be intimately linked, it is important to fully understand the implications of these treatments on each patient's long-term outcomes.

PORTOPULMONARY HYPERTENSION WITH CHYLOUS ASCITIS AND PLEURAL EFFUSION IN CIRRHOSIS. G.D. Valdez[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 204198)*

LEARNING OBJECTIVES: 1- Recognize the association of portopulmonary hypertension with chylothorax and chylous ascitis 2- Outline the criteria to differentiate a chylothorax secondary to cirrhosis from other causes of this conditions.

CASE INFORMATION: A 53-year-old woman with a history of cirrhosis secondary to non-alcoholic fatty liver disease, HTN, DM, and pulmonary hypertension was admitted with a few days of shortness of breath and increasing abdominal girth. She had no history of cancer, recent trauma or thoracic surgery. PE: T: 96.4 °F, BP:107/69, HR:109,

RR:24, O2 sats 95% on room air, no JVD or bruits; chest-absent breath sounds lower right side; heart-III/VI systolic murmur in the tricuspid area; abdomen-tense ascites; extremities-trace edema; neuro-no asterixis. Lab: Na 121, BUN 33, Cr 1.8, WBC 15,500, Hgb 10.3, platelets 265,000, AST 30, ALT 28, AP 148, INR 1.1, ALB 2.4. Radiology: CXR-large R effusion, echocardiogram: LVH, EF 55%, dilated RV & RA. Right heart catheterization: severe pulmonary hypertension with suboptimal vasodilator response. Hospital course: The patient developed respiratory distress and had a therapeutic thoracentesis performed which revealed a milky substance with WBC 1,280, normal pH, protein 1.5 g/dl(serum 6.8), LDH 63(serum 175), TG 913 (serum 98). Peritoneal fluid was also removed and was similar in appearance and lab values, all consistent with chylous transudative fluid. She was started on sildenafil and a continuous infusion of epoprostenol for portopulmonary hypertension and a medium chain fatty acid diet and had a gradual but distinct improvement in her symptoms.

IMPLICATIONS/DISCUSSION: Chylothorax is most commonly associated with cancer, thoracic surgery or trauma but has been seen as a complication of cirrhosis, especially in those with chylous ascites. This patient had the added insult of suffering from pulmonary hypertension. A chylous effusion is defined by the presence of chylomicrons or a triglyceride level greater than 110 with fluid to serum ratio of >1. Most chylous effusions are exudates by usual Light criteria (LDH, protein, etc.) and are associated with cancer, thoracic surgery or trauma with only 4–8% being associated with chylous ascites. Our patient had a transudative chylous effusion which can be seen with cirrhosis as noted, nephrotic syndrome, and pancreatitis. We found two case reports of chylothorax and chylous ascites in the setting of dilated cardiomyopathy and pericarditis respectively, but none in association with pulmonary hyptertension. Our patient's chylous fluid is believed to be due to the increased hydrostatic pressure causing extravasation of chyle at the capillary level. Transdiaphragmatic flow of the chylous ascitis most likely also contributed to the chylothorax. Various treatments have been used in an attempt to reduce the production of chyle in such cases with an emphasis on treating the underlying condtion. Described treatments include medium chain fatty acids, ocreotide, orlistat, total parenteral nutrition, and in patients with cirrhosis, transjugular portosystemic shunt (TIPS). TIPS was not a consideration in our patient as it is contraindicated in the presence of pulmonary hypertension. Treatment of our patient focused on the pulmonary hypertension a provided some clinical improvement. This case highlights an unusual presentation of transudative chylous ascites and chylothorax in the setting of portopulmonary hypertension in a patient with cirrhosis.

PROSTATIC HISTOPLASMOSIS: A POSSIBLE RESERVOIR FOR RECURRENT DISEASE. A.I. Schwarcz[1]; G. Kalkut[1]. [1]Montefiore Medical Center, Bronx, NY. *(Tracking ID # 203577)*

LEARNING OBJECTIVES: To review prostatic involvement in disseminated histoplasmosis.

CASE INFORMATION: A 32 year old man with AIDS (CD4 153/uL, viral load >30 K copies/mL) presented in February 2006 with fever, chills, decreased oral intake, non-adherence to his anti-retroviral medication and a 22-lb weight loss over the past month. He stated that he had fever for the previous two weeks to 102.1 F and a productive cough of yellow sputum that became blood tinged on the day of admission. He also reported drenching night sweats. He had an elevated WBC to 10.7 k/uL (baseline 2–3.0 K/uL) with a micronodular infiltrate on CXR, unchanged from 2005 when he was diagnosed with disseminated histoplasmosis. The patient was started on Ceftriaxone and Azithromycin for possible bacterial pneumonia. Histoplasma urine antigen and a buffy coat to examine for intracellular organisms were ordered. The patient complained of abdominal pain in the ED; a CT scan of the abdomen and pelvis revealed heterogeneous enhancement of the prostate with 3.2× 3.7 cm area of low attenuation and peripheral contrast enhancement with mild periprostatic fat infiltration consistent with a prostatic abscess. The patient was started on Amphotericin B deoxycholate because of the strong possibility of recurrent histoplamosis, which was subsequently changed to Amphotericin B lipid complex (Ablecet). A digital rectal exam (DRE) demonstrated tenderness of the prostate without fluctuance. Urinalysis was normal before and after DRE. A transrectal needle biopsy of the prostate was performed in the OR with drainage of purulent material. There were abundant fungal spores seen on GMS stain of the prostatic tissue consistent with Histoplasma capsulatum. Histopathology revealed extensive necrosis and acute and chronic inflammation with granulomas; culture of the abscess fluid grew Histoplasma capsulatum. The urine Histoplasma antigen was strongly positive. The patient completed a 10 day course of Abelcet with marked improvement. He was discharged on itraconazole with follow up in the ID clinic. Six months after discharge the patient was readmitted with Histoplasma meningitis. He again reported non-adherence to his medications. At this time the patient has not received re-imaging of his prostate.

IMPLICATIONS/DISCUSSION: Histoplasma capsulatum infection is usually a benign self-limited respiratory disease that is most commonly seen in the upper Mississippi River and Ohio River valleys. Most of these infections are clinically silent and resolve without consequence. Disseminated disease is an uncommon manifestation that occurs primarily in patients with impaired immunity. Clinical findings of disseminated histoplasmosis are nonspecific and include fever and weight loss, as in our case. Genitourinary and prostatic involvement with disseminated histoplasmosis occurs rarely. Prostatic involvement is well documented in blastomycosis and cryptococcosis. Only nine cases of Histoplasma prostatitis have been previously reported. Large reviews have demonstrated the rarity of prostate involvement in disseminated disease. As in our case, the three most recently reported cases of prostatic histoplasmosis occurred in patients with AIDS. In cryptococcocal disease, the prostate can act as a reservoir for relapse of disease. Our case raises the possibility that the prostate served as the reservoir for recurrence in this patient. This possibility favors aggressive and prolonged treatment to prevent further recurrence.

PROTAMINE ALLERGY: A UNIQUE ENTITY. S. Koppisetti[1]; R. Byrd[1]; T. Roy[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203823)*

LEARNING OBJECTIVES: 1.Recognizing that an ubiquitous product like NPH insulin contains protamine which could be allergenic. 2. Allergic reactions to protamine can occur despite previous prolonged exposure to protamine.

CASE INFORMATION: A 50 year old man was diagnosed 13 years earlier with diabetes mellitus type II. He was treated initially with oral hypoglycemics, but was subsequently started on Lantus (insulin glargine) which he tolerated well for 6 years. His treatment was changed to Novolin (70/30) with 70% NPH insulin when he switched primary care physicians. He did well on this treatment regimen for 2 years without any problems. He then presented to the emergency room with nausea and disorientation. He had developed hives following his evening dose of novolin which was followed by increasing difficulty breathing. At presentation he was noted to have and was found to have hypotension, tachycardia and laryngeal edema. He was treated for anaphylaxis with epinephrine, benadryl and corticosteroids. Following recovery, he was discharged with a provisional diagnosis of insulin allergy. His subsequent evaluation included controlled skin tests. There were no reactions to regular insulin and lantus; however, the brisk reaction was present for histamine and protamine. A diagnosis of protamine allergy was made and the patient was placed back on lantus insulin and has done well since.

IMPLICATIONS/DISCUSSION: Insulin is an essential drug commonly used in the care of diabetes mellitus. Protamine is a polycationic peptide isolated from salmon sperm. It is used as a component of NPH insulin to prolong the metabolism of insulin allowing a longer half life and a less frequent dosing interval. Protamine is also used less commonly in reversal of anticoagulation due to heparin especially following cardiovascular procedures. Life threatening anaphylactic reactions have been reported following the administration of protamine containing insulin, however, most of the reported cases have occurred at the beginning of treatment. We describe a patient with a severe protamine allergy that manifested after 2 years of therapy with NPH insulin. There are less than a handful of reported cases of anaphylactic reaction to subcutaneously administered protamine containing insulin following prolonged use.This patient profile should remind the clinician of the rare but lethal possibility of a protamine allergy occurring in patients who have previously been on a protamine containing insulin.

PSYCHOSIS OR CEREBRITIS? A CEREBRAL DILEMMA J. Mcdonald-Top[1]; B. Mcconville[1]. [1]Tulane, New Orleans, LA. (Tracking ID # 203855)

LEARNING OBJECTIVES: 1. Recognize symptoms suggesting medical illness as a cause of acute psychosis secondary 2. Identify the role of autoantibody production in neuropsychiatric lupus. 3. Identify the diagnostic criteria for and classification of neuropsychiatric lupus erythematosus.
CASE INFORMATION: A 45-year-old woman with a history of chronic paranoid schizophrenia presented with three weeks of leg pain and fever. The pain was worse with exertion, but persisted at rest. She exhibited disorientation, paranoia, disorganization and hallucinations. Her vital signs were normal with the exception of a temperature of 37.8 ° F. Her head and neck examination was normal, with no evidence of meningismus or trauma. Her lungs were clear and her heart was normal. The abdominal examination was non-tender with normal liver size. Manipulation of her knees and ankles caused exquisite pain, but the joints were not swollen or erythematous. Edema to her mid-shin was present bilaterally, and a small eschar was present on the second digit of the right foot. There was no rash, oral ulcerations or lymphadenopathy. Lymphopenia and normocytic anemia were noted, as was proteinuria. The erythrocyte sedimentation rate and C-reactive protein were elevated (130 mm/hr and 2.5 gm/dL). Imaging of the legs was negative. HIV and RPR were negative. Owing to the combination of arthritic pain and psychosis, a diagnosis of systemic lupus erythematosus was considered. The antinuclear antibody assay was positive, as was the anti-dsDNA assay. Ribosomal-P antibody and anticardiolipin G were mildly elevated; anti-SSA, anti-Sm/RNP and direct Coombs tests were positive. The CSF protein was elevated. A diagnosis of neuropsychiatric lupus erythematosus was established, and high-dose intravenous glucocorticoids were initiated. Within twelve hours, the patient's examination changed dramatically: she became afebrile and fully oriented, her affect improved, hallucinations resolved, and she was able to walk without pain.
IMPLICATIONS/DISCUSSION: Medical consultation for psychiatric patients is a common part of a general internist's duties. The general internist must be aware of the causes of medical illness inducing psychosis, and the presenting symptoms that suggest medical illness as a cause. Common causes include infections (herpes encephalitis), toxidromes, medications, and inflammatory disease. Of the latter, lupus is the most common. Ninety percent of patients with lupus will have a central nervous system complication at some point in their life. Manifestations of neuropsychiatric lupus (NP-SLE) include neurologic (headache, stroke, seizures, movement disorders, transverse myelitis, cognitive disorders) and psychiatric (mania, depression, delirium, psychosis) syndromes. The production of specific autoantibodies has been associated with specific psychiatric syndromes in NP-SLE. Elevated anti-cardiolipin and lupus anticoagulant have been linked to greater and more sustained severe cognitive dysfunction. Anti-CL, anti-ribosomal P antibodies and anti-NMDA seropositivity are associated with severe depression in SLE. Psychosis, while uncommon in SLE, has been found to be strongly associated with anti-ribosomal-P, anti-neuronal, and anti-Smith antibodies. In the patient with psychiatric symptoms superimposed upon apparent systemic illness, the clinician must consider medical causes of psychiatric illness. In addition to providing a unifying diagnosis, neuropsychiatric SLE is amenable to medical treatment and its sequelae are often reversible.

PURPURA FULMINANS IN A PATIENT WITH COMMUNITY ACQUIRED CLOSTRIDIUM DIFFICILE INFECTION A.E. Gallagher[1]; K. Storck[1]; D. Lefrancois[2]. [1]Montefiore Medical Center, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 204835)*

LEARNING OBJECTIVES: · Learn that community acquired Clostridium difficile infection (CDI) rates are increasing · Recognize purpura fulminans as the cutaneous manifestation of disseminated intravascular coagulopathy (DIC)
CASE INFORMATION: A 56 year old Caucasian woman presented to the ED with diffuse crampy abdominal pain and 6 to 8 loose bowel movements per day for three days. Nausea and vomiting accompanied her abdominal pain and frequent bouts of watery, non-bloody diarrhea. She worked as a department store cashier, and lived at home with her husband. The patient had no history of hospitalization, recent travel, sick contacts, or antibiotic exposure. She had no comorbidities except for anxiety. On arrival she was lethargic with a rectal temperature of 104.8. Notable on abdominal exam was diffuse tenderness to palpation. Stool culture and C. diff toxin were sent, and oral metronidazole was empirically initiated. On hospital day 2, the patient became hemodynamically unstable with profound hypotension. Pertinent laboratory findings include WBC 22.8, platelet 37 (from a baseline of 156), INR 1.7, PTT 59.8, d-dimer 6.4, pH 7.05 and lactate 7.4. The patient had petechiae on her abdomen and legs and her feet were cold. Pulse volume recording waveforms were consistent with bilateral distal tibial occlusions. The C. diff toxin was detected and an abdominal CT demonstrated marked pancolitis. On day 3, the patient developed necrosis of her distal tongue and conjunctival injection. Purpura was generalized on her trunk and perineum. A skin punch biopsy showed purpura, subepidermal clefts with vascular congestion, and necrotic eccrine units. A PTAH stain demonstrated that many of the vessels had fibrin thrombi. These histologic findings were diagnostic of purpura fulminans. The patient survived but required bilateral below-the -knee amputations.
IMPLICATIONS/DISCUSSION: Purpura fulminans is a cutaneous manifestation of DIC and is typically associated with N. meningitidis, S. pneumonia, or H. influenza infections. We present an atypical case of purpura fulminans due to CDI. An increase in virulence of CDI has been ascribed to higher levels of exotoxin production that then serve as superantigens that activate T-cells and macrophages to release cytopkines. These cytokines in turn activate multiple inflammatory pathways and the coagulation cascade, and DIC with purpura fulminans can result. CDI is largely known as a hospital acquired or healthcare associated nosocomial infection. Patients at risk for developing hospital acquired CDI include those who are elderly, malnourished, or on hemodialysis. Recent antibiotics, chemotherapy, and prolonged hospitalization are additional risk factors for CDI. This patient did not have any of these known risk factors and represents a case of community acquired (CA) CDI. The CDC recently reported a significant increase in severe CA CDI in populations previously considered to be at low risk. These cases are not linked to any predisposing condition or hospital stay, and are therefore difficult to diagnose due to the absence of traditional risk factors. Therefore, a high degree of clinical suspicion and a low threshold for testing is required in order to identify CA CDI in patients who present with diarrhea. In addition to improving clinician awareness, public education regarding the incidence of CA CDI and stringent handwashing practices are absolutely essential in the prevention and containment of this virulent disease.

RARE CASE OF KAWASAKI DISEASE IN AN ADULT K. Baradhi[1]; J. Fischer[2]; N. Shah[3]. [1]University of Illinois at Peoria, Peoria, IL; [2]University of Illinois,Peoria, Peoria, IL; [3]University of Illinois, Peoria, IL. *(Tracking ID # 203735)*

LEARNING OBJECTIVES: Recognize Unusual presentation of Kawasaki disease in Adults Familiarize with complications associated with Kawasaki Disease.
CASE INFORMATION: A 18 year old Caucasian male with a past medical history of Kawasaki's disease at age 9 and 16, who presented with a 4 day history of fevers and chills, lethargy, nausea, vomiting and myalgias. Vitals were significant for temperature of 101.8 and physical exam revealed desquamation of skin, conjunctival injection with limbus sparing, erythematous tongue, cervical lymphadenopathy and an erythematous rash over extremities.Rest of the exam was within normal limits. Laboratory showed an WBC count of 12.8 THOUS/UL, ALT – 113 U/L, Alkaline phosphatase of 144 U/L, CRPof 25.95, ESR of 36,negative rapid strep test & throat culture and ASO titers of 300 IU/ML(<200).The rest of the labs were normal. Patient was started on aspirin and Intravenous Immunoglobulin (IVIG) for the treatment of Kawasaki's disease.Patient initially responded but later again spiked fevers which ultimately responded to second dose of IVIG
IMPLICATIONS/DISCUSSION: Kawasaki's disease, also known as mucocutaneous lymph node syndrome, is a common vasculitis in children of unknown etiology. It is usually a self-limited condition and without treatment symptoms tend to resolve in 12 days.Kawasaki's disease was first described in 1967 by Tamisaku Kawasaki.In the US, it is the leading cause of acquired heart disease amongst children younger than 5.The prevalence is highest in children between 18–24 months and the CDC estimates an incidence of 17–18/100,000 in children younger than 5 years.Kawasaki's is almost twice as prevalent in boys compared with girls and disproportionately affects children from middle and

upper middle socioeconomic backgrounds. Kawasaki's presents with manifestations of systemic inflammation including fever, bilateral nonexudative conjunctivitis, mucositis, rash, lymphadenopathy and extremity changes such as erythema and desquamation. For diagnosis patients must have a fever for over 5 days along with 4 out of 5 of the remaining symptoms. Though a self-limited condition, there is an increased risk for cardiac complications without treatment. Case reports have shown that adults, as our patient, also have typical symptoms such as conjunctivitis, mucositis, rash and extremity changes. However, it is noted that in addition to these typical symptoms adult may have additional presentations. A case report from the journal of Japanese medicine assessed the clinical manifestations of 22 cases in adults.They reported that this disease manifests differently in adults in comparison with children, like GI complaints, arthralgias and hepatic dysfunction.Our patient presented with nausea, vomiting, joint pain and increased transaminases.Furthermore, cases have reported different complications in adults. For example, though cardiac complications occur in 20–25% of untreated children with Kawasaki's they are rare in adults.In addition, adults are less likely to have meningitis or thrombocytosis as complications. The treatment for the adult patients was the same as for children.

RAYNAUD'S SYNDROME AND POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME: IATROGENIC COMPLICATIONS OF INTERFERON THERAPY G. Gupta[1]; J.T. Baca[1]; A. Beardsley[1]; J. Sethi[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204682)*

LEARNING OBJECTIVES: 1) To recognize Interferon (IFN) therapy as a cause of Raynaud's Syndrome and Posterior Reversible Encephalopathy Syndrome (PRES). 2) To recognize that delayed diagnosis might lead to avoidable iatrogenic complications.

CASE INFORMATION: A 53 year old woman with hepatitis C, asthma and hypertension presented with dyspnea, chest pain, thrombocytopenia, and painful ischemia of her right index, left index, and left middle fingers seven days after the last of multiple cycles of IFN alfa-2a and ribavirin. Hepatitis C viral titers were undetectable. Transesophageal echocardiogram showed no vegetations or intracardiac shunt; radial and ulnar arteries were patent bilaterally on Doppler exam. Two days after admission, patient had a generalized tonic-clonic seizure treated with phenytoin. MRI findings were compatible with PRES. As her thrombocytopenia worsened, heparin-induced thrombocytopenia (HIT) was suspected and lepirudin was initiated. The patient suffered a hemorrhagic stroke and developed status epilepticus, necessitating intubation. Because of the presence of seizures, thrombocytopenia, schistocytes and, a positive hemolysis panel, she underwent plasmapheresis for possible thrombotic thrombocytopenic purpura. The diagnosis of scleroderma renal crisis was also considered, despite a normal creatinine because of severe hypertension (SBP>200 mm Hg), and captopril was started. Subsequently, the patient progressed to acute renal failure requiring hemodialysis. ADAMTS13, cryoglobulins, HIT panel and 14C-serotonin release assay were all negative. A search of the literature was performed. Thrombocytopenia, anemia, PRES and digital ischemia were noted as complications of interferon use. A diagnosis of adverse drug reaction was made. The patient was begun on predinisone., Thrombocytopenia and anemia improved. Renal recovery ensued with no further need of dialysis. The patient required amputation of distal phalanges of the fingers but there were no apparent neurological sequelae. She was discharged home after a three-month hospital stay.

IMPLICATIONS/DISCUSSION: Immune-mediated complications of IFN therapy include PRES, hypothyroidism, vasculitis, sarcoidosis, lupus, autoimmune hemolytic anemia, thrombocytopenia and Raynaud's syndrome. The latter can develop weeks to years after initiation of therapy and the manifestations vary from reversible vasospasm to arterial occlusion causing gangrene. Some cases resolve after withdrawal of IFN alone, but many require vasodilators, anti-platelet agents, corticosteroids and anticoagulants. PRES is characterized by headache, nausea, vomiting, coma, and generalized tonic-clonic seizures. MRI is diagnostic and demonstrates characteristic T2-hyperintense/T1-hypointense-isointense lesions in a parieto-occipital distribution. Aggressive control of hypertension and/or withdrawal of the offending drug are vital elements of therapy. Early recognition of the complications described with IFN therapy, and timely cessation of the drug may prevent unnecessary morbidity and therapeutic misadventures.

RENAL FLANK PAIN MISDIAGNOSED AS A CASE OF RENAL STONE. F.L. Zekarias[1]; M. De La Pena[1]; A. Salahuddin[1]; J. Wagle[1]; B. Dhakal[1]. [1]St. Francis Hospital, Evanston, IL. *(Tracking ID # 205698)*

LEARNING OBJECTIVES: Understand the clinical presentation and importance of early detection and treatment of acute renal ischemia (ARI). Identify and recognize those patients with predisposition and risk factors of ARI. Always suspect ARI in a patient who presents with renal colic and negative workup for stones

CASE INFORMATION: The patient is a 48 years old male immigrant from Iraq. He presented with right-sided flank pain of 4 hours. The pain was sharp, stabbing, severe and constant with radiation to the right testicular area and associated with nausea but no vomiting. No associated fever or chills. He denied dysuria, frequency, hematuria or trauma. Past medical history is significant for chronic nonspecific epigastric pain and a 40pack year history of smoking. Brother died of undiagnosed bilateral flank pain, developing acute renal failure in few days. On initial examination patient was afebrile, tachycardic, normotensive and in severe distress. All other examination was unremarkable except for the presence of right-sided flank tenderness. Blood tests and urinalysis were essentially unremarkable. CT of the abdomen/pelvis showed a pelvic kidney on the left side and was negative for stones or any abscess. Pain was controlled with narcotics and patient was discharged next day with a probable diagnosis of renal/urethral stone. Patient came again two days after discharge with the same complaint of excruciated right-sided flank pain. CT with contrast showed renal infarction involving 2/3 rd of the right kidney with complete blockade of the right renal artery by a thrombus. He underwent intra-arterial thrombolysis of the right renal artery the same day. Follow up CT angiogram showed reperfusion of the right kidney. Patient got some relief from the pain 24hours after the procedure. He was then treated with heparin infusion followed by therapeutic lovenox and coumadin. TEE was done revealing no clot in the ventricles or atrium. Anti thrombin III, factor V Leiden, antiphospholipid antibodies are all normal. Homocysteine, factor VIII level and LDH levels were high. The patient was discharged 7 days after admission on warfarin to maintain an INR between 2 and 3.

IMPLICATIONS/DISCUSSION: Renal infarction is a rare disease with non-specific clinical presentation. Diagnosis is generally missed, delayed or misdiagnosed as renal stones or acute pyelonephritis. It is usually predisposed by atrial fibrillation, infective endocarditis, heavy smoking and hypercoagulable states such as protein C, S or antithrombin III deficiency. It is also been described in normal adults with no risk factors. The most common presenting symptom of ARI is the abrupt onset of abdominal or flank pain. Nausea, vomiting and fever are also reported in 30 to 50% of the cases and may lead to misdiagnose pyelonephritis. Urinalysis often reveals hematuria and proteinuria, but these urinary findings are not uniformly present. WBC count and LDH levels may be elevated. Increased urine LDH is very specific and hence diagnostic to renal infarction and is most reliable than serum LDH. Renal CT and/or isotope scanning should be obtained on those patients to rule out renal infarction and since early reperfusion is a crucial, timely diagnosis is imperative

RHABDOMYOLYSIS IN A PATIENT WITH WEST NILE VIRUS INFECTION N.M. Mina[1]; C. Arias[2]; H. Dhillon[3]; A. Dababneh[4]; M. Ibrahim[5]. [1]Wayne State University, Sterling Heights, MI; [2]Wayne State University, Madison Heights, MI; [3]Wayne State University, Warren, MI; [4]Wayne State University, Livonia, MI; [5]Wayne State University, West Bloomfield, MI. *(Tracking ID # 205752)*

LEARNING OBJECTIVES: West Nile Virus (WNV) was first documented in the United States by the Center for Disease Control in 1999. It can present with a wide range of clinical symptoms from asymptomatic disease to severe meningitis and encephalitis. It has been associated with many other less commonly reported complications including rhabdomyolysis.

CASE INFORMATION: A 44 year old male was brought to ED by his mother for a new change in mental status. Four days prior to presentation he started to act weird, answering questions incoherently and unable to keep his balance. He also reported having generalized bodyaches along with subjective fever. On examination he was disoriented to time, febrile (39.7C) and tachycardic (104). Neurological examination showed ataxia with no sensory or motor deficits. Labs revealed creatinine of 1.4, CPK of 39,602. Urinalysis showed 3+ blood

without RBCs. CT scan and MRI of the brain were negative. CSF examination was consistent with viral meningioencephalitis; 54 WBCs (70% lymphocytes, 20% PMNs), 495 RBC, high protein, normal glucose, and negative culture. Patient was initially treated with vancomycin, ceftriaxone and dexamethasone, and then started on acyclovir. HSV-PCR was negative hence acyclovir was discontinued. Patient then started having slurred speech, tremors in his tongue and muscular fasciculations. CSF was sent for WNV antibodies which came back positive. Patient was treated for rhabdomyolysis and his renal functions improved. However, he continued to have mild to moderate cognitive dysfunction. He was discharged for neuro- psychological rehabilitation.°°°°°

IMPLICATIONS/DISCUSSION: The most common clinical features of WNV are fever, diffuse weakness/fatigue, headache, confusion/altered mental status and tremor. Meningeal signs and seizures are unusual. Cerebellar abnormalities (incoordination, ataxia) are somewhat frequent. Flaccid limb weakness with atrophy occurs in 5–10%. A rise in serum CK concentration has been reported which is attributed to a direct effect on myocytes by the virus. Review of medical literature revealed only a few cases reported, in which rhabdomyolysis was one of the presenting clinical features of WNV infection, all of them developed flaccid paralysis. In our case, patient didn't have flaccid paralysis and had no other etiology for rhabdomyolysis.

RIGHT ATRIAL COMPRESSION AND HEMODYNAMIC INSTABILITY DUE TO DIAPHRAGMATIC EVENTRATION J.R. Foreman[1]; D. De Leon[1]; R. Murchison[1]; C. Butcher[1]. [1]Carilion Clinic, Roanoke, VA. *(Tracking ID # 205311)*

LEARNING OBJECTIVES: Diagnose right atrial compression by diaphragmatic eventration using bedside ultrasound. Understand how the physiology of cardiogenic shock will help differentiate it from septic shock.

CASE INFORMATION: A 53 year-old man was transferred to our hospital for renal failure, uremic encephalopathy, and septic shock. The patient had recently become reclusive and family reported 3–4 weeks of nausea, vomiting, and diarrhea without seeking medical attention. He was lethargic with a blood pressure of 85/49 mm Hg, pulse 82/minute, and respirations 27/minute. There was marked distension of the jugular veins. There were decreased bowel sounds, and the abdomen was distended and tender to palpation. The WBC count was 28,300/uL, urea nitrogen 178 mg/dL, and creatinine 8.7 mg/dL. The arterial blood gas was pH 7.17, pCO2 27 mm Hg, pO2 55 mm Hg, bicarbonate 17 mmol/L, and oxygen saturation 81% on room air. Chest and abdominal radiographs revealed elevation of the right hemidiaphragm and distension of intraabdominal bowel. Computed tomography showed bilateral pleural effusions, right basilar atelectasis, intraperitoneal fluid, and scattered air-fluid levels throughout the ascending and transverse colon. Aggressive fluid resuscitation and vasopressors were required. Bedside transthoracic echocardiography demonstrated dilated bowel loops within the chest cavity compressing the right atrium. The left ventricular end diastolic volume was low. The patient was referred for surgery. In the operating room, pneumoperitoneum and diaphragmatic eventration were found; the ascending and transverse colon along with the liver were in the thorax. Intraoperative transesophageal echocardiography showed normalization of right atrial and right ventricular filling upon removal of the abdominal organs from the chest with associated hemodynamic improvement. Additional findings included a perforated transverse colon, perforated cecum, and six liters of fecal liquid in the abdomen. Right hemicolectomy and diaphragm plication were performed. Histopathology reports showed colonic gangrene consistent with herniation and compression. He improved significantly over the next several days and was eventually discharged.

IMPLICATIONS/DISCUSSION: Clinical judgment can be the physician's best tool for making difficult diagnoses when a patient's presentation does not correspond to the results of diagnostic testing. In this case, the patient was transferred with a suspicion of septic shock but physiology mimicking cardiac tamponade was discovered and allowed a unique cause of right atrial compression from diaphragmatic eventration to be identified and treated.

SACCHAROMYCES FUNGEMIA IN A PATIENT WITH C. DIFFICILE ASSOCIATED COLITIS: A NOTE OF CAUTION S. Wolleb[1]; L. Davidson[1]; K. Sorour[2]. [1]Tufts Medical Center, Boston, MA; [2]Signature Healthcare, Brockton, MA. *(Tracking ID # 204954)*

LEARNING OBJECTIVES: 1. Recognize that therapy with Saccharomyces boulardii can cause invasive infection 2. Identify risk factors for the development of Saccharomyces fungemia

CASE INFORMATION: A 54 year old man with multiple medical problems, including diabetes, coronary artery disease, recent above knee amputation for peripheral artery disease, was admitted to the intensive care unit with diarrhea, hypotension, and hypoxic respiratory failure requiring mechanical ventilation. The white blood cell count was 29 K/mm3 with 14% bands. A clinical diagnosis of septic shock due to Clostridium difficile associated colitis was made. The patient was started on vancomycin per nasogastric tube, intravenous metronidazole and broad spectrum antibiotics. Stool testing was positive for C. difficile toxin. A probiotic preparation of Saccharomyces boulardii (S. boulardii) was added. The diarrhea persisted and the patient remained dependent on ventilator support. On day 8 after admission, fevers developed. Blood cultures grew yeast (in 3 out of 4 bottles), which was later identified as Saccharomyces cerevisiae. The probiotic preparation of S. boulardii was discontinued, and intravenous catheters were removed. Caspofungin was started for the treatment of Saccharomyces fungemia. However, the patient developed progressive multiorgan failure and his family decided to proceed with comfort measures only. The patient died shortly after extubation.

IMPLICATIONS/DISCUSSION: Saccharomyces boulardii is a subtype of Saccharomyces cerevisiae, commonly known as baker's yeast. S. boulardii is frequently used as a probiotic agent in the treatment of C. difficile associated colitis. Beneficial effects of S. boulardii on the gastrointestinal tract include interaction with the host micro flora, inhibition of C. difficile toxin, and stimulation of the host immune system. It was long considered apathogenic and safe. However, since 1990 a growing number of cases of Saccharomyces fungemia in critically ill patients have been reported. We present the case of a patient with septic shock due to C. difficile associated colitis who developed Saccharomyces fungemia 7 days after S. boulardii was initiated. New onset of persistent fever coincided with the detection of S. cerevisiae in the blood culture. There is no routine testing available for S. boulardii. In a comprehensive review of Saccharomyces fungemia, all cases of S. cerevisiae fungemia in patients treated with S. boulardii were assumed to be due to subtype S. boulardii. Predisposing factors were ICU admission, intravenous catheters, intestinal disease and antibiotic use. The intestine is the most likely entry site for invasive infections. In patients not treated with S. boulardii, contamination of intravenous catheters is the presumed etiology. Clinical presentation mostly consists of isolated fungemia, but cases of endocarditis, pneumonia, periaortic abscess, liver abscess and esophagitis have been described. The mortality rate was 28% in one study. In patients with C. difficile associated colitis, cases of Saccharomyces fungemia occurred in both immunocompetent and immunocompromised hosts. Our case highlights that risks and benefits must be weighed carefully when administering S. boulardii to patients critically ill from C. difficile associated colitis. With cases of C. difficile in elderly and immunocompromised patients on the rise, physicians must be aware of this serious complication of S. boulardii use.

SCOPULARIOPSIS, A BISCUPID VALVE, AND BETA-D-GLUCAN K.A. Dudley[1]; C. Bates[2]. [1]Beth Israel Deaconess Medical Center, Boston, MA; [2]Harvard University, Boston, MA. *(Tracking ID # 204888)*

LEARNING OBJECTIVES: 1. Recognize indications for aortic valve and arch repair in adults with congenital bicuspid aortic valves. 2. Diagnose endovascular infection that mimics endocarditis and recognize how beta-D-glucan can help detect elusive fungal disease.

CASE INFORMATION: A 53-year-old man with a congenital bicuspid valve had a tissue aortic valve replacement for moderate aortic stenosis (valve area 1.0–1.2 cm^2) and arch replacement for progressively dilated ascending aorta (5.3 cm). Five months later he was admitted for fevers and confusion; weeks prior, his horse had bit him in the chest wall, but he had not required medical attention. Serial blood cultures, autoimmune markers, CSF analysis, CT torso, and TEE were all normal. He received empiric vancomycin and his symptoms improved. A head MRI showed small, enhancing punctuate white matter lesions which had progressed upon neuro-oncology follow up, but were not believed to be malignant. Full body PET scan was without FDG-avid disease. Three months later, he was admitted with fever of 101.7 and leg cramps. Examination revealed a holosys-

tolic murmur, normal pulses, and bilateral calf tenderness, but no splinter hemorrhages, skin lesions, lymphadenopathy, or neurologic deficits. Serial blood cultures were sterile and repeat TEE showed no vegetation and well-seated valve. CRP was 256.6 and ESR was 60. MRA revealed bilateral popiteal arterial thombi, and a gastrocnemius muscle abscess. Anticoagulation was held given CNS lesions. Two weeks later, beta-D-glucan drawn during hospitalization returned >500; he was admitted for recurrent symptoms. CTA showed splenic infarct and ascending aorta filling defects. Repeat TEE demonstrated a small aortic vegetation. Ceftriaxone and vancomycin were started for culture negative endocarditis. A biopsy of the gastrocnemius abscess was sent for 16 s PCR analysis to rule out nocardia and evaluate for other pathogens; a week later, 28 s PCR revealed ***Scopulariopsis brevicaulis***. Caspofungin and voriconazole were started. At repeat AVR and aortic graft replacement, a large pseudoaneurysm with pus was identified at the graft anastomosis site with a large aortic valve vegetation. Pathology demonstrated ***Scopulariopsis brevicaluis***.
IMPLICATIONS/DISCUSSION: An ascending thoracic aorta >50 mm in patients with bicuspid aortic valve is an indication for surgical intervention based on 2006 ACC/AHA guidelines. Class IIa evidence supports AVR in patients with moderate AS who undergo aortic surgery. ***Scopulariopsis spp.*** is a common soil pathogen that rarely causes deep fungal infections, with only a few case reports of endocarditis after valve replacement. Beta-D-glucan is component of many fungi cell walls, used to help diagnose invasive fungal infections with a sensitivity 55–95% and a specificity 77–95%. Patient's graft infection eluded diagnosis for months, with significant morbidity. Endocarditis was suspected, but repeated cultures and imaging were unrevealing; dedicated aortic graft imaging may have led to earlier diagnosis. Ultimately, an exceptionally high beta-D-glucan value helped guide further testing to uncover a rare fungal infection; use of PCR analysis permitted diagnosis to be made within days, while fungal cultures can take weeks to grow. Case series suggest ***Scopulariopsis spp.*** is challenging to fully eradicate and resistant to many agents, with potential for continued illness. Lifelong anti-fungal therapy is planned.

SEIZURE, CIRRHOSIS, CRYPTOCOCCUS OH MY! B.R. Yehia[1]; M. Eberlein[1]; S.D. Sisson[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205145)*

LEARNING OBJECTIVES: 1) Recognize the clinical features of disseminated cryptococcosis in cirrhotic patients. 2) Review diagnosis and treatment of cryptococcal meningitis.
CASE INFORMATION: A 41-year-old man with alcoholic cirrhosis presented with hallucinations and ataxia. He was treated for acute alcoholic hepatitis and hepatorenal syndrome. While an inpatient he had a tonic-clonic seizure. Past medical and surgical history was notable for cirrhosis, stroke, and gastric bypass surgery. Vital signs during the seizure: temperature 38.4C, heart rate 92, blood pressure 109/62, respirations 19, and oxygen saturation 95% on ambient air. On physical exam, he had scleral icterus, supple neck, diffuse lung crackles, abdominal distention with fluid wave, and was neurologically responsive only to painful stimuli. Laboratory data showed a WBC count of 61,800, sodium 127 mEq/L, BUN 63 mg/dL, creatinine 6.8 mg/dL, and ammonia 38 micromol/L. Arterial blood gas showed pH of 7.33, pCO2 of 35 mm Hg, pO2 of 184 mm Hg, and HCO3 of 15 mEq/L on 40% oxygen. Head CT and MRI were normal. EEG noted diffuse cerebral disturbance. CSF analysis showed 104 WBCs per ml, with 98 PMNs and 6 mononuclear cells, 3800 RBCs per ml, glucose 47 mg/dL, and protein 84 mg/dL. CSF cryptococcal antigen and culture were positive for Cryptococcus neoformans. Blood cultures initially showed no growth, but then became positive for C. neoformans. Paracentesis showed peritonitis with negative culture. HIV antibody was negative and HIV PCR was undetectable. Cryptococcosis was diagnosed and the patient was started on amphotericin and flucytosine. Unfortunately, he did not respond to antifungal therapy, and developed multi-organ system failure. Alcohol use prevented liver transplantation, and pursuit of comfort measures was instituted.
IMPLICATIONS/DISCUSSION: Cryptococcus neoformans is an encapsulated yeast found ubiquitously in the environment. The fungus predominately affects immunocomprimised individuals, with 80–90% of all cases occurring in HIV-infected individuals. Immunosuppressive medication, solid-organ transplantation, chronic organ failure, hematologic malignancy, lung diseases, and rheumatologic disorders can also predispose to infection. Meningitis and pneumonia are the two most common manifestations of cryptococcal infection. Disseminated disease is less common, with cirrhosis serving as a predisposing condition in HIV-negative patients. CNS involvement is the most common manifestation of disseminated disease. Patients often present in a subacute manner, with headache and fever. Other symptoms can include seizures, confusion, dementia, bizarre behavior, and symptoms of cerebral edema. Imaging of the brain is usually normal, and lumbar puncture is often necessary to establish a diagnosis. CSF analysis reveals a lymphocytic pleocytosis, elevated protein, decreased glucose, and increased opening pressure. Isolation of C. neoformans by culture is the diagnostic gold standard. Treatment of disseminated cryptococcosis is based on anatomic site and host immunity. In immunocomprimsed patients without HIV infection and cryptococcal meningitis, a prolonged course of therapy with amphotericin B for 2 weeks, followed by fluconazole for 8 weeks, then followed by a lower dose of fluconazole for 6–12 months is recommended. Depressed levels of consciousness, high CSF cryptococcal antigen titer, and cryptococcemia are associated with a poor prognosis. An elevated opening pressure greater than 250 mm H2O is the most important prognostic factor.

SEROTONIN SYNDROME RESULTING FROM CONCOMITANT THERAPY WITH SERTRALINE AND LINEZOLID F. Iqbal[1]; J. Tsevat[2]. [1]University of Cincinnati/Department of Internal Medicine, Cincinnati, OH; [2]University of Cincinnati, Cincinnati, OH. *(Tracking ID # 205625)*

LEARNING OBJECTIVES: To recognize the interaction of linezolid and sertraline as a cause of serotonin syndrome.
CASE INFORMATION: A 60-year-old male taking sertraline 200 mg once daily for depression was admitted for cellulitis associated with a leg ulcer. He received intravenous (IV) vancomycin and piperacillin/tazobactam but because the cellulitis did not improve, on day 4 the regimen was changed to IV linezolid 600 mg every 12 hours. Sertraline was discontinued several hours before his first dose of linezolid. Twenty-four hours after his first dose of linezolid, he developed nausea, vomiting, and high blood pressure. Within 48 hours, he developed mental status changes characterized by confusion, agitation and akathisia; his physical exam was notable for tremulousness, increased muscle tone in the lower extremites, and hyperreflexia with ankle clonus. Serotonin syndrome was diagnosed, so linezolid was discontinued and the patient was started on IV fluids and IV lorazepam as needed. His mental status, however, continued to worsen over the next 10–12 hours; he was still hypertensive and tachycardic and had a temperature of 38 ° C. Oral cyproheptadine therapy was initiated, and the patient's mental status and autonomic hyperactivity improved. The patient received a total of 12 mg of cyproheptadine, and his symptoms and physical exam findings resolved approximately 3 days after the linezolid was stopped.
IMPLICATIONS/DISCUSSION: Serotonin syndrome is a potentially life-threatening complication of therapy with selective serotonin-reuptake inhibitor (SSRI) medications, characterized by mental status changes, autonomic hyperactivity, and neuromuscular abnormalities associated with therapeutic medication use, overdose, or drug interactions.[1] Prompt recognition and differentiation from similar syndromes, such as anticholinergic syndrome, neuroleptic malignant syndrome, and malignant hyperthermia are essential for appropriate management. The clinical features observed in our patient were consistent with serotonin syndrome according to the Hunter and Sternbach criteria.[2] The culprit medications in this case were the SSRI sertraline in combination with the antibiotic linezolid. Linezolid was originally developed as an antidepressant because of its monoamine oxidase inhibitor (MAOI) activity but was subsequently marketed as an antibiotic due to its concomitant anti-bacterial activity, particularly against methicillin-resistant staphylococcus aureus (MRSA). Although a recent review article lists the drug interaction between linezolid and another SSRI, citalopram, as a cause of severe serotonin syndrome,[1] our review of the literature revealed only a few cases of the interaction between linezolid and sertraline as a cause of serotonin syndrome.[3] The increasing incidence of MRSA infections has necessitated frequent use of linezolid. Clinicians need to be aware of the intrinsic MAOI activity of linezolid when prescribing it to patients concomitantly taking SSRIs in order to avert or promptly recognize serotonin syndrome. References: [1]Boyer EW, Shannon M. The serotonin syndrome. N Engl J Med. 2005;352:1112–20. [2]Boyer EW. Serotonin syndrome. UpToDate Online.

Available at: http://www.uptodate.com/online. Accessed January 13, 2009. [3]Clark DB, Andrus MR, Byrd C. Drug interactions between linezolid and selective serotonin reuptake inhibitors: case report involving sertraline and review of the literature. Pharmacotherapy. 2006;26:269–76.

SEROTONIN SYNDROME: TOO MUCH OF A GOOD THING
K.L. Hagerich[1]; M.A. Mcneil[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 205101)*

LEARNING OBJECTIVES: 1.) To identify the spectrum of clinical manifestations of serotonin syndrome. 2.) To develop diagnostic criteria to aid in the diagnosis of serotonin syndrome.
CASE INFORMATION: A 28 year old male with history of depression presented with a one-day history of fever and altered mental status. The patient described awakening the morning of admission with disorientation, confusion, tremulousness, and fever. He denied intentional ingestion of illegal drugs, additional prescription medications, or an excess quantity of his home medications of escitalopram and buproprion. An initial basic toxicology screen was negative. Pertinent positives on physical exam included tachycardia, mydriasis, ocular clonus, confusion, neck rigidity, hyperreflexia, and ataxia. Initial labs were notable only for a leukocytosis of 23,000 wbc/mcL. Meningoencephalitis was considered due to his fever and altered mental status, and he was empirically started on ceftriaxone, vancomycin, acyclovir, and steroids. The lumbar puncture was completed under fluoroscopy the next day and was notable only for a slightly elevated protein. Blood and urine cultures were unremarkable and a brain MRI and EEG were within normal limits. Subsequent labs were notable for a CPK elevated to 11463 IU/L. At this time, the patient was further questioned regarding intentional ingestion of any substance. He admitted to taking extra tablets of escitalopram and bupropion due to depressed mood and suicidal ideations. His constellation of symptoms, including altered mental status, hyperthermia, tachycardia, muscle rigidity, hyperreflexia, and ocular clonus, led to a presumptive diagnosis of serotonin syndrome. After cessation of his medications and supportive management, his symptoms resolved over 48 hours, and he was transferred to a local psychiatric hospital.
IMPLICATIONS/DISCUSSION: Serotonin syndrome is an under-recognized cause of mental status change. It has been estimated that 85% of physicians are unaware of serotonin syndrome as a clinical diagnosis. Manifestations of serotonin syndrome include mental status changes, autonomic hyperreactivity, and neuromuscular findings. Mild cases are notable for findings of shivering, diaphoresis, mydriasis, intermittent tremor, myoclonus, and hyperreflexia. Moderate cases demonstrate hyperthermia to 40 degrees Celsius, tachycardia, hypertension, and mydriasis. Hyperreflexia and clonus is greater in the lower extremities and horizontal ocular clonus is also present. Mental status changes are manifest as mild agitation or hypervigilance and pressured speech. Severe cases demonstrate hyperthermia to greater than 41 degrees Celsius, severe hypertension and tachycardia, agitated delirium, muscular rigidity, and hypertonicity. In order to establish this diagnosis, the clinician must first identify whether there has been use of a serotonergic agent in the past month. If exposure is present and the patient has the presence of any of the following symptoms, including tremor and hyperreflexia; spontaneous clonus; muscle rigidity, temperature >38 degrees Celsius, and either ocular clonus of inducible clonus; ocular clonus and agitation or diaphoresis; inducible clonus and agitation or diaphoresis, then the diagnosis of serotonin syndrome can be made with relative certainty. It is important to be aware that lack of recognition of the subtle symptoms of the serotonin syndrome can lead to continued administration of the offending drug and consequent rapid clinical deterioration.

SKIN DEEP
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LEARNING OBJECTIVES: · Describe an unusual case of recurrent cervical necrotizing fasciitis · Recognize the importance of re-evaluation after failure to improve with initial treatment · Consider risk factors and underlying etiologies for this severe infection
CASE INFORMATION: Ms. V. is a 55 year old woman with a history of follicular lymphoma who presented to the emergency department complaining of erythema, swelling, and pain in the anterior neck. She noted that a parakeet had pecked her shoulder one month earlier. She had completed chemotherapy about one year prior to presentation, and PET scan several months prior was negative for recurrence of lymphoma. Initial examination showed no wounds, abrasions, dental or oral lesions. She was well-appearing and afebrile with normal white blood cell count and differential, and thyroid ultrasound was negative for abscess. She was discharged from the ED with oral levofloxacin. On follow-up evaluation six days later she was found to have worsened tenderness and induration of the anterior neck; CT revealed thickening of the left sternocleidomastoid muscle and platysma with soft tissue gas along the fascial planes. Emergent surgical exploration and extensive debridement found multiple abscesses and fat necrosis of the sternocleidomastoid and surrounding tissue. She was treated empirically with vancomycin, clindamycin and meropenem. Tissue cultures grew Enterobacter cloacae and Citrobacter freundii and amalonaticus, and antibiotics were changed to levofloxacin. Post-operative MRI of the neck showed no evidence of collection or malignancy. Two months after her initial presentation, Ms. V. was readmitted for worsening erythema, edema and pain at the surgical site and was treated empirically with vancomycin and aztreonam. Blood and throat cultures as well as HIV testing were negative. MRI revealed an abscess, which was drained percutaneously and grew the same Enterobacter and Citrobacter species. Biopsy of the overlying skin revealed post-surgical fibrosis and chronic inflammation without evidence of malignancy. Gallium scanning performed one month later was negative for occult infection. Barium esophagram revealed no anatomical abnormalities or fistula. At this time, eight months after her second episode, she remains free of lymphoma or fasciitis recurrence.
IMPLICATIONS/DISCUSSION: Most cases of cervical necrotizing fasciitis in the literature are described in the setting of dental or mediastinal infections; however, in this case no underlying etiology was found. Only one case is reported with Enterobacter as the culprit organism, and there are no reports describing infection with Citrobacter. Veterinary literature notes that these species are common parakeet pathogens, and it is tantalizing to consider the role of the bird in this case. Studies were negative for lymphoma recurrence, occult infection, and anatomic abnormalities predisposing to recurrent infection. However, lymphoma likely confers some degree of immunocompromise even during remission. Furthermore, the infectious disease principle "locus minoris resistentiae" can be applied in this case, in which fibrosis at the site of the original infection made the patient prone to recurrent infection. It is important to reconsider the diagnosis when initial treatment is unsuccessful. The patient was given oral antibiotics for what appeared to be a superficial soft tissue infection. However, when she failed to improve she was further evaluated and treated expediently for a potentially life-threatening condition.

SMA SYNDROME: THE SBO MIMIC
W. Repaskey[1]; S.A. Flanders[1]. [1]University of Michigan, Ann Arbor, MI. *(Tracking ID # 206054)*

LEARNING OBJECTIVES: 1. Recognize the presentation of the SMA syndrome and how to diagnose it.
CASE INFORMATION: An 18 year old man with a history of GERD transferred to our institution from an outside hospital for evaluation of a syndrome ongoing for 10 days consisting of nausea, projectile bilious emesis and abdominal pain. He had been in his usual state of health until 10 days prior to admission when, after eating out, he experienced abdominal pain and projectile vomiting. On presenting to an outside hospital his weight was measured at 49 kg (ideal weight 65 kg) and his height 170 cm. His vital signs were normal, his abdomen was soft with hyperactive bowel sounds and he was hypokalemic to 2.2. A CT of the abdomen and pelvis, HIDA scan, upper GI, and EGD were all normal. An MRI abdomen had shown some narrowing of the visualized portion of the duodenum with proximal dilation. He was transferred to our institution where a review of his abdominal MRI suggested findings consistent with Superior Mesenteric Artery syndrome. Further workup including a gastric emptying study and an abdominal MRA were normal. Vascular surgery concurred that the imaging findings of proximal duodenal dilation in concert with a history of bilious vomiting and a relative ability to tolerate liquids more than solids were consistent with SMA syndrome. A jejunal dobhoff tube was placed and he tolerated tube feeds. With around the clock antiemetics he tolerated a soft diet. He was discharged to home for an extended period of convalescence with enteral feedings and with plan for subsequent interval assessment as to the need for surgical intervention.

IMPLICATIONS/DISCUSSION: SMA syndrome is a rare and possibly over-diagnosed cause of postprandial epigastric pain, refractory nausea and bilious vomiting. On initial presentation symptoms are suggestive of a proximal small bowel obstruction. It is ultimately thought to be caused by lack or loss of the mesenteric fat pad which results in narrowing of the angle between the SMA and the third portion of the duodenum. This results in dynamic or persistent compression of the duodenum by the SMA and the resulting symptoms. Diagnosis requires a high index of suspicion and ultimately rests on demonstration of duodenal obstruction with an abrupt cutoff in the third portion of the duodenum and active peristalsis. On MR imaging one sees a narrow angle between the aorta and the SMA with high fixation of the duodenum by the ligament of Treitz. Initial management includes decompression of the obstruction and enteral feeding with a jejunally placed feeding tube. With refractory symptoms definitive management is required and consists of laparotomy with mobilization of the duodenum and transposition of the jejunum behind the SMA. SMA is a rare cause of post-prandial abdominal pain, nausea and bilious emesis. Diagnosis requires a high index of suspicion. Hospitalists should be aware of this clinical entity and invoke consideration when other causes of proximal small bowel obstruction have been excluded.

SMALL-CELL LUNG CARCINOMA PRESENTING AS ACUTE HEPATIC FAILURE IN AN ELDERLY WOMAN M. Gambill[1]; J. Kushinka[1]. [1]Virginia Commonwealth University Medical Center, Richmond, VA. *(Tracking ID # 204778)*

LEARNING OBJECTIVES: 1. Recognize that metastatic infiltration of the liver should be considered in a patient with rapidly progressing liver failure without obvious etiology. 2. Understand that imaging studies are often inconclusive in identifying the diagnosis.
CASE INFORMATION: A 64 year-old African-American woman with a past medical history of morbid obesity (BMI=49), hyperlipidemia, hypertension, and tobacco abuse presented to the hospital complaining of fatigue, nausea, shortness of breath, abdominal discomfort, and lower extremity swelling. These symptoms had been progressing over the two to three weeks prior to her presentation. On physical examination the patient was tachypenic and hypoxic with scattered expiratory wheezing. She was also markedly jaundiced with diffuse tenderness to palpation in her right upper quadrant. She was alert and oriented without asterixis. Initial laboratory data revealed acute renal failure (Cr=3.4 mg/dl, baseline 2.1 mg/dl) and acute liver injury (AST= 223 units/L, ALT=334 units/L, Alkaline Phosphatase=478 units/L, Total Bilirubin=23.8 mg/dl, Direct Bilirubin=14.6 mg/dl, Albumin= 2.5 g/dl, PT=20.7 seconds, INR=2.5, Ammonia=57 umol/L). Her MELD score upon admission was 37. Urinalysis was remarkable only for a large amount of bilirubin and 10–20 RBCs/HPF. Urine culture and blood cultures were negative. Viral hepatitis serologies were all negative, as was a Hepatitis C viral load. Multiple autoimmune serologies, including ANA, AMA, AMSA, ANCA, were all negative. An HIV test was negative. Initial chest x-ray showed linear atelectasis at the right base and some patchy density in the left base with partial obliteration of the left heart border and blunting of the left lateral costophrenic angle. A right upper quadrant ultrasound revealed heterogeneous liver parenchyma and a contracted gallbladder without evidence of stones. There was no ascites present. A noncontrast CT of her abdomen was remarkable for hepatomegaly, a thickened gastric antrum, and a small gallbladder without biliary obstruction or dilatation. The patient's clinical status deteriorated over several hospital days. Her liver synthetic function worsened (with her INR reaching 4.9 by the second hospital day), and she became encephalopathic despite administration of both lactulose and rifaximin. After correction of her coagulopathy with fresh frozen plasma, a transjugular liver biopsy was performed. Histologic examination revealed a high-grade small cell carcinoma with an immunohistochemical profile that was compatible with a pulmonary origin. Unfortunately, the patient expired in the hospital prior to any further investigation.
IMPLICATIONS/DISCUSSION: Small-ell lung carcinoma (SCLC) is a distinct clincopathologic entity characterized by its aggressive growth and high potential for metastasis. Consequently, nearly 70% of patients present with an extensive stage disease. However, metastatic infiltration of the liver is an uncommon cause of acute fulminant hepatic failure. In addition, acute liver failure is a rare presentation of small cell lung carcinoma. It is particularly interesting that this patient had such severe liver failure in the absence of identifiable liver masses by both ultrasound and CT imaging. Malignant infiltration of the liver should be taken into account in the differential diagnosis of rapidly progressive liver failure when more common causes of acute liver failure have been eliminated.

SOMETIMES IT'S NOT JUST SINUSITIS R.G. Abu-Zeitoon[1]; F. Abu-Shahin[1]; A. Hamati[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 205090)*

LEARNING OBJECTIVES: 1. Diagnose an uncommon type of non-Hodgkin's lymphoma
CASE INFORMATION: A 51-year-old Caucasian man presented with a 6-month history of nasal congestion, nasal discharge and left sided nasal swelling along with persistent throat pain and odynophagia. During the same 6-month period he was treated for repeatedly for infectious and allergic causes of sinusitis and pharyngitis with continued worsening of his symptoms as well as a 20 pound weight loss. PMH: hypertension. Medications: hydrochlorothiazide. Personal/social history: 3 pack per day smoker, no alcohol or drugs. Physical exam: nasal exam showed deviation of the septum to the right with eschar tissue in the left nasal cavity and scanty foul smelling nasal discharge; there was cervical lymphadenopathy; the remainder of the exam was normal including no hepatosplenomegaly or masses. Labs: CBC, CMP unremarkable, LDH was 358 U/L; cultures from the nasal discharge were negative. CT showed scattered mucosal thickening of both maxillary and ethmoid sinuses. Initial biopsies of the nasal cavity and soft palate were negative but persistent symptoms prompted repeat biopsies which were positive for an atypical lymphoid infiltrate with immunophenotyping consistent with extranodal natural killer (NK)/T cell lymphoma of the nasal type.
IMPLICATIONS/DISCUSSION: Sinusitis and allergic rhinitis symptoms are some of the most common presenting complaints in physicians' offices. This case is important since it illustrates a very rare condition that can mimic sinusitis but needs to be diagnosed promptly to prevent a potentially fatal outcome: the nasal type of NK/T cell (non-Hodgkin's) lymphoma. This tumor accounts for less than 2% of all lymphomas, has a median age at presentation of 50 years, and is more common in men and in residents of Asia, Mexico, Central and South America. There is a very strong association with EBV infection, however, the pathogenic role of this virus remains uncertain. Clinically patients usually present with symptoms of nonspecific rhinitis or sinusitis initially, though epistaxis and B symptoms are also seen. Other less common symptoms may result from involvement of the orbit, oral cavity or cranial nerves. A nasal endoscopic exam with tissue biopsy is the only way to diagnose the disease and repeated biopsies are often necessary before diagnosis is made as was seen in our case. Treatment depends on the stage of the disease, with radiotherapy alone or with chemotherapy being used for localized primary nasal lymphoma though treatment failures are common. Following therapy it is essential to monitor patients closely with nasal endoscopies and biopsies. Despite best efforts, the prognosis is guarded, even in localized disease, with 5-year survival in the 55% range and much lower in those with extension or metastases. More advanced cases do not seem to benefit from the addition of chemotherapy though there are reports of some success with high dose chemotherapy with autologous stem cell rescue in salvaging patients with relapsed disease. Physicians should include nasal lymphoma in their differential diagnosis of patients with persistent rhinosinusitis that do not respond in due course to usual therapy, or if they have other unusual associated symptoms, since referral and biopsy may be lifesaving.

SPINAL NEUROSARCOIDOSIS S. Goday[1]; S.L. Komerally[1]; R. Arora[1]. [1]American College of Physicians, Pittsburgh, PA. *(Tracking ID # 205748)*

LEARNING OBJECTIVES: Sarcoidosis is a chronic, systemic, granulomatous disease of unknown origin, characterized by the formation of hard tubercles. Neurologic complications occur in approximately 5 percent of patients with sarcoidosis mostly affecting cranial (II, VII, VIII) and peripheral nerves, the meninges, hypothalamus, pituitary, third ventricle and rarely the spinal cord. Spinal neurosarcoidosis is very uncommon, especially in the absence of systemic symptoms of sarcoidosis. In that setting, it is particularly difficult to diagnose.

CASE INFORMATION: 50-year-old Caucasian male presented with progressive right leg numbness and left hand numbness and weakness. He denied any history of trauma, headache, visual complaints, nausea, vomiting, fever or chills. His past medical history included diabetes mellitus, obstructive sleep apnea and bilateral hilar lymphadenopathy diagnosed 14 years prior to his current presentation. Work up at that time included transbronchial biopsy and serum ACE levels which were unrevealing. He was subsequently monitored with clinical examination and periodic chest films but never had any other interventions. Work up during current presentation showed cervical stenosis at C5-C6 level and questionable spinal cord mass at the C6 level on the MRI. EMG showed C7 radiculopathy and spinal fluid analysis was normal. The patient was treated with steroids for 1 week and subsequently underwent cervical laminectomy. No spinal cord mass was found at the time of surgery. One month later, patient presented with recurrence of his symptoms and repeat MRI of the cervical spine showed pseudomeningocele and re-appearance of the spinal cord mass at the same level. Patient underwent repeat surgical exploration confirmed the mass and a biopsy was performed. At this time patient was not treated with steroids prior to the surgery. Biopsy showed non-necrotizing epitheloid granulomas with negative Gram, Grocott and Acid-Fast stains. CXR revealed stable bilateral hilar and mediastinal lymphadenopathy. Serum ACE and calcium levels were normal. The biopsy result, in conjunction with his previous history of bilateral hilar adenopathy led to the diagnosis of spinal neurosarcoidosis. He was subsequently treated with prednisone, methotrexate and physical therapy with good recovery.

IMPLICATIONS/DISCUSSION: Although neurosarcoidosis is uncommon, its manifestations are potentially devastating. Involvement of the spinal cord in sarcoidosis is extremely rare and affects only 0.3–0.4% of patients with systemic sarcoidosis and has an affinity to cervical spine. It has rarely been reported in patients with any evidence of active systemic sarcoidosis. Spinal neurosarcoidosis can imitate many central nervous system diseases. In our patient, spinal neurosarcoidosis imitated a spinal cord tumor. Prospective series showed 26% had neurosarcoidosis and an epidemiologic study showed 4.6% patients were diagnosed with neurosarcoidosis at initial presentation. Most clinical spinal cord lesions are intramedullary and in rare cases there are extramedullary intradural lesion which can be surgically resected and this clinical scenario was seen our patient. No accepted treatment guidelines are available for neurosarcoidosis. Some recent evidence suggests that early intervention, with the use of immunosuppressive agents, in patients who present with disabling symptoms may be beneficial. In the absence of systemic sarcoidosis, prognosis may be better.

SPONTANEOUS BLEEDING IN A 64Y AFRICAN AMERICAN FEMALE

E.F. Kilb[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205404)*

LEARNING OBJECTIVES: Objectives: - Recognize potential severity of uncontrolled spontaneous bleed - Manage treatment of acquired Hemophilia A - Prevent future episodes of potentially fatal bleeding

CASE INFORMATION: Abstract: Our patient is a 67 year old African American female who presented to the Emergency department with a 3 day history of left hand swelling. The patient stated that she had been in good health until 2 days prior to presentation when she started to note some swelling in her left hand. The swelling progressed and her left hand became more painful and discolored up to her wrist. The patient denied trauma, punctures, bites to the hand, and denied systemic symptoms of fevers, chills, nausea, or vomiting. Past medical history was significant for hypertension, diabetes mellitus, and polymyalgia rheumatica. She works in healthcare, as she is a medical assistant at a nursing care facility. Her physical examination focused on the left upper extremity showed notable swelling on the dorsal and palmar surfaces of the left hand with significant eccymotic-like discoloration of the left hand up to the wrist. Range of motion in the hand and wrist were preserved at this time, as well as sensation in the median, radial, and ulnar distributions. There was no evidence of compartment tension, and radial and ulnar pulses were intact. Significant laboratory results included WBC 12.5, Hgb 12.3, ESR 45, and CRP 0.4. Orthopedic hand surgery took the patient to the OR for debridement of the wound and hemorrhagic-type changes were found with evacuation of serosanguinous fluid from the soft tissue. In the post-operative course, the patient continued to have swelling, and her Hgb dropped from 12.3 to 6.7 over a period of 24 hrs. Patient returned to the OR for achievement of hemostasis, and work-up was begun to determine her coagulopathy. Pertinent labs include PT/INR 13.8/1.03, aPTT 58.6, and a Mixing Study without correction. Her Factor VIII assay was less than 1%, and her Factor VIII inhibitor level was 35 Bethesda Units. The patient was found to have an acquired factor VIII inhibitor, also known as acquired Hemophilia A.

IMPLICATIONS/DISCUSSION: Acquired Hemophilia A is a rare bleeding diathesis that occurs in approximately 1 to 4 in one million patients per year. Autoantibodies to Factor VIII can be acquired in a variety of ways; however the most common cause is idiopathic. Around 90% of cases of acquired Hemophilia A present as severe bleeds, and as a result, the mortality of patients with this disease is very high, around 22%. In this case presentation, we will discuss the importance of early signs of acquired Hemophilia A, early detection of the autoantibody, and long term treatment of this often fatal disease. As for our patient, she was given activated Factor VIII every 6 hours until bleeding was controlled, and started on high dose prednisone and weekly rituximab. One week after treatment was started her Factor VIII assay level was only 1.85% so her rituximab was changed to bi-weekly. Her coagulopathy then rapidly improved with Bethesda Units at 9 two weeks after start of therapy and Factor VIII assay level 21.18% three weeks after start of therapy. The patient has had no further problems with bleeding and her hand is healing well.

SPONTANEOUS CORONARY ARTERY DISSECTION IN A 70 YEAR OLD WOMAN WITH POLYMYOSITIS

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LEARNING OBJECTIVES: 1. Recognize the importance of rapid diagnosis of spontaneous coronary artery dissection (SCAD) as a cause of acute coronary syndrome due to the high mortality and possible need for surgical intervention. 2. Recognize that inflammatory states such as polymyositis, could be entertained as a potential cause of SCAD.

CASE INFORMATION: A 70 year-old woman with hyperlipidemia and polymyositis on chronic steroid therapy presented to the Emergency Department (ED) with sudden onset chest pain beginning four hours prior to presentation. The pain was "sharp," described as 10/10 in severity, and radiating to the bilateral upper extremities and shoulders. This was the first episode of chest pain she had ever experienced. The remainder of the review of systems was negative. In the ED the patient was treated with sublingual nitroglycerin and intravenous morphine, however pain relief was minimal, therefore, a nitroglycerin drip was started. The patient was hemodynamically stable with physical examination only remarkable for a grade III/VI systolic murmur at the left upper sternal border. Initial troponin I was negative, and the electrocardiogram demonstrated sinus rhythm with left axis deviation, left ventricular hypertrophy and non-specific ST-T changes. The etiology for the chest pain was initially attributed to the patient's known history of polymyositis given the prolonged nature of the chest pain which reluctantly abated with nitroglycerin and morphine. The patient subsequently developed an accelerated idioventricular rhythm (AIVR), which led to the decision to pursue immediate cardiac catheterization for further evaluation. Angiographic findings were consistent with occlusive isolated coronary artery dissection located at the mid-left anterior descending coronary artery (LAD). The patient went for immediate single vessel coronary artery bypass grafting and is currently doing well without complications.

IMPLICATIONS/DISCUSSION: Spontaneous coronary artery dissection (SCAD) is rare. However it is now being increasingly recognized as a prominent cause of acute ischemic coronary events. In this patient, the presence of AIVR was a manifestation of reperfusion thereby highlighting the possibility of evolving coronary thrombosis and the need for immediate catheterization. In the current body of literature, the possible causes of SCAD include surgical complication, pregnancy and the post-partum state, drug use, intense physical exercise, previous renal transplant, fibromuscular dysplasia, polyarteritis nodosa, cystic medial necrosis, Marfan's syndrome, Kawasaki's disease, and sarcoidosis. Interestingly, many of these causes are inflammatory states and yet myopathies such as polymyositis have not been elucidated as a

potential cause of SCAD. This case highlights the importance of considering SCAD in other patient populations, particularly in those with underlying atherosclerosis, myopathies, connective tissue diseases, or vasculitides. The incidence of SCAD is underestimated because the diagnosis is often made postmortem. It is therefore important to consider this rare diagnosis even in the face of equivocal electrocardiography and negative lab investigations, as isolated SCAD can lead to cardiogenic shock and death.

SPONTANEOUS CORONARY ARTERY DISSECTION IN A POSTPARTUM WOMAN. A.M. Sharma[1]; B. Herrera[1]; G. Vedala[1]; G. Steven[1]. [1]Saint Joseph Mercy Hospital, Ypsilanti, MI. *(Tracking ID # 204914)*

LEARNING OBJECTIVES: Recognition and management of coronary artery dissection in a postpartum woman presenting with chest pain.
CASE INFORMATION: A 28 y/o postpartum woman with no prior cardiac history except family history of premature coronary artery disease presented with a 2 day history of intermittent chest pain. Electrocardiogram (EKG) demonstrated 1 mm ST elevation in lead V1 with right bundle branch block. Troponin-I was 17 pg/nL. She was treated with intravenous nitrates which resolved her chest pain within 20 minutes. A subsequent EKG demonstrated no abnormalities. The follow-up troponin-I had decreased from its initial value. The echocardiogram was unremarkable. The Coronary computed tomography angiogram revealed a soft plaque in the left anterior descending artery (LAD). A subsequent coronary angiography revealed 80–90% stenosis in the proximal LAD and 60% stenosis in the obtuse marginal (OM) neither of which responded to intracoronary nitroglycerin. A coronary intravascular ultrasound confirmed coronary obstruction secondary to a long dissection flap in the proximal LAD. A coronary artery bypass surgery (CABG) was performed which revealed the dissection in LAD revealed and a healed dissection in OM. Both the LAD and circumflex distributions were successfully bypassed. Patient was also treated with aspirin 81 mg once daily,metoprolol 25 mg twice daily and lisinopril 5 mg once daily and reported no more episodes of acute coronary syndromes.
IMPLICATIONS/DISCUSSION: Spontaneous coronary artery dissection (SCAD) is the third most common cause of myocardial infarction associated with pregnancy. It was first described by Pretty in 1931, since then approximately 140 cases have been published of which 39 were associated with pregnancy. In 75% of dissections, the LAD is involved followed by right coronary, circumflex and left main coronary (LM) arteries. Pregnancy-related SCAD is due to an excess of progesterone leading to biochemical and structural vessel wall changes. In addition the physiological increase in the blood volume and cardiac output may magnify shear forces within the coronary vasculature. Approximately 50% of patients with SCAD have sudden death and the mortality rate is upto 20% within the first few hours. The symptoms are similar to other acute thrombotic coronary ischemic syndromes. The emergent therapy for which includes thrombolysis or percutaneous coronary intervention (PCI), usually with deployment of a stent. However thrombolytic therapy may not be optimal in cases of coronary dissection since it may potentially aggravate the dissection and bleeding. In SCAD, urgent PCI is the recommended therapy. All treatment modalities, including medical therapy, PCI with stent placement, CABG and even heart transplantation have been applied with variable results. Surgical intervention is indicated in cases with propagation of SCAD or luminal narrowing. PCI and stent placement is appropriate for patients with single-vessel disease except LM. Clearly, a high index of suspicion for SCAD is essential in a peripartum and postpartum women presenting with chest pain which warrants urgent PCI and prompt treatment.

SPONTANEOUS CORONARY ARTERY DISSECTION IN A YOUNG MALE A.V. Khera[1]; D. Chokshi[1]; M. Hatch[1]; R. Cerda[1]; N. Stine[1]. [1]University of Pennsylvania, Philadelphia, PA. *(Tracking ID # 205380)*

LEARNING OBJECTIVES: 1. Recognize the risk factors for early-onset myocardial infarction (MI). 2. Review the epidemiology, presumed pathophysiology, and management of spontaneous coronary artery dissection (SCAD).
CASE INFORMATION: A.G. is a 20 year-old male with a medical history of ulcerative colitis who presented with two days of persistent substernal chest pain and intermittent diaphoresis. He denied preceding trauma, illicit drug use, smoking, and personal or family history of known cardiovascular risk factors. Physical exam revealed stable hemodynamics and was otherwise unremarkable. Initial studies demonstrated elevated cardiac biomarkers and ST elevations in the anterior precordial leads. Cardiac catheterization was notable for evidence of dissection in the mid-left anterior descending (LAD) artery. Subsequent workup revealed a low HDL (28 mg/dl) but no evidence of additional coronary risk factors or hypercoagulability.
IMPLICATIONS/DISCUSSION: Although the incidence of cardiovascular disease is low amongst young patients, myocardial ischemia warrants consideration in the differential diagnosis of all patients presenting with chest pain. Autopsy studies have noted advanced coronary lesions in about 2 percent of 15- to 19-year old men. Risk factors for early-onset MI include those that relate to: (1) accelerated atherosclerosis, (2) hypercoagulability, and (3) mechanical disruption of the coronary vasculature. The vast majority of patients have multiple traditional risk factors, the most common of which include smoking, family history of premature coronary heart disease (CHD), dyslipidemia, hypertension, obesity, and insulin insensitivity. However, in rare cases, MI can be caused by a primary coronary artery thrombus, paradoxical embolism, or SCAD. The initial clinical workup of an MI in a young patient will be reviewed. The strikingly young age and lack of multiple coronary risk factors in this patient raises the question of whether the pathophysiology underlying his acute coronary syndrome is distinct from the traditional model of atheromatous plaque rupture. Angiographic and intravascular ultrasound images at the time of primary percutaneous coronary intervention (PCI) revealed an intimal flap and intramural hematoma in the LAD artery. As such, SCAD emerged as the most likely diagnosis. Although uncommon, the medical literature contains more than 300 documented cases of SCAD. The condition appears more commonly in women, particularly in the peripartum and postpartum period. A multitude of connective tissue, autoimmune, and inflammatory diseases have been associated with SCAD. Of note, at least one prior case of dissection has been noted in a patient with inflammatory bowel disease. Although the precise mechanisms underlying SCAD remain unclear, abnormalities in the architecture of the medial wall, inflammation, and shear stress are likely contributory. The development of an intramural hematoma and intimal flap frequently occludes the vessel lumen and results in MI or sudden cardiac death. The issue of clinical management of an MI secondary to SCAD remains largely anecdotal and warrants further research. However, optimal care likely involves several aspects of ACC/AHA guidelines for an ST elevation MI. In A.G.'s case, he received primary PCI and was discharged on a statin, ACE inhibitor, beta-blocker, and dual antiplatelet therapy. A referral to a medical geneticist was provided to further explore the possibility of an undiagnosed connective tissue disorder.

SPONTANEOUS CORONARY ARTERY DISSECTION: AN ATYPICAL CAUSE OF TYPICAL CHEST PAIN T.S. Metkus[1]; C. Ndumele[1]; S. Mora[1]. [1]Brigham and Women's Hospital, Boston, MA. *(Tracking ID # 205315)*

LEARNING OBJECTIVES: 1. Consider the diagnosis of spontaneous coronary artery dissection in patients presenting with myocardial infarction in the absence of traditional cardiovascular risk factors 2. Manage spontaneous coronary artery dissection
CASE INFORMATION: The patient is a 47 year old woman in good health. Two days prior to admission, she developed sudden chest discomfort accompanied by diaphoresis and nausea. She presented to a local hospital where an ECG demonstrated hyperacute T waves in V2-V5 and ST elevation in V4 and V5. She was treated with thrombolytic therapy with resolution of her chest pain. Shortly thereafter, she again developed chest discomfort and became unresponsive and pulseless. A rhythm strip demonstrated polymorphic ventricular tachycardia. She was resuscitated and transferred to another facility for coronary angiography which demonstrated a complex dissection of the left circumflex artery; distal flow was preserved. Echocardiography demonstrated a depressed ejection fraction. She was transferred to our hospital for further management. Her past medical history was unremarkable; her only medicine was NSAIDs rarely for joint pain. She had no symptoms of vasculitis or connective tissue disease. Pregnancy test was negative. Stress MRI 7 days post presentation revealed improvement in her LV systolic function (EF 54%). There

remained an infarct in the inferolateral wall with peri-infarct reversible ischemia. She remained symptom free and hemodynamically stable and was discharged to outpatient follow-up.
IMPLICATIONS/DISCUSSION: Spontaneous coronary artery dissection (SCAD) is a rare cause of acute coronary syndromes with an incidence of approximately 0.1% of patients with acute coronary syndromes presenting for coronary angiography. The average age of patients is 35–45 years, and a majority of cases occur in women. It is a disease distinct from coronary artery dissection secondary to cardiac catheterization, aortic dissection or chest wall trauma. The pathogenesis remains obscure but likely involves changes in the vascular wall leading to the evolution of a false lumen in the media of the artery which obstructs the true lumen leading to cardiac ischemia. SCAD is associated with pregnancy and the post-partum state, connective tissue diseases, rheumatic diseases, and cocaine abuse. In many cases, however, none of these predisposing causes are found. The optimal treatment for SCAD depends on angiographic findings. For flow-limiting lesions, revascularization may be indicated. Coronary artery bypass grafting has been used for SCAD involving the left main or proximal LAD coronary artery. For anatomically suitable lesions, PCI with stent placement is the treatment of choice. For lesions with preserved distal flow, medical therapy has been successful, with reports of complete angiographic resolution at one year. Our patient presented with an ST elevation MI caused by SCAD. Her age, gender, and lack of traditional coronary risk factors are consistent with published series of SCAD. On our patient's angiogram, flow distal to the dissection was preserved, although her stress MRI revealed peri-infarct reversible ischemia. Given her preferences and her improving ejection fraction, we elected to manage her medically. In conclusion, one should consider SCAD in the differential diagnosis of myocardial ischemia in patients who lack traditional risk factors. Management of SCAD should be guided by angiographic findings and can include medical therapy, PCI with stent placement, or CABG.

SPONTANEOUS PNEUMOMEDIASTINUM: A VERY CRUSHING EXPERIENCE Y. Cabrera-Kapetanos[1]; H. Manyam[1]; A.L. Spencer[1]. [1]Internal Medicine Department, Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205402)*

LEARNING OBJECTIVES: 1. To describe the common etiologies of pneumomediastinum 2. To outline the pathophysiology of pneumomediastinum 3. To identify pneumomediastinum as a possible cause of acute chest pain, especially in young males
CASE INFORMATION: A 19-year-old male with mild asthma, presented to the ED with acute chest pain and respiratory distress. He was home playing video games when a sudden, sharp, stabbing chest pain began which radiated to his neck. He developed difficulty breathing, his jaw clenched, and he lost consciousness. He spontaneously regained consciousness and was brought to the ED. On exam, his voice was hoarse, there was crepitus on palpation of his chest, neck and back, and he was tachypneic/tachycardic. He reported heavy drinking, with several episodes of "blacking-out" a few days before onset of symptoms. He denied vomiting, drug use, or trauma. CXR and chest CT revealed pneumomediastinum and subcutaneous emphysema. He was admitted to the MICU for further monitoring. A gastrografin study found no signs of esophageal perforation. Urine toxicology showed cannabis, opiates, amphetamine and methamphetamine. He was counseled on his drug use and his pain and symptoms resolved with supportive care.
IMPLICATIONS/DISCUSSION: Spontaneous pneumomediastinum is an uncommon self-limited and benign entity which usually affects young adult males. It occurs when a pressure gradient forms between the alveoli and the lung interstitium, causing alveolar rupture and air tracking thru the interstitium to the hilum and into the mediastinum. Pneumomediastinum can occur from trauma, violent coughing, vigorous crying, forceful retching or vomiting. It can also occur during the valsalva maneuver when using drugs such as cocaine, methamphetamines or marijuana, especially if these drugs are inhaled. In more serious cases, it can occur from a perforated esophagus known as Boerhaave's syndrome. It is important to rule out secondary causes for pneumomediastinum, as the outcome is drastically different and sometimes fatal. The most common signs and symptoms of pneumomediastinum include sharp chest pain radiating to the neck, dyspnea, subcutaneous emphysema of neck and chest, and dysphonia. In young-adults presenting with acute and severe chest pain, acute pneumomediastinum should be considered and a careful drug history should be taken.

STAPH. LUGDUNENSIS - NOT ANOTHER CONTAMINANT J. Sra[1]; B. Sadiq[1]. [1]Robert Packer Hospital, Sayre, PA. *(Tracking ID # 205997)*

LEARNING OBJECTIVES: 1.Not all coagulase negative staphylococci are benign. 2.Patient's clinical presentation and a positive exam should raise a strong suspicion of a virulent organism. 3. Staph. lugdunensis is an important cause of septic arthritis.
CASE INFORMATION: A 82 year old gentleman presented to the clinic with left knee swelling and chills of one week duration. He denied any history of local trauma or previous knee surgery. Initial vitals revealed a temperature of 99.2 degree fahrenheit (T max 101) , pulse of 68/min and BP of 118/54 mm Hg. Exam showed a red swollen knee which was painful on movement. Immediate arthrocentesis revealed purulent fluid with a WBC count of 48,000, gram positive cocci in clusters on stain and monosodium urate crystals. Two sets of blood cultures came back positive for coagulase negative staphylococci. Patient was immediately started on vancomycin. Later, cultures from synovial fluid and blood grew Staph lugdunensis. A left knee arthroscopic lavage and synovectomy was done. Treatment was later changed to nafcillin based upon sensitivities. Repeat blood cultures remained negative. TEE showed no evidence of endocarditis. Patient responded well to four week course of intravenous antibiotics and continues to do well in rehabilitation.
IMPLICATIONS/DISCUSSION: Staphylococcus lugdunensis is a coagulase negative staphylococcus. Part of the normal human skin flora, it is known to cause serious infections such as brain abcesses, osteomyelitis, sepsis, infective endocarditis, toxic shock syndrome and septic arthritis. It's important to identify this organism because clinically it behaves like Staphylococcus aureus. This may be partly related to its ability to form biofilm that contributes to its virulence. Staph lugdunensis septic arthritis is usually associated with history of recent instrumentation, trauma or prosthetic joints. Most develop as a result of hematogenous seeding of synovial membrane from a bacteremic episode. A high mortality rate similar to Staph aureus has been described. Prompt initiation of antibiotic therapy is critical, followed by early open or arthroscopic joint decompression, debridement and lavage. Most are sensitive to beta lactam antibiotics. Beta-lactamase production does occur in about a quarter of North American isolates. Ours is the first reported case of Staph. lugdunensis septic arthritis in a native joint without previous procedure or instrumentation.

STREPTOCOCCUS BOVIS IN ICD LEAD INFECTION: A UNIQUE PATHOGEN J.C. Chapin[1]; S. Sotardi[2]; D. Feiner[3]. [1]Society of General Internal Medicine, Bronx, NY; [2]Albert Einstein College of Medicine, Bronx, NY; [3]Montefiore Medical center, Bronx, NY. *(Tracking ID # 203955)*

LEARNING OBJECTIVES: 1. To review the epidemiology and risk factors for ICD lead infection 2. To describe the unique role of Streptococcus bovis in lead associated endocarditis 3. To outline a treatment approach for ICD endocarditis
CASE INFORMATION: A 56 year-old Hispanic woman presented to the emergency room with sudden onset sharp, pleuritic left-sided chest pain radiating to her back with associated dyspnea. She also reported fevers for the past week. The patient's medical history was significant for dilated cardiomyopathy, chronic kidney disease, hypertension, and diabetes mellitus. One and a half years prior to admission, she underwent prophylactic implantable cardioverter defibrillator (ICD) placement for systolic heart failure. Six months prior to admission, the patient was treated for Streptococcus bovis bacteremia and diarrhea. At that time, an echocardiogram was negative for vegetations and a colonoscopy demonstrated a tubular adenomatous polyp. On admission, patient's vitals were BP 159/87, HR 98, RR 20 , T 102.4 F, O2 sat 98%. No jugular venous distension was present. Cardiac exam revealed normal S1 and S2, without rubs, murmurs or gallops. Rales were noted over the left lung field extending half-way up from the base. No hepatojugular reflex or peripheral edema was noted. No rashes or petechiae were present. Lab data revealed sodium 127, potassium 4.4, chloride 93, bicarbonate19, glucose 227, BUN 51, creatinine, 2.8, calcium 8.2, magnesium 1.8, hemoglobin 8.2, hematocrit 24.1, MCV

81.3, platelets 194.0, WBC 28 (84%/6%/0.3%/0%) Two sets of cardiac markers including troponins were negative Chest radiograph demonstrated pulmonary congestion compatible with CHF. EKG showed sinus tachycardia with rate 106, normal intervals, and no ST-T wave changes. Transesophageal echocardiogram demonstrated a mobile echo density (0.3 cm×0.7 cm) attached to the right ventricular ICD catheter. LV ejection fraction was 40%. No paravalvular abscesses were visible. Blood cultures grew Streptococcus bovis. The patient was started on antibiotics and the ICD was extracted without complications. Repeat blood cultures were negative and the patient was discharged with a 4 week course of antibiotics followed by ICD replacement.
IMPLICATIONS/DISCUSSION: ICD lead infectious endocarditis is an infrequent but serious diagnosis. Most infections originate from contamination by skin flora during implantation. Patients typically present with fever, chills, hypotension, heart murmurs, leukocytosis, anemia, increased ESR, and positive blood cultures. Streptococcus bovis is a unique pathogen that conveys a higher degree of mortality and therefore requires special consideration. S. bovis is predominantly found in the gastrointestinal tract and a strong association between the presence of malignant gastrointestinal lesions and S. bovis infections have been demonstrated. Hematogenous spread from the gut is the most likely source of bacteremia and lead infection. S. bovis is also strongly associated with older age, multiple valve involvement, and myocardial invasion. Lower rates of embolization in S. bovis endocarditis have been reported but remain a significant complication. Additionally, S. bovis has rarely been associated with acute vertebral osteomyelitis or septic arthritis. The association between S. bovis infection and colorectal cancer necessitates aggressive monitoring for polyp growth and progression to malignancy.

STRIKE THREE, YOU'RE OUT: AUTOAMPUTATION AFTER RAYNAUD'S, COLD AGGLUTINNINS AND COLD EXPOSURE D. Youssef[1]; A. El Abbassi[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203580)*

LEARNING OBJECTIVES: 1. Remind physicians of cold agglutinin disease that can occur after Mycoplasma pneumonia infection. 2. Recognize that Raynaud's phenomenon is generally benign, but after an added insult, in this case cold agglutinin disease, there can be serious consequences.
CASE INFORMATION: A 78-year-old man with a history of Raynaud's phenomenon and BPH presented with frostbite involving the fingertips of his left hand after working outside on his farm for a short time in the winter. He had recently had low grade fever, URI symptoms and a nonproductive cough but denied rash or oral ulcers. PMH was important for Raynaud's phenomenon in his hands, nose and ears in cold weather for many years and one episode of mild frostbite in the 1950 s that resolved. No history of DVT or PE, arthritis or collagen vascular disease. Medications: dutasteride, aspirin. Family history negative for Raynaud's phenomenon or collagen vascular disease and he was a nonsmoker. Exam: afebrile, 130/80, P70, heart, lung and abdominal exam normal, good radial and ulnar pulses bilaterally but marked erythema and hypesthesia in the fingertips of the left hand. The patient was managed conservatively by the vascular surgery service and discharged on nifedipine, clopidogrel, aspirin, nitroglycerin paste and oxycodone. Over the ensuing months his fingertips necrosed and selfdebrided. During this time he was seen in our clinic and his blood was found to lyse each time it was spun until testing was done at 37C. Further investigation revealed a positive ANA 178 (0–100), atypical PANCA: 1:640 (nl<1:40), cold agglutinins: 1:2048 (nl<1:32), M. pneumoniae IgG 344 (0–9). The patient continues to be active though he is careful to avoid cold and no longer goes deer hunting.
IMPLICATIONS/DISCUSSION: This case illustrates a rare but known complication of Mycoplasma pneumonia, the development of cold agglutinin disease, which in our patient with underlying Raynaud's phenomenon after minimal cold exposure led to necrosis and autoamputation of his fingertips. In vasospastic disorders acute digital ischemia is caused by severe vasoconstriction rather than thromboembolism. Subtypes of vasospastic disorders include Raynaud's, acrocyanosis, livedo reticularis and trauma. Typical changes in Raynaud's when exposed to cold include initial white color caused by ischemia, then blue caused by venous stasis, then erythema caused by reactive hyperemia. About 2% of the population suffers from Raynaud's phenomenon and it is more common in women. When seen in men, Raynaud's is often due to secondary causes such as systemic sclerosis or other connective tissue disorders. The prognosis of Raynaud's depends on the underlying problem with less than 10% of patients developing connective tissue disease later in life. Extrapulmonary complications of Mycoplasma pneumonia are seen in 25% of patients with the disease and a quarter of these develop clinically significant dermatological manifestations. Postinfectious cold agglutinins are occasionally seen with hemolytic anemia and associated vascular thromboses are a rare, severe complication. In our case, the Raynaud's phenomenon was exacerbated by the presence of the cold agglutinins as the red cells agglutinated and subsequently lysed when cooled blood passed through the acral parts, in this case the patient's fingers, which were already prone to vasospasm. This case reminds internists to seek secondary causes of vasospastic disorders when complications appear out of proportion to the insult.

SUDDEN CARDIAC ARREST IN A NORMAL APPEARING HEART: BRUGADA SYNDROME. A.M. Sharma[1]; H. Jihn[1]; M. Benjamin[1]. [1]Saint Joseph Mercy Hospital., Ypsilanti, MI. *(Tracking ID # 205751)*

LEARNING OBJECTIVES: Diagnosis and management of brugada syndrome (BS) in a patient with sudden cardiac arrest (SCA).
CASE INFORMATION: 22 y/o male with no prior cardiac history was in a restaurant when he suddenly became unresponsive. Emergency medical service found him in ventricular fibrillation (VF). He reverted to sinus rhythm after defibrillation. He denied any previous history of syncope and SCA in him or his family. Electrocardiogram (ECG) revealed ST segment elevation (STE) >2 mm in lead V1 and V2 with a "saddle back" ST-T wave configuration and upright T wave. An Echocardiogram revealed no structural heart disease. Cardiac MRI revealed a structurally normal heart with no evidence of anomalous coronary arteries, myocardial infarction or infiltrative process such as fibrosis or fatty infiltration. The EKG findings, no structural heart abnormalities and SCA were consistent with BS type II. Implantable cardioverter-defibrillator (ICD) was implanted and his family was recommended to be evaluated for occult BS.
IMPLICATIONS/DISCUSSION: SCA without structural heart disease is an uncommon occurrence accounting for only 5% of SCA. An intriguing clinical entity characterized by STE in the right precordial electrocardiographic leads associated with high incidence of SCA in individuals without structural heart disease called BS was first described by Pedro and Josep Brugada in 1992. BS has a peculiar ECG pattern consisting of pseudo-RBBB and persistent STE in leads V1 to V3. Three patterns of BS exist. In Classic Brugada Type I, STE is >2 mm and descends with an upward convexity to an inverted T wave. Type II and III have "saddle back" appearance in which STE descends towards baseline then rises again to upright or biphasic T-waves. ST elevation is >1 mm in Type II and <1 mm in type III. BS is an autosomal dominant inheritance with variable expression. Clinical manifestations are ventricular arrythmias and 1/3 rd of the patients present with SCA. ICD is the only effective therapy. Among drugs quinidine, isoproterenol, cilostazol and a novel antiarrhythmic agent called tedisamil have shown to normalize ST segment elevation in BS but long term clinical benefit is yet to be evaluated. Identification of BS type EKG pattern in a patient with unexplained syncope, arrythmias, family history of SCA or nocturnal agonal respiration is essential as ICD placement may be life-saving.

"**SUGAR SHAKES**"- **HEMICHOREA-HEMIBALLISMUS SYNDROME** C. Bhardwaj[1]; Z.S. Huston[2]. [1]Milton S. Hershey Medical Center, Pennsylvania State University, Hershey, PA; [2]Pennsylvania State University, Hershey, PA. *(Tracking ID # 205767)*

LEARNING OBJECTIVES: Recognition of the Hemichorea-Hemiballismus syndrome (HCHBS) as an unusual manifestation of a non-ketotic hyperglycemic state. Recognition of hyperglcemia-related HCHBS as a reversible risk factor of falls in the elderly diabetic patient.
CASE INFORMATION: We report a case of an 88 year old gentleman with Type 2 Diabetes mellitus (insulin-requiring, with poor compliance), coronary artery disease and atrial flutter. He presented to the ED at our VA medical center with complaints of increasing falls and left-sided involuntary movements of arm and leg. His symptoms were first noticed about three weeks prior to presentation when family members noticed

sporadic, purposeless, non-suppressible, writhing, and occasionally, violently flailing movements of the left arm and leg. He also complained of some weakness and mild numbness over his left arm with no reports of visual, speech or swallowing disturbances. Additionally, from earlier being independently mobile, he began having concurrent gait disturbances with resultant increased falls (without any evidence of major head trauma). His examination was significant for the abnormal movement, more marked in the left arm, a 4+/5 strength in all 4 limbs and overall mild hyporeflexia and diminished pinprick sensation in the feet. His blood tests were essentially within normal limits except for a blood glucose value of 594 mg/dl and an HbA1c of >18.5%. He had marked glucosuria and negative ketonemia. A CT of the head revealed bilateral (right > left) hyperdensity of the basal ganglia. He declined an MRI exam. He was started on sliding scale insulin which was later converted to a twice daily regimen with tight control of his blood sugars within the next 3 days. With this, a remarkable reversal of his involuntary movements, to the point of complete cessation, was noted. He was able to once again achieve his pre-morbid ambulatory status with evidently improved gait and balance. He was discharged on day 4, having been reviewed by a neurologist, with an out-patient MRI (brain) and a follow up appointment booked

IMPLICATIONS/DISCUSSION: HCHBS is a condition that presents as a subacute, usually unilateral and transient choreo-ballic movement disorder found in hyperglycaemic states, common in diabetes. Its pathogenesis is yet unclear but basal ganglia changes are almost universally found. Vascular and hyperglycaemic neuronal injury mechanisms have been postulated. Our case illustrates an unusual presentation of falls in an elderly diabetic patient associated with involuntary movements. The clinical reversibility of the condition with tight glycemic control is reportedly common and is prognostically significant, both to the patient and physician. With characteristic MRI findings (hyperintense T1 and corresponding hypointense T2 changes) of the basal ganglia and hyperdensity on CT scan, a diagnosis can be made, although systematic search and elimination of other pathogenetic processes causing abnormal movements is vital. Radiological resolution of findings is also common. Occasionally, recurrence of symptoms have been reported. At times, HCHBS necessitates the use of pharmacological agents (benzodiazepines, neuroleptics, antiepileptics, and tetrabenazine). Despite occasional references in Neurology and Radiology literature as case reports and reviews, it continues to be an under-recognised, "untraditional" clinical manifestation of hyperglycemia to the internist.

SYSTEMIC AL AMYLOIDOSIS WITH IGM GAMMOPATHY PRESENTING AS SEVERE CHOLESTATIC JAUNDICE WITH RAPID DEVELOPMENT OF RENAL FAILURE A.L. Dela Cruz[1]; I. Kaplounov[1]. [1]Englewood Hospital and Medical Center, Englewood, NJ. *(Tracking ID # 205403)*

LEARNING OBJECTIVES: To recognize hepatic amyloidosis in patients presenting with unexplained cholestatic jaundice and proteinuria and utilize appropriate diagnostic tools to anticipate their clinical course

CASE INFORMATION: An 85 year-old man with hypertension, dementia and localized prostate cancer presented with progressive weakness, anorexia and jaundice. Physical exam revealed icterus and non-tender hepatomegaly. There was no evidence of stigmata of chronic liver disease. Initial laboratory data showed increased alkaline phosphatase and aspartate aminotransferase and hyperbilirubinemia and mild proteinuria. Serologic tests for Hepatitis A, B and C were negative as well as antinuclear antibody, antimitochondrial antibody, angiotensin converting enzyme, anti-smooth muscle antibody and tumor markers. Imaging revealed no evidence of intra- or extra-hepatic pathology, contracted gallbladder and absence of biliary ductal dilatation. Percutaneous liver biopsy showed intrahepatic canalicular bile stasis and almost complete replacement of liver parenchyma by amyloid, confirmed with Congo red birefringence and positive staining for kappa chains. Serum and urine electrophoresis and immunofixation revealed monoclonal IgM kappa gammopathy. The patient developed rapid deterioration of renal function with progression to oliguric renal failure. His course was complicated by worsening hepatic function, encephalopathy and superimposed urinary tract infection. He expired 3 days after the onset of renal failure and 2 weeks after the presentation.

IMPLICATIONS/DISCUSSION: Hepatic involvement in systemic AL amyloidosis is found in up to 70% in autopsy series. However, amyloidosis presenting with liver dysfunction, including severe intrahepatic cholestasis is rare and has a median survival of 8.5 months. Jaundice and hyperbilirubinemia, occur in less than 5%, and indicate poor prognosis. The usual manifestation of renal amyloidosis is nephrotic range proteinuria with a slow progression to the end-stage renal disease. A fulminant development of renal failure is not common. IgM gammopathy, demonstrated in this patient, is rare in AL amyloidosis, wherein IgG or IgA are the more common paraproteins. Clinicians should consider hepatic amyloidosis in patients who present with unexplained cholestatic jaundice and proteinuria. Liver biopsy should be done for definitive diagnosis. Testing for monoclonal protein in the serum or urine supports the diagnosis of AL amyloidosis. Since jaundice and hyperbilirubinemia are associated with poor prognosis, these patients should be monitored closely for the development of worsening hepatic function and progressive renal failure.

SYSTEMIC LUPUS ERYTHEMATOSUS CASE PRESENTING WITH BILATERAL PAROTITIS. T. Tashi[1]; I.T. Aldoss[1]; T. Brannan[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 205329)*

LEARNING OBJECTIVES: 1. Report a case of SLE presenting as bilateral parotitis. 2. Recognize the concurrent use of antibiotic and immunosuppressant in the setting of sepsis in patient with active SLE.

CASE INFORMATION: A 31 year-old Hispanic female developed bilateral parotid gland swelling one month after the birth of her fourth child. Ultrasound of the parotid and submandibular glands showed findings consistent with diffuse inflammation. She was initially treated as an infection with combinations of antibiotics but symptoms did not resolve. She then became anemic, and developed malar rash and diffuse polyarthralgias. There were no joint swellings or pain, and she denied dry eyes, dry mouth or Raynaud's phenomenon. Laboratory work up was positive for ANA and dsDNA, low complement levels, however, it was negative for anti RNP, anti-Ro and anti-La. A 24 hour urine protein was 1.86 grams. Kidney biopsy revealed diffuse proliferative with active sclerosing lesions, consistent with WHO class IV lupus nephritis. A diagnosis of Systemic Lupus Erythematosus (SLE) was made and she was started on oral prednisone and hydrochloroquine. The parotid swelling gradually resolved within the next week but she developed diffuse alveolar hemorrhage and became septic with intra-abdominal infection. Concurrent therapy with broad spectrum antibiotics and methylprednisolone pulse therapy with cyclophosphamide was initiated. The patient responded well and gradually recovered.

IMPLICATIONS/DISCUSSION: SLE is an autoimmune disease with wide spectrum of classical manifestations, though one third of patients can present atypically. Parotid gland involvement has been reported in about 2.5% of cases. Infection and Sjogren's syndrome are main differential diagnoses in parotid gland swelling. Biopsy of the gland is a key step in identifying the etiology, however, the absence of dry eyes and mouth, negative anti-Ro and anti-La, and prompt response to steroid therapy favored that the parotid gland enlargement was a part of SLE presentation in our case. Alveolar hemorrhage is one of the critical complications of SLE associated with high morbidity and mortality and warranting aggressive immunosuppressive therapy. On the other hand, sepsis complicated SLE prompt initiating antibiotics without any delay and evading immunosuppressant as possible when they are not essential. The decision to simultaneously use antibiotic and immunosuppressant for active SLE cases complicated with sepsis is a clinical dilemma requiring close and intensive monitoring, and involves interdisciplinary coordination of care.

TACHYCARDIA-INDUCED CARDIOMYOPATHY M. Lake[1]; B. Garibaldi[2]; S.D. Sisson[2]. [1]Johns Hopkins Hospital, Baltimore, MD; [2]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205446)*

LEARNING OBJECTIVES: 1) To review the diagnosis of tachycardia-induced cardiomyopathy 2) To review the pathophysiology and management of tachycardia induced cardiomyopathy

CASE INFORMATION: A 62-year-old male with type 2 diabetes presented with 3 months of progressive dyspnea, chest pain, palpitations, and presyncope. Symptoms, most notably chest pain, were not exertional. Cardiac exam was remarkable for a laterally displaced PMI and tachycardia. Jugular venous pulse was difficult to assess. Crackles were noted at both lung bases and pedal edema was absent. ECG

showed a narrow-complex atrial tachycardia (heart rate 140) responsive to adenosine, diagnosed as atrial flutter. Echocardiography showed ventricular dilation and an ejection fraction of 15%. Cardiac MRI showed no scar tissue suggestive of previous myocardial infarction. Right heart cardiac catheterization showed volume overload with increased pulmonary capillary wedge pressure. Endomyocardial biopsy revealed mild to moderate fibrosis, without evidence of amyloid or granulomatous disease. A diagnosis of Tachycardia Induced Cardiomyopathy (TICM) secondary to persistent atrial flutter was given.

IMPLICATIONS/DISCUSSION: Tachycardia Induced Cardiomyopathy is a form of systolic heart failure resulting from prolonged tachyarrhythmias, either atrial or ventricular. TICM should be considered in any patient with depressed systolic function in the setting of a persistent tachycardia, especially in the absence of an acute coronary event. Of note, concurrent heart disease, from ischemia, or heart failure from other causes, does not exclude TICM, as patients with pre-existing heart disease can develop worsening of their underlying systolic dysfunction in association with persistent tachycardia. The pathophysiology of systolic heart failure in TICM is largely unknown. However, the finding of elevated ventricular filling pressures and ventricular dilatation is common to both TIMC and heart failure related to volume overload lesions and may suggest a similar pathway. Central to the development of systolic failure in volume overload lesions is ventricular remodeling (actually collagen remodeling), a dynamic process regulated by matrix metalloproteinases (MMPs) and their inhibitors, tissue inhibitors of metalloproteinases (TIMPs). MMPs and TIMPs are highly inducible molecules, responding to several signals, including mechanical stretch and catecholamines. These signals are increased in TICM and volume overload-related cardiomyopathies. The stimulus for these changes, at least in TICM, appears to be tachycardia itself, as normalization of the heart rate is accompanied by reversal of systolic dysfunction. The cornerstone of management in TICM therefore is rate control. This may be achieved with nodal blocking agents, such as beta-blockers or calcium channel blockers. Class I and III antiarrhythmics or digoxin may be used in patients who do not respond to, or do not tolerate nodal blockers. High efficacy and low complication rates makes catheter ablation a viable option for patients who do not tolerate first-line therapy. Beta-blocker therapy with metoprolol was initiated in our patient; however there was difficulty maintaining an acceptable heart rate without precipitating hypotension. Digoxin was added, but with marginal improvement in his symptoms. The patient was therefore referred for catheter ablation of atrial flutter.

TAKE IT WITH A GRAIN OF SALT J. Higdon[1]; M. Agrawal[1]. [1]Emory University, Atlanta, GA. *(Tracking ID # 204753)*

LEARNING OBJECTIVES: 1. Recognize and diagnose primary aldosteronism. 2. Increase clinical suspicion of secondary hypertension in newly diagnosed hypertensive patients with hypokalemia.

CASE INFORMATION: A 40 year old male presented with a blood pressure reading of 170/100 at an employer health screening. He was diagnosed with hypertension two years ago and treated with hydrochlorothiazide and metoprolol. As per history, blood pressure was well controlled on medication and he stopped therapy after 6 months. A week prior to presentation, patient suffered from a single episode of exertional chest pain. He did not have any known cardiac risk factors except high blood pressure. He denied any family history of hypertension, ischemic heart disease, stroke, diabetes, or sudden cardiac death. He was a non smoker, with occasional alcohol use, no history of illicit drugs use, and otherwise negative review of systems. Exam findings were notable for an overweight male with blood pressure of 150/110, equal in both arms. A non-dilated fundoscopic exam was normal. Cardiac exam suggested 1/6 holosystolic murmur audible at the left lower sternal border and apex. Lungs and abdominal exams were normal. His peripheral pulses were equally palpable. No other peripheral stigmata noted. Twelve lead ECG showed NSR with a rate of 95 and borderline left axis deviation with left atrial abnormality. The patient was empirically initiated on mono-therapy with lisinopril. Lab results: sodium 140 mEq/L, potassium 2.9 mEq/L, chloride 98 mEq/L, bicarbonate 33 mEq/L, BUN 9 mg/dL, and creatinine 1.2 mg/dL. Urinalysis showed no protein and moderate hemoglobin. Further workup revealed renin activity 0.2 ng/ml/hr and aldosterone 35.9 ng/dL (supine at noon). MRI/MRA abdomen showed normal adrenal glands without evidence of renal artery stenosis, with incidental finding of an obstructing left ureteral stone. An exercise stress echocardiogram showed concentric left ventricular hypertrophy, mild tricuspid regurgitation, without evidence of inducible ischemia. Patient underwent confirmatory tests with sodium loading. Two liters of normal saline was infused over four hours with blood draws before and after loading. Renin activity was 0.1 ng/ml/hr and less than 0.1 ng/ml/hr before and after, respectively. Aldosterone was 30.7 ng/dL and 35.9 ng/dL. This confirmed primary aldosteronism; therefore, he was started on eplerenone as well as nifedipine for additional blood pressure control.

IMPLICATIONS/DISCUSSION: The initial presentation of high blood pressure, hypokalemia, and metabolic alkalosis should raise suspicion of hyper-aldosteronism. Most primary aldosteronism is caused by adrenal adenomas or hyperplasia. However, in this patient it was assumed to be idiopathic given normal adrenals on imaging. The diagnostic workup includes elevated ratio of aldosterone to renin activity (greater than 30–50). There is significant diurnal and postural variation; hence attempts should be made to standardize sample collection. The diagnosis is confirmed by either sodium loading (as above) or depletion to suppress aldosterone and stimulate renin activity, respectively. A serum aldosterone level of less than 8.5 ng/dL, after sodium loading, rules out primary aldosteronism. Sodium depletion was not felt to be necessary in the above workup, however can be performed by instituting a 40 mg/day sodium diet or utilizing furosemide.

TAKE MY BREATH AWAY J.Y. Nguyen[1]; M. Nguyen[2]. [1]Society of General Internal Medicine, West Los Angeles, CA; [2]University of California, Los Angeles, Sherman Oaks, CA. *(Tracking ID # 204462)*

LEARNING OBJECTIVES: 1. Acknowledge that microscopic polyangiitis (MPA) is a systemic disease that can affect any organ system, hence presenting with variable symptoms 2. A definitive diagnosis should be sought early in patients with the combination of renal disease and pulmonary hemorrhage to identify treatable causes and prevent life-threatening complications

CASE INFORMATION: A 60 year-old previously healthy male complained of 3-weeks of shortness of breath and dyspnea on exertion. He had a productive cough with scant bloody sputum but was a non-smoker. He denied chest pain, headache, weight loss, GI/urinary symptoms or rash. Physical exam was remarkable for sinus tachycardia with a low-grade fever, hypoxia and coarse breath sounds . Lab abnormalities included a mild leukocytosis to 12.7 and normocytic anemia with hemoglobin of 10.7. He had normal renal function but urinalysis showed 23 RBC's with 4 WBC's. A chest CT revealed diffuse multi-lobular opacitities. The patient was admitted for further evaluation. The initial work-up considered three major diagnostic categories in the following order: infection, rheumatologic and malignancy. The patient's respiratory status decompensated while on empiric antibiotics, and because of his dire condition, corticosteroids were started for a possible auto-immune pulmonary-renal syndrome. The patient improved dramatically shifting the differential diagnosis towards a rheumatologic process. A bronchoscopy later revealed alveolar hemorrhage and non-granulomatous inflammation. In addition, rheumatologic labs were positive for c-ANCA, confirming the diagnosis of microscropic polyangiitis.

IMPLICATIONS/DISCUSSION: Microscopic polyangiitis (MPA) falls under the ANCA-positive small vessel vasculitides category, along with Wegener's and Churg-Strauss. Antineutrophil cytoplasmic antibodies (ANCA) are antibodies that bind to activated neutrophils, causing the release of toxic metabolites, killing endothelial cells leading to vascular injury. It is an uncommon disorder with an incidence of 3 per 1 million persons, affecting more males than females. Since MPA can cause any organ system derangement, it often results in an array of symptoms. Aside from the nonspecific symptoms of fever and malaise, most common complaints involve the pulmonary or renal system, including upper/lower respiratory tract illnesses, hematuria, proteinuria, and renal failure. Other areas affected could be skin, GI tract, CNS as well as the musculoskeletal system. The diagnosis of MPA is suggested from the clinical and laboratory findings, with the presence of circulating ANCA. These antibodies are also found in Wegener's (p-ANCA) and Churg-Strauss (c-ANCA) hence confirming the diagnosis of MPA has to be done based on biopsy. Unlike Wegener's and Churg-Strauss, MPA does not have granulomatous inflammation. Therefore, the absence of granulomas on tissue biopsy confirms MPA. Treatment for MPA involves two

major phases- induction and maintenance. Induction is achieved with prednisone and cyclophosphamide. Once the disease is under control, cyclophosphamide is preferably replaced by either methotrexate or azathioprine to reduce medication toxicity. Early diagnosis and initiation of treatment is important in MPA since a recent study has shown that mortality is reduced with prompt intervention (45–75% survival at 5 years v. a few months). Hence, internists must be aware and astutely recognize the variable constellations of symptoms in MPA to avoid delaying treatment and prevent severe complications.

TAKING "QS" FROM THE HISTORY: A CASE OF A MEAT CUTTER WITH FEVER OF UNKNOWN ORIGIN M. Greene[1]; K. Kangelaris[1]. [1]University of California, San Francisco, San Francisco, CA. *(Tracking ID # 204822)*

LEARNING OBJECTIVES: 1. Recognize the importance of the social history in the diagnosis of fever of unknown origin (FUO) 2. Consider repeat transesophageal echocardiography in the evaluation of patients with FUO, especially in patients with prosthetic valve replacement 3. Identify the clinical features of coxiella endocarditis

CASE INFORMATION: A 52 year old Chinese male with a history of atrial fibrillation and mechanical aortic and mitral valve replacement for rheumatic fever, presented to the emergency department with 3 months of intermittent fevers to 102 ° F without an obvious source identified from extensive outpatient evaluation. This evaluation included blood cultures, transthoracic echocardiogram (TTE), transesophageal echocardiogram (TEE), and bone marrow biopsy which were all unremarkable; abdominal imaging revealed only hepatosplenomegaly. The patient denied any pattern to the fevers, abdominal pain or joint pain, but did endorse fatigue, orthopnea and cough. Social history revealed that he had lived in California for 20 years, did not have any pets and worked as a meat cutter at a local grocery store. He was afebrile on admission and physical examination was notable for a systolic murmur (chronicity unclear), mechanical heart sounds, hepatosplenomegaly, and findings of mild volume overload with no evidence of embolic phenomenon. Laboratory studies revealed pancytopenia, a sedimentation rate of &gt100 mm/h, and 6 sets of negative blood cultures. In addition, chest CT revealed diffuse lymphadenopathy. Given high suspicion for endocarditis, the patient underwent repeat TEE which now showed a mobile mitral valve vegetation. Knowing his exposure to animal products, specific zoonotic serologies were sent. Serologic testing confirmed infection with coxiella burnetii with a Phase I IgG titer &gt1:1024. A final unifying diagnosis of coxiella endocarditis was made and the patient began doxycycline and hydroxychloroquine therapy. The patient was discharged with close follow up to monitor for symptoms of congestive heart failure for consideration of valve replacement surgery.

IMPLICATIONS/DISCUSSION: Coxiella burnetii endocarditis is a rare disease with an average of only 50 cases a year in the United States. Infection is contracted through exposure to animal byproducts and is endemic in parts of California. Patient presentation ranges from asymptomatic to a variety of signs and symptoms including fever, malaise, peripheral embolic phenomena, congestive heart failure, hepatosplenomegaly, and pancytopenia. Diagnosis is confirmed with Phase I IgG titers &gt1:800, now a part of the revised Duke criteria. Treatment is with a combination of doxycycline and hydroxychloroquine for at least 18 months until titers are &lt1:200. This case highlights two important principles in the evaluation of FUO. First, the social history is paramount in the diagnostic workup, even in an era of improved diagnostic testing. The patient's occupational history led the team to send coxiella serologies, ultimately leading to the diagnosis. Second, a high index of suspicion for endocarditis should be maintained in patients with prosthetic valves and unexplained fevers, even if TEE is negative. AHA guidelines recommend repeat TEE in high risk patients when suspicion of endocarditis remains. Thus, this case of a meat cutter with prosthetic valves serves as a reminder of the importance of the social history and of maintaining suspicion for endocarditis in patients with valvular disease in the evaluation of fever of unknown origin.

TAKOTSUBO CARDIOMYOPATHY R.A. Aguillon Prada[1]; J. Brito Campana[2]. [1]University of Miami, Miami, FL; [2]Resident. Internal Medicine, Miami, FL. *(Tracking ID # 205845)*

LEARNING OBJECTIVES: 1. Recognize takotsubo cardiomyopathy (TC) as part of the differential diagnosis of an acute cardiac event, especially in women with a preceding stressful event. 2. Recognize the clinical characteristics, diagnostic criteria and management of this disease

CASE INFORMATION: A 47-year-old African American female presented with a two-hour history of severe chest pain after intense emotional distress. Her medical history was significant for hypertension, generalized anxiety disorder, and family history of coronary artery disease (CAD). No diabetes. No tobacco use. The patient was on metoprolol 50 mg Q12 hours and fluoxetine 20 mg daily. On admission, she was afebrile, normotensive with an oxygen saturation of 98%. Physical exam was unremarkable. The initial 12 lead ECG and chest Xray were normal. The first set of cardiac enzymes and troponin T were normal. Two hours later, she reported a recurrence of her chest pain. Repeat 12-lead ECG revealed evolving anterior, lateral and inferior walls symmetric T wave inversion. An acute coronary syndrome (ACS) was diagnosed based on the history, ECG abnormalities and raised troponin T of 0.64 ng/ml (normal<0.01 ng/ml). She was commenced on aspirin, clopidogrel, low molecular weight heparin, beta-blocker, statin, and ACE-inhibition. Coronary angiography revealed no significant coronary artery disease, but the ventriculogram demonstrated a hypokinetic to dyskinetic distal anterior, inferior and apical regions, and a hyperdynamic proximal component, with left ventricular ejection fraction (EF) of 35%, consistent with takotsubo cardiomyopaty (TC). A transthoracic echocardiogram demonstrated severely impaired LV systolic function with akinesia of all mid and apical segments and normal basal contraction. The patient received supportive therapy and was discharged home in stable condition. Two weeks later, repeat echocardiogram showed significant improvement. EF was 55%, with no evidence of wall motion abnormalities.

IMPLICATIONS/DISCUSSION: Patients with TC present with features consistent with ACS. Its prevalence in patients with ACS ranges from 0.7–2%. There is a strong female predominance. Most patients have a preceding history of extreme psychological or physical distress. The proposed diagnostic criteria includes a transient akinesis or dyskinesis of the apical and midventricular segments in association with regional wall motion abnormalities that extend beyond the distribution of a single epicardial vessel; absence of obstructive coronary artery disease; new ST segment elevation or T wave inversion on the ECG and absence of recent significant head trauma, intracranial bleeding, pheochromocytoma, myocarditis, or hypertrophic cardiomyopathy. Our patient presented with the characteristic clinical features of the condition and met all four criteria. The pathophysiology of the condition is debatable; however, catecholamine mediated cardiotoxicity and microvascular dysfunction are the most widely proposed mechanisms. The overall prognosis is favorable with in-hospital mortality rates of 1% and recurrence rates of less than 3%. Complications include cardiogenic shock, and arrhythmias in up to 19% of patients. Treatment relates to the patients hemodynamic status and no established guidelines exist. Often treatment for an ACS is commenced. Characteristically the condition is transient and the abnormal akinesia/dyskinesia of the left ventricle has been observed to normalize within one month as in our patient who has made full recovery.

TEETH TO BONE C.K. Mamillapalli[1]; S. Nekkanti[1]; S. Poonuru[1]. [1]Marshfield clinic, Marshfield, WI. *(Tracking ID # 205988)*

LEARNING OBJECTIVES: 1. To consider vertebral osteomyelitis in the differential diagnosis of back pain 2. To recognize the risk of systemic spread of infection in patients with untreated dental abscess 3. To discuss investigations of suspected vertebral osteomyelitis

CASE INFORMATION: A 46-year-old morbidly obese lady was admitted with 4 week history of right-sided thoracic back pain between T3 and T6 vertebrae. She describes this as a constant pain radiating to the front of the chest. It was worse with deep breathing, coughing, sneezing, and movement. There was no history of fever or chills or symptoms suggestive of neurological compromise. She had root canal therapy on right maxillary first pre molar tooth approximately three months ago. She reported toothache in the right side maxillary molar teeth for 2 months. Significant past medical history includes gastric bypass operation 10 years ago, compression fracture of T12 vertebrae following a fall 2 years ago. On examination, the patient was afebrile and was tender in T5 and T6 vertebra. Neurological examination was within the normal range. Oral examination revealed very large carious lesion right

maxillary second molar tooth and chronic periodontitis. Her white cell count was 7900/uL, her hemoglobin was 10.6 mg/dl, CRP was elevated at 4.9 mg/dl and ESR was elevated at 63 mm/hour. Dental X ray showed that right maxillary 2nd molar teeth have a large, deep carious lesion and periapical radiolucency consistent with periapical dental abscess. MRI scan of the thoracic spine revealed abnormal signal within the T5 and, to a lesser extent, in the T6 vertebral body with some soft tissue changes anteriorly suggestive of vertebral osteomyelitis. Multiple blood cultures were negative. CT guided needle aspirate of the osteolytic lesions yielded no organisms on Gram stain or culture. Subsequent analysis by 16 S nucleic acid amplification and sequence analysis revealed Streptococcus mitis based on partial 16 S gene sequence. Abscessed 2nd molar tooth was extracted. She was treated with IV ceftriaxone for 2 months and 1 month of cephalexin. She improved clinically; ESR and CRP normalized and repeat MRI scan showed improving osteolytic lesion in thoracic vertebra.

IMPLICATIONS/DISCUSSION: Vertebral osteomyelitis is an uncommon manifestation of pyogenic osteomyelitis. MRI is the most sensitive imaging modality and the inflammatory signal in the marrow creates abnormal signal bothT1 and T2 weighed images through out the involved vertebra. If there are radiological indications of osteomyelitis and blood cultures are negative CT guided biopsy may be indicated to confirm the diagnosis. Staphylococcus aureus is the most common cause of pyogenic osteomyelitis but the incidence of gram negative and low virulence atypical organisms has increased. Streptococcus mitis is a very unusual cause of vertebral osteomyelitis. Streptococcus mitis is part of indigenous oral flora and preferentially colonize the tooth surface. It is the most frequent organism isolated from dental periapical abscess. There was one case report of vertebral osteomyelitis secondary to dental procedure described in the literature. We suspect the source of osteomyelitis in this patient is blood-borne dissemination of streptococcus mitis organisms from the dental abscess. To our knowledge this is the first case report of vertebral osteomyelitis caused by a dental abscess.

TENDER NECK IN A MEDICAL RESIDENT A. El Abbassi[1]; D. Youssef[1]; R. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203763)*

LEARNING OBJECTIVES: To recognize the classical symptoms of subacute thyroiditis.

CASE INFORMATION: A 30-year-old PGY III male internal medicine resident (the author) with no significant past medical history and on no medications was well until he developed 4 days of nonspecific URI symptoms, similar to his 1-year-old child who was sick at home. Two days into the illness he developed fever, chills, generalized weakness, palpitations, muscular pains and malaise. Thinking this was a viral illness that would resolve spontaneously, he was surprised by new pain on swallowing and with neck flexion. More concerning was his finding of a right neck mass that was extremely tender to palpation and his persistently high fever to 39C with night sweats. He began a course of levofloxacin but when he didn't improve he asked one of his attendings to see him. He's a non- smoker, does not drink alcohol, and uses no illicit drugs. He's of middle eastern descent, and has no significant family history. On physical exam his temperature was 39C, RR 20, BP 130/80, he had a 4×4 cm neck mass just to the right of midline that moved on swallowing and was firm and tender on palpation. The rest of the physical exam was unremarkable. Laboratory: WBC 5.6, HCT 43, platelets 378 k, TSH 0.012uIU/ml (.4–4.0), Free T4 2.72 ng/dl (0.8–1.9), Free T3 214 (82–179). EKG showed sinus tachycardia and ultrasound of the neck revealed diffuse enlargement of the right lobe of the thyroid. He was started on low dose propranolol and ibuprofen with prompt improvement and shrinking of the enlarged thyroid. One month later his labs had normalized with a TSH of 1.07, and FT4 1.13.

IMPLICATIONS/DISCUSSION: The symptoms, signs, laboratory values and clinical course of this patient were classic for Dequervain's (subacute) thyroiditis except for two aspects: it is 5 times more common in women than men, and it usually involves the thyroid diffusely rather than just one lobe as in this case. The condition is believed to have a viral etiology, is characterized by neck pain, a tender diffuse goiter and hyperthyroidism, with the severity of the neck pain often correlating with the degree of inflammation in the thyroid. Palpitations are also common and the most common EKG finding is sinus tachycardia as was seen in this case. When investigating high fever, malaise, and a tender thyroid gland, especially if there is focality to the exam, acute suppurative thyroiditis should also be considered. In this case, the failure of the ultrasound to show a fluid collection, the normal white count, and the failure to respond to antibiotics argued against this diagnosis, leaving the most likely cause to be subacute thyroiditis. Biopsy is usually not necessary, but if it is done it shows a granulomatous pattern characterized by foreign body giant cells, chronic inflammatory cells, and microabscesses. While this is a self-limited condition, anti-inflammatory medications (including steroids), beta blockers, antipyretics, and adequate hydration often speed recovery. A Chinese proverb says "Tell me, I will forget; Show me, I will remember; Involve me and I will understand." This case "involving" a medical resident will never allow him to forget the details of Dequervain's or subacute thyroiditis.

THE ASEPTIC MENINGITIS THAT REQUIRED EMERGENT SURGERY J. Schafer[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN. *(Tracking ID # 205312)*

LEARNING OBJECTIVES: 1. Define Lhermitte's sign 2. Discuss the differential diagnosis of aseptic meningitis 3. Enumerate clinical signs and risk factors for spinal epidural abscess

CASE INFORMATION: A 63 YOF with type II diabetes mellitus presented to our ED with fever, lancinating right arm pain, neck pain and new onset bladder incontinence. She had had the neck and arm pain for the last week and just four days earlier received chiropractic adjustment in hopes of pain relief. Initial laboratory evaluation included complete blood count, full electrolytes, a lumbar puncture with cerebrospinal fluid (CSF) evaluation and blood cultures. Evaluation of the CSF demonstrated glucose of 74 mg/dL (60% of the plasma serum glucose level), Total protein 94 mg/dL (normal 14–45 mg/dL) total nucleated cell count 206/mm3 of which 94% were PMNs, no organisms were seen on gram stain. She was admitted to the general medicine service with a tentative diagnosis of aseptic meningitis syndrome. Further investigation revealed a PMH of post traumatic TKA with subsequent re-intervention after MSSA infection with bacteremia. Our aseptic meningitis diagnosis differential was narrowed to a possible diagnosis of a spinal epidural abscess. Indeed, 13 hours into her hospitalization, blood cultures grew out MSSA. An MRI confirmed the presence of a spinal epidural abscess of our patient's cervical spine (C4-T1). The patient required emergent surgery for decompression.

IMPLICATIONS/DISCUSSION: Premature closure of aseptic meningitis as a viral etiology would have severely altered the outcome. Lhermitte's sign has been described as a tingling or electric shock like shooting sensation down the arm upon flexion of the neck. Importantly, it may be a harbinger of cervical spinal cord pathology. The differential of aseptic meningitis includes infectious etiologies such as viral, bacterial, parasitic and fungal organisms, non-infectious etiologies such as manifestations of a systemic disease or drug related and even migraine headache. It behooves the practitioner to attempt to determine the underlying etiology of an aseptic meningitis as treatment will vary tremendously. Epidural abscess are a complication after spinal manipulation. Risk factors include diabetes, immunocompromised states, previous bacteremia and spinal intervention both intentional or trauma related. This patient had several risk factors which promptly changed the investigation and management. The triad of neck or back pain with fever and new neurologic dysfunction suggested spinal epidural abscess upon admission. Permanent neurologic deficit, even paralysis, can result from an untreated spinal epidural abscess; therefore, awareness of this diagnosis is imperative.

THE BLEED THAT WOULDN'T GO AWAY A.R. Lamba[1]; S. Antonik[1]; J. Thomas[1]; K. Pfeifer[1]. [1]Medical College of Wisconsin, Milwaukee, WI. *(Tracking ID # 205617)*

LEARNING OBJECTIVES: 1. Describe an unusual cause of upper gastrointestinal bleeding, including its presentation, diagnosis and treatment 2. Review alternate treatment methods for patients who fail medical management.

CASE INFORMATION: An 81 year old woman with a history of end-stage renal disease requiring hemodialysis, presented with 5- 7 episodes of melena over 1 week. On presentation her examination was

normal except for guiac positive stool. Initial laboratory studies included a hemoglobin of 6.9 with a BUN and Creatinine of 58 and 3.1. She did require a blood transfusion of 3 units. She underwent esophagogastroduodenoscopy (EGD) which showed an actively bleeding Dieulafoy lesion in the gastric cardia. The lesion was treated with epinephrine injection, cauterized, and hemoclipped. She remained stable and discharged. Repeat EGD for recurrent melena one month later again showed active bleeding in the cardia. The prior clips were intact and argon plasma coagulation was utilized to achieve hemostasis. The patient was advised to have a repeat EGD, however, she left against medical advice. She returned 15 months later with 3 days of nausea, vomiting and non-bloody diarrhea. She also had new intermittent right upper quadrant and periumbilical pain for 3 weeks. Her physical exam was significant only for mild epigastric tenderness to palpation. Initial laboratory studies and abdominal CT were normal. Shortly after admission she vomited approximately 350 cc of bright red blood. Repeat EGD showed a large clot obscuring 30–40% of the greater curvature of the stomach and two Dieulafoy lesions, one of which was actively bleeding. Both lesions were cauterized, and the bleeding lesion was also injected with epinephrine. Because of the recurrent nature of the Dieulafoy bleeds, the patient was referred for surgical intervention.
IMPLICATIONS/DISCUSSION: Upper gastrointestinal bleeding has a number of different etiologies. Most often the presumed diagnosis is an ulcer, variceal bleed or Mallory-Weiss tear. Rarely, Dieulafoy lesions may be the cause of massive upper gastrointestinal bleeding. Dieulafoy lesions were first described in 1898 by George Dieulafoy as "exulceration simplex" because they were believed to be the initial stage of a gastric ulcer. They were defined as a bleeding or clot-bearing artery protruding into the intestinal lumen, usually without ulceration. Dieulafoy lesions are responsible for 0.3% - 6.7% of gastrointestinal hemorrhages, have a 2:1 male to female predominance, and have no pathophysiologic connection with NSAID or alcohol use. Dieulafoy lesions most commonly occur in the stomach, usually on the lesser curvature and within 6 cm of the cardioesophageal junction. They can also be seen in the esophagus, duodenum, jejunum, colon, rectum and bronchi. Endoscopic management includes injection therapy, cautery, argon plasma coagulation, band ligation and hemoclip placement. Traditionally, injection therapy and cautery have been used to achieve hemostasis. However, approximately 5% of cases fail endoscopic therapy and require arterial embolization or surgical intervention. Arterial embolization is often done by interventional radiology but the studies are limited. Surgical intervention options include ligation of the lesions, partial or total gastrectomy.

THE CAT'S OUT OF THE BAG: AN UNUSUAL CASE OF DYSPNEA IN A YOUNG WOMAN J. Colasanti[1]; H.F. Mechaber[2]. [1]University of Miami/Jackson Memorial Hospital, Miami, FL; [2]University of Miami School of Medicine, Miami, FL. *(Tracking ID # 204976)*

LEARNING OBJECTIVES: 1. Define catamenial pneumothorax and recognize it as a potential cause of recurrent spontaneous pneumothoraces in women of child bearing age. 2. Manage catamenial pneumothorax medically before surgery is pursued.
CASE INFORMATION: A 30 year old Haitian woman with HIV (CD4 449, VL ND), and 3 spontaneous pneumothoraces over the past 1 1/2 years, each requiring hospitalization and surgical intervention, came to an HIV clinic for primary care follow-up. Her history of recurrent symptoms without diagnosis prompted further evaluation. She reported a history of irregular menstrual cycles, dyspareunia and dysmenorrhea for many years, with no prior work-up. She originally presented to the hospital with severe, right-sided chest pain, abdominal pain, and dyspnea, coinciding with her menses. The patient had no history of trauma, smoking or lung disease. Initial CXR and Chest CT were consistent with right-sided pneumothorax. She underwent chest tube placement without significant re-expansion, necessitating a VATS with pleurodesis. During the procedure, diaphragmatic fenestrations were seen and repaired. The patient had subsequent, identical episodes 6 months and then an additional seven months later, and with each occurrence the patient presented to a different hospital. At the time of her presentation to her primary HIV clinic, and based on her history and surgical reports, she was diagnosed with catamenial pneumothorax.
IMPLICATIONS/DISCUSSION: Catamenial pneumothorax (PTX) is defined as recurrent, spontaneous PTX occurring within 72 hours of the onset of menses. The PTX does not occur with every menstrual cycle, but each PTX is associated with menses. Cases of catamenial PTX are rare, though potentially more common than general internists realize. Retrospective analyses report a prevalence of 1 – 5% among menstruating women with spontaneous PTX. This significant number of patients affected should prompt primary care physicians to recognize this as a potential etiology for spontaneous PTX without prior known cause. Most commonly, affected patients are women in their 20's and 30's, who have right-sided pneumothoraces temporally related to the onset of their menses. These patients often complain of cyclical chest pain and dyspnea in the months leading up to a PTX, as seen in our patient. The underlying pathophysiology is not defined, yet two main theories exist. The first is a theory of metastatic retrograde implantation of endometrial tissue from the pelvis to the lung. This can occur either lymphohematogenously or through congenital diaphragmatic fenestrations. The majority of fenestrations occur on the right hemidiaphragm, and 90% of catamenial PTX are right-sided. Therefore, it is more plausible that the tissue metastasizes through these fenestrations rather than lymphohematogenously. A second theory states that dissolution of cervical mucus during menses allows air to enter into the uterus and subsequently the peritoneal cavity, continuing through these fenestrations, causing a PTX. By accurately diagnosing catemenial PTX, patients can be given a trial of medical therapy with hormonal suppression by gonadotropin-releasing hormone agonists or oral contraceptives. This may avoid the need for any surgical intervention. As in this patient's case, a delay in diagnosis precluded this option. However, surgical repair of the diaphragmatic fenestrations may be necessary, and followed by hormonal suppression, may result in the longest recurrence-free periods.

THE CLUE IS IN THE GAP L. Marrast[1]; A. Schultz[1]. [1]Boston Medical Center, Boston, MA. *(Tracking ID # 205407)*

LEARNING OBJECTIVES: (1) Review the differential diagnosis for high anion gap acidosis (2) Review the signs, symptoms and management of ethylene glycol intoxication (3) Recognize that the manifestations of ethylene glycol intoxication can vary based on the timing of presentation (4) Recognize that ethylene glycol intoxication can present with symptoms similar to acute stroke
CASE INFORMATION: A 61yo M with PMH of ETOH abuse and R MCA stroke (without residual deficits) presented to the ER with acute onset left sided weakness similar to his previous stroke. His exam was significant for intact mental status but slurred speech, facial droop and left sided weakness. On history he denied ingestions. Labs were notable for pH 7.1/pCO2 19 (venous), anion gap 32, creatinine 1.0, glucose 187, lactate 1.2, and negative ethanol and salicylates. Though initially the focus was on imaging to diagnose acute CVA, after head CT and MRI/MRA showed no new findings, the presumptive diagnosis changed from stroke to ethylene glycol or methanol ingestion. Bicarbonate and fomepizole were administered, dialysis was started, and serum osmolality, ethylene glycol and methanol levels were sent.
IMPLICATIONS/DISCUSSION: Ingestion of ethylene glycol (a sweet liquid found in antifreeze) is a potentially fatal cause of metabolic acidosis. The metabolites of ethylene glycol cause damage to the CNS and kidneys, and patients may present with inebriation, nausea, ataxia, dysarthria, lethargy, seizures, anion gap, osmolar gap, renal failure, hypocalcemia, and/or calcium oxalate crystaluria. Presentation varies with timing of ingestion and combined ingestion with ethanol (which slows ethylene glycol metabolism). Ingestion of 1.5 ml/kg can cause significant toxicity, and if untreated, death. Rapid treatment is essential as ethylene glycol is quickly absorbed and converted by alcohol dehydrogenase to its toxic metabolites. However, since ethylene glycol levels take hours to process, history and labs must be used to make a presumptive diagnosis, and empiric therapy must be initiated before levels are confirmed. The clue to making the diagnosis of ethylene glycol ingestion is the presence of a high anion gap in the absence of diabetic and alcoholic ketoacidosis, lactic acidosis, renal failure, and other toxins (e.g. propylene glycol, salicylates, methanol, toluene, high dose acetaminophen). Notably, some cases of ethylene glycol poisoning do not present with a high anion gap; early after ingestion the osmolar gap is elevated but the anion gap can be normal. Over time, as ethylene glycol is metabolized to oxalate and glycolate, the anion gap rises. The patient in this case had a high anion gap initially, implying remote ingestion. His ethylene glycol level ultimately came back at 145 (methanol 0, osmolar gap 60). Though he received standard therapy

with bicarbonate to treat the metabolic acidosis, fomepizole to inhibit alcohol dehydrogenase, and hemodialysis, his outcome was poor - he suffered cardiovascular collapse and ARDS which ultimately resolved along with the hemiparesis, but he remains dialysis dependent and has not recovered full cognitive function. The poor outcome in this case was likely partly due to his presentation late after ingestion. It is also important to recognize that ethylene glycol ingestion can present with signs that mimic CVA (or exacerbate preexisting symptoms), and in cases of suspected CVA with otherwise-unexplained high anion gap acidosis, ethylene glycol intoxication should be suspected.

THE CURIOUS CASE OF MRS. F AND HER BROKEN MIND K. Lian[1]; W. Reid[1]; J. Mariano[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 206102)*

LEARNING OBJECTIVES: 1. Recognize the common presenting features, pathologic findings, and clinical course of sporadic Creutzfeldt-Jakob disease (CJD). 2. Describe the multidisciplinary management of rapidly progressive sporadic CJD.
CASE INFORMATION: An 86-year-old right-handed woman was brought in for evaluation by her family after experiencing progressive and rapid mental decline. She was in her usual state of health and managing a thrift shop until two weeks prior to presentation, when she was noted to have mild confusion, including word finding and calculation difficulties. Occurring serially over the ensuing days, the patient developed bilateral upper extremity tremor, bilateral lower extremity weakness with unsteady gait, bowel and bladder incontinence, inability to write, followed by complete disorientation and minimal verbal output. Her past medical history was notable for distant Grave's disease, status post radioablation; atrial fibrillation with sick sinus syndrome, status post permanent pacemaker placement; and coronary artery disease. Social history was notable for minor tobacco use and alcohol intake. The patient had full capacity of performing ADLs and most IADLs prior to symptom onset. Review of systems was notable for 30 lb weight loss over the preceding six months and infrequent trouble with memory. Physical examination revealed a thin, inattentive woman with nonsensical speech as well as decreased coordination and gait stability. Cranial nerve, motor, and sensory examination were grossly within normal limits. Laboratory evaluation revealed no significant abnormalities, and infectious studies of blood and CSF were unremarkable. Neuroimaging was notable for generalized cortical volume loss. Over the course of the hospitalization, the patient progressively deteriorated, became completely nonverbal, and ceased to take any oral intake. Later in her hospital course, the 14-3-3 protein resulted as positive in the CSF. A multidisciplinary team approach, including palliative care consultation, was taken in coordinating the care of the patient. According to family preference, a gastric feeding tube was placed, and the patient was transitioned to hospice care where she expired in the week following transfer. Postmortem pathologic analysis of the brain revealed spongiform degeneration and amyloid plaques, consistent with a diagnosis of sporadic CJD.
IMPLICATIONS/DISCUSSION: Sporadic CJD is a rare disease which usually presents in the sixth to seventh decade of life with progressive neurological decline and invariably results in death within the course of weeks to months. Pathogenesis is due to conversion of the prion protein PrP^{C} conformation to the pathologic PrP^{Sc} form, resulting in amyloid plaque deposition and neurodeneration. Diagnosis may be initially frustrating and ultimately devastating for both clinician and family members. A multidisciplinary approach with a focus on early palliative care and hospice may help to maximize the patient's quality of life and coping of family members.

THE DIAGNOSTIC DILEMMA OF DRY MOUTH: L MALEC; A FOX. UNIVERSITY OF PITTSBURGH MEDICAL CENTER, PITTSBURGH, PA. L.M. Malec[1]; A.R. Fox[2]. [1]University of Pittsburgh, Pittsburgh, PA; [2]University of Pittsburgh Medical Center, Pittsburgh, PA. *(Tracking ID # 204727)*

LEARNING OBJECTIVES: 1) To recognize dry mouth as a presenting symptom of sarcoidosis. 2) To understand the pathophysiologic mechanism leading to dry mouth related to sarcoidosis. 3) To review the constellation of symptoms comprising Heerfordt's syndrome.

CASE INFORMATION: A 54 y/o African American female with a history of gastric bypass and degenerative joint disease presented to her PCP with complaints of dry mouth. She reported that symptoms began insidiously and progressed over a one month period. Initially she noted mouth dryness after eating but presented to clinic with complaints of continual, markedly dry mouth. Due to her symptoms she found eating difficult as food was not moist enough to swallow. She began taking frequent sips of water to moisten food prior to swallowing. The patient also complained of decreased taste but denied oral lesion, dysphagia or odynophagia. Due to decreased intake she reported a 10 pound weight loss since symptoms began. The remainder of her review of systems was essentially negative. On initial examination vital signs were stable and weight was decreased 8 pounds since last visit 7 months prior. Examination of the oral mucosa revealed dry mucus membranes with no oral lesions. There was no swelling of the parotid or submandibular glands, no lymphadenopathy and the remainder of the exam was essentially unremarkable. Initial work-up revealed microcytic anemia with iron studies confirming the diagnosis of iron deficiency anemia. On subsequent visits the patient had persistent dry mouth and progressive weight loss. Due to her age and known iron deficiency anemia, concern for a gastrointestinal malignancy arose. The patient was uninsured so pursuing the necessary work up presented a challenge. A contrasted CT of the abdomen was obtained to evaluate for possible abdominal mass; incidentally perihilar lymphadenopathy was visualized which was suggestive of sarcoidosis or lymphoma. Subsequent work up including a dedicated chest CT and transbronchial biopsy confirmed the diagnosis of sarcoidosis. In addition to having persistence of dry mouth, within a month of diagnosis the patient went on to develop facial palsy likely secondary to neurosarcoidosis.
IMPLICATIONS/DISCUSSION: Sarcoidosis is a chronic multisystem granulomatous disease of unknown etiology which is characterized by the formation of noncaseating granulomas in various organ systems. While sarcoid most commonly involves the lungs and liver, it may also involve exocrine glands including salivary and lachrimal glands. The parotid gland has been reported as being affected in approximately 6% of all cases of sarcoid. Granulomatous infiltration of the salivary glands may lead to decreased saliva production and thus a presenting complaint dry mouth. Heerfordt's syndrome is characterized by swelling of the parotid gland, fever, uveitis, and cranial nerve palsy and represents a variety of neurosarcoidosis. Pathophysiology involved in Heerfordt's syndrome is thought to be due to direct nerve compression by parotid gland swelling or a lesion within the facial canal.

THE EVIL TENTACLES OF CANCER: AN UNUSUAL SIDE EFFECT OF LIFE-SAVING CHEMOTHERAPY? Y. Krauthammer[1]; P. Netzler[1]. [1]Medical University of South Carolina, Charleston, SC. *(Tracking ID # 205460)*

LEARNING OBJECTIVES: 1. To understand and appreciate subtle and rare side-effects of chemotheraputic agents and broad differential diagnosis of ECG findings and Tako-tsubo's cardiomyopathy.
CASE INFORMATION: Our patient is a 63 yo WF with a h/o COPD, AFib, HLD and T4 N0 nasopharyngeal squamous cell cancer status post concurrent radiation and chemotherapy who then received adjuvant chemotherapy, her second cycle 5 days prior to presenting with severe weakness, nausea, vomiting, and electrolyte derangements. Of note pt denied chest pain, shortness of breath, orthopnea or pnd. She was aggressively rehydrated with normal saline and electrolytes replaced. On day 3 of hospitalization, she began experiencing substernal chest pain radiating to her left shoulder. ECG obtained showed new T-wave inversion in V2 through V6. Troponin was elevated at 1 (upper limit of normal is .06). ACS protocol was started. Catheterization showed normal coronaries, however ventriculography showed "apical ballooning" and an EF estimated at 20–25%. She was diagnosed with Takotsubo cardiomyopathy (TTC) and placed on a heart failure regimen of beta blockade, ACE Inhibition, and statin. On repeat echo 4 weeks later, patient's EF had returned to 62% and no wall motion abnormalities were seen.
IMPLICATIONS/DISCUSSION: TTC, first described by Dote, et al in Japan in 1991, is a syndrome characterized by left ventricular dysfunction and apical ballooning imitating an acute myocardial infarction in the absence of coronary artery disease by angiography. There have been multiple names associated with this syndrome, including broken heart disease and stress-induced cardiomyopathy

given its high association with emotional stressors. Its initial name is derived from the shape of the LV mimicking an ancient Japanese octopus trap called a Tako-tsubo. While the exact incidence is still unknown, it has been discussed that approximately 2% of all ST elevation myocardial infarctions are actually presentations of this syndrome. 87% of all cases reported occur in women, with a mean age of 68 years. The triggers for this disorder are commonly emotional stressors such as death of a loved one or argument (28%), or physical stressors such as asthma attack or surgery (38%). Typical presentation includes acute chest pain or dyspnea. ECG findings commonly are ST elevation or less commonly ST depression/T wave inversion of anterior leads. Cardiac markers, such as troponin, are normally elevated (78% of cases), though the elevations are much less than would be expected for the degree of LV dysfunction. Finally, cardiac catheterization normally shows angiographically normal, or non-obstructive coronary disease, while ventriculography shows apical ballooning with basal hyperkinesis. This case demonstrates an unusual cause of TTC; chemotherapy induced vomiting and volume depletion. With the increasing number of patients presenting for chemotherapy and radiation in treatment for acute or chronic hematologic or oncologic malignancies, it is incumbent on physicians to recognize all symptoms and side effects that potentially could develop. It is likely that the physiological stress of chemotherapy and protracted vomiting, along with the associated dehydration, precipitated a catecholamine response leading to coronary vasospasm and LV dysfunction. As with our patient, optimal medical therapy and close monitoring routinely allow for full recovery of LV dysfunction and return to baseline cardiac function within weeks.

THE EYES HAVE IT D.S. Gloss[1]; K. Cartwright[2]. [1]Tulane University, New Orleans, LA; [2]Tulane, New Orleans, LA. *(Tracking ID # 203873)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of sarcoidosis. 2. Identify the ocular presentation of sarcoidosis.
CASE INFORMATION: A 37 year old man presented to two outside facilities with nausea, vomiting, progressive blurry vision and fever. In both cases, he was worked up in the outside emergency rooms, diagnosed with a viral illness and given follow-up with ophthalmology. Pt. presented to for follow-up, after six weeks of progressive worsening of his vision. During the six weeks, he had nausea, night sweats, unintentional weight loss, and fatigue. He also had a dull headache with bifrontal pain behind the eyes. On examination, he was febrile to a temperature of 102.5 degrees F and tachycardic. He had color desaturation on his left eye and his right eye was blind with decreased consensual response. MRI scanning of his brain and orbits revealed non-specific enhancement adjacent to the distal optic nerve as well as enhancement of the distal optic nerves. Chest x-ray performed at the outside facility was normal. A lumbar puncture was performed which was not revealing. HIV test was normal. A chest x-ray was repeated revealing some hilar fullness. CT chest showed bulky mediastinal, hilar lymphadenopathy. ACE level was elevated at 83 units per liter. The patient had a transbronchial biopsy which showed non-caseating granuloma. The patient was diagnosed with sarcoidosis and his vision returned to near normal with steroids.
IMPLICATIONS/DISCUSSION: Sarcoidosis typically presents between 10 and 40 years old. In half of the cases, sarcoid is found incidentally. Sarcoid typically includes cough, dyspnea, and chest pain from lung involvement, which occur in over 90% of cases. Staging of sarcoidosis is based on the chest radiograph. About 30% will present with extrathoracic sarcoid. Virtually any organ system can be affected by sarcoid. The most common affected systems include skin (16%), eye (12%), liver (12%), spleen (7%), and neurologic (5%). African Americans have much higher rates of extrathoracic involvement. Women have higher rates of eye and neurologic involvement. Ophthalmologic involvement can include as many as 20% of patients, and is the presenting symptom in 5%. The most common lesions include uveitis, retinal vasculitis, keratoconjunctivitis, and soft tissue masses. Serum ACE level is elevated in 75% of untreated patients. It is false positive in less than 5% of cases, but these can include: diabetes mellitus, Gaucher disease, leprosy, histoplasmosis. Diagnosis typically includes: ruling out other possible diseases, compatible imaging, and histopathologic confirmation. Treatment of neurosarcoid depends on its manifestations. It typically includes high dose steroids followed by a very slow steroid taper.

THE FEBRILE TRAVELER: A CLASSIC CASE OF TYPHOID FEVER. A.L. Rico[1]; M. Ribeiro[2]. [1]University of Miami Miller School of Medicine, Miami, FL; [2]University of Miami/Jackson Memorial Hospital, Miami, FL. *(Tracking ID # 203975)*

LEARNING OBJECTIVES: 1) Recognize the epidemiologic and clinical features of typhoid fever, 2) Recognize the importance of obtaining a complete travel history in developing the differential diagnosis.
CASE INFORMATION: A 31-year-old Haitian male presented to the emergency room with one week history of headache and fever. The headache was frontal, severe, intermittent, worse with movements, associated with daily subjective fevers, chills and malaise. There was no reported head trauma, visual changes, sick contacts, cough, dysuria, nausea, vomiting or diarrhea. He resided in Haiti and worked as a ship captain on a boat which had recently docked at the Port of Miami. He was taking no medications. On physical exam: blood pressure 128/86 mmHg, pulse 57 bpm, temperature 39.4 °C, respiratory rate 16/min, and oxygen saturation 100% on room air. He was in no acute distress. Skin and abdominal exam were normal, Brudzinski's and Kernig's signs were absent. Laboratory data: WBC 4200/mm3 with 39% neutrophils and 15% bands. The remaining blood count and a basic metabolic panel were unremarkable. Liver studies were significant only for an AST of 77 u/L. Urinalysis, chest X-ray and an abdominal ultrasound were normal. The CSF was clear with opening and closing pressures of 24 cm H2O, WBC 0/ml, glucose 61 mg/dl and total protein of 14 mg/dl. The patient was admitted to a medical ward and his blood cultures grew gram-negative rods that later were identified as Salmonella typhi, sensitive to fluoroquinolones and ceftriaxone. The patient was then started on ciprofloxacin 500 mg by mouth twice daily for 10 days and discharged home. On the day of discharge he developed diarrhea which can be typical of typhoid fever. He was taught proper hand hygiene.
IMPLICATIONS/DISCUSSION: Typhoid fever was an important cause of morbidity and mortality in the United States in the 19th century but its incidence has markedly declined due to improvement of sanitary conditions; it has now become predominantly a travel-associated disease. Travel to Haiti, India, Mexico, Philippines, Pakistan and El Salvador account for 80% of the cases in US travelers. After exposure to S. typhi by ingestion of contaminated food or water, a 7–10 day asymptomatic period follows. The presenting symptoms of our patient were typical of the subsequent bacteremic phase, which is marked by fever and malaise followed by a dull frontal headache. Adults often have constipation, which our patient did eventually report, while those with HIV often present with diarrhea. His physical exam disclosed a classic, but non-specific sign: the relative bradycardia or pulse-temperature dissociation, which although not diagnostically useful in the individual patient, has long been associated with typhoid fever. Given the epidemiology and the classic history and physical, a clinical diagnosis of typhoid fever could have been made and was further supported by the relative leucopenia and elevated transaminase. This is an important point, as blood cultures are positive only in 60–80% of the cases. When treating a patient with typhoid, a physician should be aware of the emergence of multidrug-resistant strains (including to quinolones and cephalosporins) in endemic areas and, by extension, in travelers to these countries. Despite the availability of safe and protective modern typhoid vaccines, vaccination is still not being used routinely to control typhoid in most endemic populations.

THE GREAT IMITATOR STRIKES AGAIN: SYPHILITIC ASCENDING THORACIC AORTA ANEURYSM IN A BRAZILIAN IMMIGRANT E. Iliaki[1]; M. Roach[2]; J. Brusch[2]; P. Cohen[1]. [1]Harvard Medical School, Cambridge, MA; [2]Harvard University, Cambridge, MA. *(Tracking ID # 206070)*

LEARNING OBJECTIVES: 1. Review the interpretation of syphilis serology 2. Discuss the need for screening guidelines for patients from high incidence areas
CASE INFORMATION: 36-year-old Brazilian woman presented with one year history of non-exertional stabbing left chest pain and palpitations for which she had an unrevealing EKG and holter monitor test. These episodes subsided 2 months later but over the past year she had been experiencing dyspnea on exertion. She reported a severe maculopapular rash about 15 years ago, involving primarily her abdomen. There is no history of hypertension or smoking. She is in a monogamous

relationship with her husband of 20 years. Her mother has hypertension but no family history of Marfan's. On exam, BP 140/48 bilaterally, pulse 68, height 1.52 meters, III/VI decrescendo diastolic murmur in right upper sternal border and brisk carotid upstrokes. Neurologic exam was normal. WBC 8.4 with mild lymphocytosis, RPR positive (titer 1:2) and positive Treponema Pallidum Antibody (TPAB), ESR 4 and negative HIV, ANA, RF. Cerebrospinal fluid analysis was normal. Echocardiogram showed tricuspid aortic valve with dilated ascending aorta and mild-moderate aortic regurgitation. A CT angiography revealed an ascending thoracic aortic aneurysm with maximal diameter measuring 5.1 by 5 cm at the level of the right pulmonary artery with no evidence of aortic dissection. The aneurysm tapered at the proximal arch with a normal caliper descending aorta at 2.5 cm. A cardiac CT showed normal coronary arteries. Patient had replacement of her thoracic aorta with a Hamashield graft and her aortic valve was spared and resuspended. Pathology from her aorta showed medial degeneration with patchy necrosis and adventitial chronic inflammation consistent with syphilitic aortitis.

IMPLICATIONS/DISCUSSION: This is a 36 year old female with a syphilitic ascending thoracic aorta aneurysm. The RPR test in our patient is positive with a low titer, this being common in the late stages of the disease. The specific treponemal antibody is highly specific, especially in the latent stages; therefore, this test may indicate disease even when RPR is negative. False-positive test results can occur with both non-treponemal and treponemal tests, however the latter are less common and often due to infection with other treponemal species, systemic lupus erythematosus, hypergammaglobulinemias, malaria, leprosy. Tertiary syphilis is rare in our day and older studies indicate that approximately 30% of primary cases would progress to tertiary if left untreated. It usually takes about 10–30 years for the aortic complications to develop. According to World Health Organization, while there are approximately 100,000 new cases of syphilis in the USA this rate is extremely higher in other parts of the world. There are 3 million new cases per year in south America and the Carribean while and 4 million per year in Sub Saharan Africa as wells as in South-SouthEast Asia. Although there are no guidelines regarding screening adults without risk factors for STIs for syphilis, there are no studies to address this question in the setting of immigrants from high incidence areas. There is need for studies to address this question and establish new policies since the consequences of tertiary syphilis can be life threatening and are costly.

THE IMPORTANCE OF ARTHROCENTESIS: A FACTOR VIII INHIBITOR STORY E.L. Lum[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 204886)*

LEARNING OBJECTIVES: Recognize the signs and symptoms of acquired factor VIII inhibitor Recognize the importance of arthrocentesis in new onset joint effusions

CASE INFORMATION: A 72-year-old male presented to clinic with the acute onset of left shoulder pain. He is a stone mason by trade and had been working normally. He noticed a deep dull pain posteriorly which was exacerbated with any movement of his left shoulder. He denied fevers, chills, and parasthesias. Two weeks earlier he had undergone elective repair of an inguinal hernia without complication. Initial evaluation demonstrated restricted movement and strength in the left shoulder secondary to pain. Radiographs were negative for fracture and he was sent home with a presumptive diagnosis of muscular strain. During the next several days he developed pain of the left knee, fatigue, and gross hematuria. Physical examination revealed ecchymosis along the left scapula and effusion of the shoulder joint, and arthrocentesis of the joint revealed blood. Initial blood work revealed an INR of 0.9 and aPTT of 89.2 seconds with the new onset of anemia. The patient was admitted for further evaluation and blood transfusion. A 1:1 mixing study returned with a corrected time of 49.3 seconds, consistent with the presence of a coagulation factor inhibitor. Further evaluation revealed the presence of a factor VIII inhibitor with <0.5% factor VIII activity. Evaluation for malignancy and rheumatologic disorders were negative. He was treated with infusion of factor VIII inhibitor bypass activator (FEIBA), rituximab and steroids. His factor VIII level continued to rise and he was discharged on prednisone.

IMPLICATIONS/DISCUSSION: Acquired factor VIII inhibitor is an antibody targeted against factor VIII, resulting in reduction in factor levels and inducing a syndrome similar to hemophilia. Patients typically present with episodes of spontaneous bleeding occuring in weight bearing joints and muscles, as in this case. Most cases of acquired factor VIII inhibitor are idiopathic, but known causes include post-pregnancy, lupus, malignancy, rheumatoid arthritis, and in patients with hemophilia who have received multiple transfusions. Reduction in factor VIII results in elevations in aPTT. The presence of the antibody results in failure of normal plasma to fully correct the aPTT in a 1:1 mixing study. Definitive diagnosis requires measurement of anti-factor antibodies by measurement of Bethesda units and decreased circulating levels of the factor. Hemostasis can be achieved with administration of factor VIII, FEIBA, and/or DDAVP. Long-term therapy consists of glucocorticoids with rituximab with or without cyclophosphamide. This case illustrates a classic presentation of a rare but treatable disease and the importance of arthocentesis in patients with new joint effusions. Clinicians should be alert to the signs and symptoms of acquired factor VIII deficiency, as early treatment is essential in preventing significant morbidity and mortality.

THE LADY IN THE "RED DRESS"- A CASE OF VANCOMYCIN INDUCED DRESS SYNDROME. B. Arora[1]; S.S. Ketha[2]. [1]OHSU, Portland, OR; [2]University of Florida, Gainesville, FL. *(Tracking ID # 206112)*

LEARNING OBJECTIVES: 1) Consider vancomycin as an offender in patients with DRESS syndrome.

CASE INFORMATION: A 43 -year-old woman presented with acute onset of high fevers and a diffuse erythematous skin rash along with facial edema. She was treated with vancomycin for 2 weeks for a presumed MRSA skin infection, approximately four weeks prior to this presentation. Punch biopsy of her skin showed spongiotic dermatitis consistent with a drug reaction. CBC revealed significant (10%) eosinophilia. Vancomycin induced DRESS syndrome was suspected. Therapy with systemic and topical steroids was initiated. The patient's rash improved and fevers subsided. She was eventually discharged to home.

IMPLICATIONS/DISCUSSION: DRESS (drug rash with eosinophilia and systemic symptoms) is a distinct and rare hypersensitivity reaction. Occurring roughly in 1 over10, 000 exposures, it is characterized by high fever, facial edema, maculopapular eruption, generalized lymphadenopathy, eosinophilia, mononucleosis like lymphocytosis and multi organ involvement, which starts within 8 weeks after initiation of therapy. Mortality rate approaches 10% mostly due to liver damage mediated by infiltration of eosinophils. The most common causative agents are anti epileptic drugs (phenytoin, phenobarbital, carbamazepine) and sulphonamides. Various other drugs have been reported to cause this syndrome including allopurinol and NSAIDS. The pathogenesis is unclear and may be multifactorial involving immunological mechanisms and particular drug detoxification pathways. It has been suggested that concomitant HHV-6 infection increases risk of developing DRESS. Antibiotics (except sulphonamide) are seldom a cause of this syndrome. Vancomycin induced DRESS is extremely rare. Only about 5 cases have been reported to date. In most cases, it occurred within 2–5 weeks after starting vancomycin, which is later than most reactions to drugs. The cumulative dose of vancomycin or exceeding serum levels did not seem to be related to disease severity. A skin biopsy may be helpful to diagnose DRESS although it is not required and is usually not specific. It often shows a non-specific lymphocytic infiltrate on papillary dermis. Prompt withdrawal of the offending agent is the only undisputed way to treat DRESS. The use of systemic corticosteroids is common but remains controversial. Relapses of DRESS have been described after tapering off the steroid therapy, which further suggests their therapeutic role. With the global increase in MRSA infection rates and the widespread use of Vancomycin to treat these infections, it should be considered as a potential offender in patients presenting with this clinical syndrome.

THE MORE YOU LOOK, THE MORULA E. Chapman[1]; C.J. Crnich[1]; B. G. Baranski[1]; L. Baier Manwell[1]; A. Buchholz[1]; M. Linzer[1]. [1]University of Wisconsin, Madison, WI. *(Tracking ID # 203350)*

LEARNING OBJECTIVES: 1. To discuss the signs, symptoms, prevalence and treatment of Human Granulocytic Anaplasmosis (HGA). 2. To support HGA diagnosis using results from a buffy coat smear.

CASE INFORMATION: LL is a 54-year-old woman with a history of Sjogren syndrome associated with cryoglobulinemia and leukocytoclastic vasculitis, for which she was treated with prednisone, mycophenolate, and hydroxychloroquine. She was admitted to our facility with 3 days of fatigue, fevers, chills, headaches, nausea and vomiting. Initial exam was notable for a palpable, smooth liver edge just below the costal margin. Lab results showed a white count of 4.1 and 20 to 40% bands. A lumbar puncture was normal. Blood, urine, and CSF cultures were negative. Head imaging was normal. Initial treatment consisted of broad-spectrum intravenous antimicrobials; despite these, she exhibited bimodal daily fevers over 40 °C and developed progressive pancytopenia. Antimicrobial drugs and mycophenolate were discontinued, and a bone marrow biopsy was considered. In light of her headaches, fevers, neutropenia and palpable liver edge, however, a diagnosis of HGA was entertained. A buffy coat blood smear showed basophilic inclusions in the neutrophils consistent with morulae of Human Granulocytic Anaplasmosis. This was later supported by PCR testing. A course of doxycycline resulted in rapid improvement.
IMPLICATIONS/DISCUSSION: HGA, formerly Human Granulocytic Ehrlichiosis, has become increasingly recognized since it was first reported in 1990. From 1994 -2001, 2135 cases were reported in endemic areas that include New England, the North Central states, and the Pacific Northwest. Caused by the obligate intracellular bacterium Anaplasma phagocytophilum, HGA is spread via vector transmission by the Ixodes tick. It presents nonspecifically with fevers, headaches, myalgias, malaise, rigors, anorexia and nausea. Lymphopenia, thrombocytopenia, and transaminitis are commonly seen in the first 1–2 weeks of illness but are not universal. Although rarely fatal, the illness can be more severe and prolonged in immunocompromised patients and the elderly. Given its generic presentation, a high index of suspicion for HGA is warranted for patients from endemic regions. This is especially important for medically complicated patients or those with compromised immunity for whom the array of diagnostic possibilities can be vast. Diagnosis is confirmed by serology, PCR, or immunostaining. A simple buffy coat preparation, which involves centrifugation of an anticoagulated blood sample and subsequent smear of the fraction containing leukocytes, can support early diagnosis by showing the characteristic intracytoplasmic basophilic morulae in granulocytes. This allows earlier treatment with doxycycline or with rifampin if tetracyclines are contraindicated.

THE NEW MIMICKER OF PANCREATIC CANCER: SARCOIDOSIS
J. Naik[1]; D. Dressler[1]; V.W. Yang[2]. [1]Department of Medicine, Emory University School of Medicine, Atlanta, GA; [2]Emory University, Atlanta, GA. *(Tracking ID # 206039)*

LEARNING OBJECTIVES: Review the importance of tissue biopsy in masses that may appear malignant per history and imaging. Recognize the first reported case of symptomatic sarcoidosis isolated to the pancreas.
CASE INFORMATION: A 58 year old African American male presented to our hospital with one month history of anorexia with a 20 pound weight loss and progressive painless jaundice. He denied significant alcohol use and admitted to 25 pack-year tobacco use. He had a family history of colon cancer and pancreatic cancer. Physical examination revealed a thin male with scleral icterus. Abdomen was non-tender and without appreciable masses, hepatosplenomegaly, or lymphadenopathy. The remaining physical exam was unremarkable. Relevant laboratory abnormalities included: AST 105 U/L, ALT 112 U/L, alkaline phosphatase 580 U/L, Total bilirubin 6.3 mg/dL, INR 2.3, Albumin 2.7 g/dL. CEA and CA 19-9 levels were normal. Hepatitis A, B and C serologies and autoimmune antibodies were negative. Computed tomography (CT) of the abdomen revealed dilated pancreatic and biliary ducts and a 2.9 cm mass in the head of the pancreas extending into and partially surrounding the hepatic artery. There were no abnormalities in the liver or spleen. Hospital Course: Endoscopic retrograde cholangiopancreotography (ERCP) for sphincterotomy and stent placement was performed, with cytology brushings negative for malignant cells. CT guided pancreatic head biopsy revealed noncaseating granulomas, diagnostic for sarcoidosis. CT of the chest demonstrated no mass or mediastinal lymphadenopathy. Follow-up: The patient received 40 mg of oral Prednisone for 8 weeks, then slowly tapered over 6 months. At 6 months after diagnosis, transminases returned to normal and the pancreatic mass remained unchanged on repeat CT.
IMPLICATIONS/DISCUSSION: Sarcoidosis is a chronic multiorgan disease with a predilection for the lymph nodes (99%), lungs (90%), myocardium (74%), liver (60%), the skin (25%) and eyes (25%). Pancreatic Involvement is rare (1–3% prevalence), almost always asymptomatic, and typically only discovered at autopsy. Literature review revealed only 26 reported cases of symptomatic pancreatic sarcoidosis. Isolated pancreatic sarcoidosis without pulmonary or lymph node involvement has not been previously reported. Recommended evaluation of suspected pancreatic sarcoidosis includes: liver viral and autoimmune serologies, CEA, CA 19-9, angiotensin converting enzyme (ACE) levels, abdominal CT with contrast, and biopsy. Recommended management includes a) 1–2 months of systemic steroid therapy with slow taper over 6 months; b) annual CT monitoring; and c) every 6 month monitoring of liver enzymes, CA 19-9, and serum ACE levels. Conclusions: We report the 1st case of symptomatic sarcoidosis isolated to the pancreas. Sarcoidosis can mimic many medical conditions, now including isolated obstructive pancreatic cancer. It rarely affects the pancreas, but clinicians should be aware that pancreatic masses can be benign in rare situations. Aggressive tissue diagnosis is nearly always indicated.

THE NOT SO SILENT LESION: A FRONTAL LOBE MYSTERY
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LEARNING OBJECTIVES: 1. Recognize that frontal lobe metastatic lesions may present with personality changes and depressive symptoms without focal neurological findings 2. Review patterns of spread of metastatic melanoma 3. Recognize that there are limited treatment options for metastatic melanoma to the brain
CASE INFORMATION: A 57-year-old woman was brought to her physician's office by her husband to evaluate personality changes and depressive symptoms that had escalated rapidly after the death of her cat. The patient's past medical history was significant for hypertension, COPD and allergic rhinitis. She also had a remote history of a superficial melanoma resection from her back for which she had received limited follow-up. She had no previous history of depression or affective disorder. On presentation, the patient was extremely distraught over the death of her cat and had developed severe abulia to the point where she would stand in one place for multiple hours. She was tearful and had lack of pleasure from her usual activities. She complained of anorexia, resulting in a 7-pound weight loss over the previous month, bilateral frontal headaches and occasional nausea with emesis. Her initial evaluation, including a neurological examination, CBC, TSH and CMP, was normal. The patient was diagnosed with a depressive grief reaction, prescribed a SSRI and referred for further psychological evaluation. The patient's clinical status rapidly deteriorated over 2 weeks and she became virtually catatonic. She was referred to the emergency department for further evaluation where a CT scan of the brain showed multiple enhancing lesions of her frontal lobes. A brain biopsy revealed metastic melanoma. The patient decided on hospice care given her poor prognosis and died 6 weeks after her initial presentation.
IMPLICATIONS/DISCUSSION: Melanoma is an aggressive malignancy and can metastasize to any site, the most frequent being the lungs, lymphatics, liver, and brain. Brain metastases are the most common cause of death, affecting over 50% of patients with melanoma. Although there are no case reports of cerebral metastatic melanoma presenting with personality changes, other frontal lobe lesions, notably gliomas and meningiomas, typically present this way. The anatomical location of these lesions determines the type of personality change. Left lateral frontal lesions typically present with reduced activity and spontaneity whereas right lateral frontal lesions present with euphoria and disinhibition. Medial lesions typically cause catatonia and indifference. Other symptoms of frontal lobe lesions commonly include urinary incontinence, headaches and mild cognitive impairment but typically do not lead to focal neurological deficits. This may lead to an initial delay in diagnosis and treatment. There should be a low threshold for medical work-up of new-onset psychiatric illness in the elderly or with an extreme presentation. Melanoma is difficult to treat at any stage because it is frequently resistant to chemotherapy. Interferon alpha or high-dose interleukin-2 are other options but have limited efficacy for

CNS disease. Palliative surgery and radiation remain the primary treatments for brain metastases and prognosis is grim with median survival of only 10 months at best.

THE PERFECT STORM L. Parikh[1]; A. Kothari[1]; C. Miller[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203892)*

LEARNING OBJECTIVES: 1. Identify common presenting symptoms of hypertrophic cardiomyopathy. 2. Acknowledge anxiety as a common co-morbid condition in patients that can exacerbate symptoms. 3. Identify treatment options for hypertrophic cardiomyopathy.
CASE INFORMATION: A 49 year-old woman presented with two to three hours of intermittent chest pain during hurricane evacuation out of New Orleans. She was traveling with family and had been stuck in slow moving traffic for a prolonged period of time. She became extremely anxious secondary to the situation. The onset of her anxiety coincided with beginning of her chest pain. She described the pain as ten out of ten in intensity and radiated down her left arm. She was treated at an outside hospital and diagnosed with a non-ST elevation myocardial infarction (NSTEMI). She was found to have a 95% stenosis of her left anterior descending (LAD) artery and significant hypertrophic obstructive cardiomyopathy (HOCM). Percutaneous transluminal coronary angioplasty (PTCA) was performed and a metal stent was placed in her LAD. Approximately three weeks later, she presented to our institution with similar symptoms, except with the new complaints of paroxysmal nocturnal dyspnea and lower extremity edema. Her vital signs were normal. She had a harsh three out of six systolic crescendo-decrescendo murmur located at left second intercostal space that increased with standing. She also had 2 plus pitting edema bilaterally in her legs. Consecutive EKGs and cardiac enzymes were negative for myocardial infarction. Telemetry was unremarkable. A left ventricular ejection fraction greater than 55%, left atrial enlargement and severe basal interventricular hypertrophy leading to outflow obstruction were noted on 2D echo. She was started on metoprolol for the hypertrophic cardiomyopathy. Over the course of her stay, her paroxysmal nocturnal dyspnea and leg edema resolved. An automatic implantable cardioverter-defibrillator (AICD) was placed prior to discharge.
IMPLICATIONS/DISCUSSION: Hypertrophic Cardiomyopathy is a rare condition encountered by the general internist. Fifty percent of cases are sporadic in occurrence and fifty percent are familial. The majority of clinical manifestations are directly related to aortic outflow obstruction such as dyspnea, angina, and arrhythmia. Anything that precipitates tachycardia can further increase outlet obstruction by decreasing ventricular filling and allowing the septum to further occlude the aorta. In a patient such as ours with a 95% LAD lesion, a minor decrease in stroke volume can be life threatening. Combine this scenario with a sustained level of anxiety during hurricane evacuation and it was the perfect storm for precipitating our patient's myocardial infarction. Prompt treatment of hypertrophic cardiomyopathy is critical, as sudden death is often the initial event of this condition. Medical treatment options include beta-blockers or calcium-channel blockers. Nonsurgical alcohol myocardial reduction using alcohol infusion and surgical myotomy-myomectomy are successful options that provide long-term improvement of symptoms. To prevent sudden cardiac death, an AICD should be placed. First-degree relatives of patients can be periodically screened with an echo as the onset of hypertrophic cardiomyopathy can vary.

THE PERFECT STORM: ACUTE CHYLOMICRONEMIA PRESENTING WITH ERUPTIVE XANTHOMAS R. Gupta[1]; A. Puig[1]. [1]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 204052)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Acute Chylomicronemia, a rare diagnosis that can be quickly diagnosed with centrifuged venous blood. 2. Understand the many causes of Acute Chylomicronemia as they related to the triglyceride metabolism pathway.
CASE INFORMATION: A 46-year-old man presented to our hospital with sudden eruption of a papular rash on his knees and arms. He had a history of alcoholism, hyperlipidemia, and HIV with a CD4 count of 469 on Abacavir and Efavirenz. He recently had been found to have a marginally elevated fasting blood glucose level, and was started on Metformin. His only complaint was the development of, "pimples that won't pop," three weeks prior to admission. He was otherwise in no distress, and beyond the multiple yellow papules there were no findings on physical exam. When drawing labs a nurse noted that his blood looked, "like tomato soup." Centrifugation of the patient's venous blood revealed a large chylomicron layer. The triglyceride level was later found to be 13,070 mg/dL. Initial inpatient management included a strict non-fat diet, blood sugar control with subcutaneous regular insulin, and the addition of gemfibrozil to his home medication regimen. Serum triglyceride levels fell by approximately 50% each day, and he was discharged on hospital day three with a triglyceride level of 3,270 mg/dL. Over the course of 1 month the eruptive xanthomas entirely resolved. Review of the patient's records revealed a preexisting dyslipidemia with triglycerides ranging from 600 to 1000 mg/dL over the past 10 years, suggesting an underlying lipoprotein lipase deficiency.
IMPLICATIONS/DISCUSSION: A single cause of acute chylomicronemia is difficult to determine in this patient with a perfect storm of risk factors. Potential triggers include new-onset uncontrolled diabetes mellitus, HIV, antiretroviral medications, diet high in saturated fats, and prolonged alcoholism. Several of these, along with an underlying lipoprotein lipase deficiency, likely resulted in the dramatic elevation in our patient. This case illustrates the ability to make a quick diagnosis of acute chylomicronemia simply with centrifugation of venous blood. A chylomicon layer is easily distinguished from red blood cells and plasma, and is pathomnemonic for acute chylomicronemia. Nonetheless, determining the cause of the chylomicronemia is often difficult, as patients may have one or more risk factors. The patient in this case had 5 possible causes of acute chylomicronemia. Even so, with a quick diagnosis, treatment was rapidly initiated, acute pancreatitis was avoided, and the eruptive xanthomas entirely resolved.

THE SKIN MANIFESTATIONS OF SARCOIDOSIS S. Sohrabian[1]; M. Waxman[2]; C. Cha[2]; J. Grein[2]; A. Jeng[2]; G.E. Mathisen[3]. [1]UCLA/Olive View, Diamond Bar, CA; [2]UCLA/Olive View, Los Angeles, CA; [3]UCLA/Olive View, Sylmar, CA. *(Tracking ID # 204562)*

LEARNING OBJECTIVES: To illustrate the difference between the presentation of cellulitis, erythema nodosum, and sarcoidosis of the skin.
CASE INFORMATION: A 31 year old Caucasian female with no past medical history was admitted for one week of progressive pain and swelling in her bilateral lower extremities. She had previously been admitted one week prior and treated with IV Cefazolin for a presumed cellulitis that was attributed to cat scratches from her new kitten. The patient was discharged with PO Amoxicillin. The patient did not improve at home. On repeat admission the patient had progressive swelling and erythema in both legs, subjective fevers, and a dry cough. Social history included smoking one pack of cigarettes per day. Vitals were significant for temp 37.9 and tachycardia with a pulse of 130. Physical exam was unremarkable except for the lower extremities that had a diffuse, tender, warm, erythematous blanching rash from the ankles to the knees, bilaterally. She also had tender erythematous nodules in the bilateral thighs and 2 + pitting edema bilaterally. Labs were significant for elevated WBC of 15,000; chemistry panel was within normal limits. Blood cultures, sputum cultures, urinanalysis, HIV test, RPR, PPD, Hep B/C, ANA, Cocci Antibody, Bartonella Antibody were all negative. The angiotensin converting enzyme level was within normal limits, ESR was elevated to 129, Anti-streptolysin O titer was 385 and DNaseB was 240. The chest x-ray showed bilateral infrahilar zone infiltrates. On admission she was restarted on IV Cefazolin. The patient continued to be febrile to 38.5 and had an increasing dry cough and was switched to Ceftriaxone and Azithromycin for a possible pneumonia. A CT scan of the chest revealed diffuse mediastinal and hilar lymphadenopathy. A skin biopsy of the right lower extremity was positive for non-caseating granulomas . The biopsy showed no evidence of vasculitis and fungal and acid-fast stains were negative. At this time she was diagnosed with sarcoidosis of the skin, erythema nodosum and cellulitis were ruled out based on the skin biopsy. She had a bronchoscopy to rule out any fungal causes such as histoplasmosis. The patient markedly improved on oral steroids.
IMPLICATIONS/DISCUSSION: Sarcoidosis is a chronic, multisystem disorder with noncaseating granulomas. The etiology of sarcoidosis is unknown and it is a diagnosis of exclusion. It is more prevalent in females than males, and more prevalent in African Americans and Northern Europeans in the age group of 20–40 years old. Patients present with fever, abnormal chest x-rays, lymphadenopathy, and skin

manifestations that is classically erythema nodosum (on biopsy seen as panniculitis). Some lab abnormalities include elevated ESR, increased eosinophils, hypercalcemia, and increased ACE level. Prior to making the diagnosis of sarcoidosis, other granulomatous processes must be ruled out such as Mycobacterium (TB), Fungal (Cocci or Histo), and Lymphoma. Sarcoidosis has skin manifestations in 20–35% of cases. Non-caseating granulomas on skin biopsy are specific for sarcoidosis, no granulomas in the skin biopsy are non-specific and usually indicate erythema nodosum or erythema multiforme. The case was interesting because based on the skin biopsy it was found that this was an actual skin manifestation of sarcoidosis and not the typical erythema nodosum that was originally suspected. Sarcoidosis in the skin is treated with glucocorticoids with a generally good prognosis.

THE WAR ON PLATELETS C. Burns[1]; M. Fluery[1]; C. Miller[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203871)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of thrombotic thrombocytopenic purpura. 2. Identify the pathophysiology of thrombotic thrombocytopenic purpura. 3. Recognize the role of rituximab in refractory cases of thrombotic thrombocytopenia purpura.
CASE INFORMATION: An 18-year-old African-American woman with no significant past medical history presented with four month history of heavy post-partum vaginal bleeding. She also complained of generalized weakness, shortness of breath, nausea, and vomiting, but denied any vaginal discomfort or pain. On presentation, her vital signs were stable except for a low grade fever and physical examination was unremarkable with the exception of diffuse abdominal tenderness. Her initial labs were: white blood cell count 10, hemoglobin 5.8, hematocrit 16.9, platelet count 9 K, creatitine 1.3, LDH 1250, ESR 80. After treatment with daily plasmapheresis, corticosteroids, and vincristine, the patient's condition did not improve. However, after the administration of rituximab, the platelet count normalized, and the patient was discharged home.
IMPLICATIONS/DISCUSSION: Thrombotic thrombocytopenic purpura (TTP) is a rare disorder characterized by systemic platelet aggregation which leads to extensive blood clot formation in microvasculature throughout the body. This venoocclusion leads to ischemia of the kidneys, brain, and gastrointestinal system (elevation of LDH secondary to necrosis). Classically, TTP presents with fluctuating neurological symptoms, kidney failure, fever, thrombocytopenia, and microangiopathic hemolytic anemia. Today a diagnosis can be made with schistocytes (on peripheral blood smear), low platelets, and elevated LDH levels. The idiopathic form of TTP was recently linked to the inhibition of the enzyme ADAMTS13 by antibodies, rendering TTP an autoimmune disease. ADAMTS13 is a metalloproteinase responsible for the breakdown of the so-called von Willebrand factor (vWF), a protein that links platelets, blood clots, and the blood vessel wall in the process of blood coagulation. Very large vWF molecules are more prone to lead to coagulation. Without proper cleavage of vWF by ADAMTS13, coagulation occurs at a higher rate. In idiopathic TTP, severely decreased (<5% of normal) ADAMTS13 activity can be detected in most patients, and inhibitors are often found in this subgroup. Secondary TTP comprises about 40% of all cases of TTP. Predisposing factors are cancer, bone marrow, pregnancy, HIV infection, and medication use. Since the early 1990 s, plasmapheresis has become the treatment of choice for TTP. This is an exchange transfusion involving removal of the patient's blood plasma through apheresis and replacement with donor plasma; the procedure has to be repeated daily to eliminate the inhibitor and ablate the symptoms. Lactate dehydrogenase levels are generally used to monitor disease activity. Plasmapheresis may need to be continued for 1–8 weeks before patients with idiopathic TTP cease to consume platelets and begin to normalize their hemoglobin. Many TTP patients need additional immunosuppressive therapy, with glucocorticoid steroids, cyclophosphamide, splenectomy, or a combination of the above. Rituximab, a monoclonal antibody targeting B cells, has been successfully used to treat patients with refractory disease.

THERE ARE NONE SO BLIND AS THOSE WHO LOOK WITHOUT SEEING S. Saleem[1]; E. Lai[1]; M. Abbasi[2]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX; [2]The Methodist Hospital, Houston, TX. *(Tracking ID # 204379)*

LEARNING OBJECTIVES: 1. Recognize blindness as one of the clinical presentations of Wernicke' s encephalopathy. 2. Realize that parenteral thiamine can promptly resolve vision loss due to Wernicke's encephalopathy.
CASE INFORMATION: A 50-year-old Caucasian woman with alcoholic cirrhosis presented with bilateral vision loss over 4 days. She initially developed blurred vision which progressed to almost complete blindness. She also complained of imbalance and difficulty walking over the last 2 weeks requiring the use of a cane. She had a long history of ETOH abuse, 6–8 shots of whisky or bottle of wine daily, and still continued to drink despite her liver disease. On neurologic exam, she was confused and disoriented to time. She was unable to count fingers and distinguish colors but was able to see lights. A fundoscopic exam was normal. All other cranial nerves were intact without any nystagmus. Her motor strength and DTRs were normal, but the sensation in her feet was diminished. She could perform heel to shin and rapid alternating movements. When asked to walk, the patient started to fall as soon as she put her feet on the ground. A CT of head showed diffuse volume loss. A clinical diagnosis of Wernicke's encephalopathy was made given the history of chronic alcoholism and the presence of confusion, ataxia and visual problems. She was given 100 mg IV thiamine. Within an hour, her vision improved; she was able to distinguish color, count fingers at a distance of one foot but still unable to read. IV thiamine was continued for five days then switched to oral supplement. One week later her vision had returned to baseline although her ataxia persisted.
IMPLICATIONS/DISCUSSION: Wernicke's encephalopathy is caused by thiamine deficiency. Several mechanisms have been implicated in the pathogenesis of neuronal loss from thiamine deficiency including impaired cerebral energy metabolism, focal lactic acidosis, NMDA receptor mediated excitotoxicity and blood brain barrier breakdown. Classic symptoms are confusion, ataxia and occulomotor dysfunction. Bilateral loss of vision is an uncommon presentation of Wernicke's encephalopathy, and only 8 cases have been reported in the literature. Six patients presented with progressive vision loss, and two presented with sudden blindness. These cases reported association with chronic alcoholism, use of total parenteral nutrition deficient in thiamine, hyperemiesis gravidarum and bariatric surgery. Nystagmus and gaze palsies were reported in most cases. The fundoscopic exam was either normal or showed papilledema or retinal hemorrhages. MRI where reported was either normal or showed bilateral symmetrical hyperintensities in the pons and mammilary bodies. Most cases recovered their vision within 12 hours to few months after initiation of thiamine. Wernicke's encephalopathy remains a clinical diagnosis due to the lack of specific diagnostic tools. A low serum thiamine level and erythrocyte transketolase level may be used but are neither sensitive nor readily available. The classic MRI findings include bilateral lesions around the thalamus, pons and mamillary bodies but are only 50% specific. Hence, a high clinical suspicion for Wernicke's encephalopathy should be maintained in patients with risk factors for thiamine deficiency who present with bilateral vision loss and parenteral thiamine therapy should be initiated rapidly to prevent irreversible blindness.

"THERE'S A TORNADO IN MY STOMACH!": A CASE OF PERSISTENT DIARRHEA AND WEIGHT LOSS DUE TO TROPHERYMA WHIPPELII INFECTION E.A. Jalkut[1]; M.V. Nitka[1]; S.N. Syeda[2]. [1]Boston Medical Center, Boston, MA; [2]Boston Medical Center, Roslindale, MA. *(Tracking ID # 205365)*

LEARNING OBJECTIVES: 1) To illustrate a general approach to the workup of a common clinical problem: chronic diarrhea with associated weight loss. 2) To review the presentation, diagnosis, management and complications of Whipple's disease, a rare infectious disease caused by the pathogen Tropheryma whippelii.
CASE INFORMATION: A 52 year old man with HTN, remote alcohol abuse and a recently diagnosed seizure disorder presented with a 4 month history of watery, non-bloody diarrhea and a 50 pound weight loss. Diarrhea occurred up to 20 times daily without association to meals. There were no fevers, nausea, vomiting or abdominal pain; however, a "tornado-like" discomfort in the abdomen was relieved after passing a bowel movement. ROS was notable for generalized weakness, anorexia and arthralgias in the wrists and knees. The patient had emigrated from Suriname 20 years ago and denied recent travel, sick contacts or family history of gastrointestinal disease. Admission vitals were stable. On exam, the patient was cachectic with a soft abdomen,

bilateral inguinal LAD, and heme-positive stool. Labs showed a normal WBC, Hct 21 and normal chemistry. Albumin was low at 2.4 and a mild transaminitis was present. Stool and blood cultures were negative. Additional testing including TTG, TSH, cortisol, ANA, HIV, PPD, and hepatitis panel was unremarkable. CT enterography revealed ascites and abdominal LAD without mass lesion. EGD and colonoscopy found erythematous mucosa in the stomach and small bowel suggesting an infiltrative process. Duodenal biopsies demonstrated PAS+ macrophages suggesting Whipple's disease. During admission, the patient's mental status declined. EEG and MRI were negative but CSF PCR returned positive for T. whippelii. PCR and electron microscopy of small bowel specimens confirmed T. whippelii. He was treated with four weeks of IV ceftriaxone and switched to a one year course of oral TMP-SMX with interval resolution of diarrhea and weight gain.

IMPLICATIONS/DISCUSSION: A general approach to the workup of chronic diarrhea (i.e., diarrhea >4 weeks) should consider infectious, inflammatory, neoplastic, malabsorptive and iatrogenic causes. Laboratory, imaging and endoscopic evaluation ruled out many of these etiologies in this patient. A diagnosis of Whipple's disease was made from PAS+ biopsy specimens and PCR positivity in the CNS and GI tract. Whipple's disease is caused by the gram positive bacillus, Tropheryma whippelii, with fewer than 1500 cases reported. Clinical manifestations are varied. After a prodromal stage involving joint symptoms, patients may present with GI and CNS involvement. Diarrhea with occult blood loss and weight loss is typical. CNS involvement includes cognitive dysfunction, supranuclear ophthalmoplegia, myoclonus, and rarely seizures, which portends a poor prognosis if not treated. Cardiac, pulmonary and psychiatric symptoms can also occur. PAS+ staining from involved tissue is highly suggestive, but the gold standard for proven disease is on PCR or electron microscopy. A prolonged course of antibiotics penetrating the blood brain barrier (ceftriaxone) followed by a 1–2 year course of oral antibiotics (TMP-SMX) is typically given to prevent relapse. Resolution of disease must be proven by repeat tissue sampling. Diagnosing Whipple's disease should involve the exclusion of many common causes of chronic diarrhea and tissue sampling of the involved organ systems.

THROMBOCYTOPENIA AND FEVER: WHEN TO CONSIDER DENGUE FEVER J. Karl[1]; M. Shaines[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205355)*

LEARNING OBJECTIVES: 1) Identify signs and symptoms of Dengue Fever. 2) Increase physician awareness of an oft under-diagnosed infection.

CASE INFORMATION: 67 year old man who had recently completed a course of antibiotics for prostatitis, presented with three days of fluctuating fevers as high as 102 degrees, beginning upon return from a two week trip to Puerto Rico in July. Other symptoms included severe disabling muscle aches and joint pains, fatigue and mild dysuria. On admission, his vitals were: BP 138/58, P 94, RR 18, and T 100.8. He appeared uncomfortable with chills. No rash, lympadenopathy or synovitis was noted. His prostate was enlarged but not tender or boggy. Fever work up including blood cultures, c. diff toxin, urinalysis and chest X-ray were negative. Chem 10 and CBC were unremarkable. On day 2, he defervesced after receiving acetaminophen, and labs revealed a lymphopenic leucopenia and thrombocytopenia, reaching a nadir of 1.9 and 126 respectively. The following day he developed a diffuse pruritic macular rash over his arms and legs without island sparing. HIV, ANA, Lyme titers and Dengue serology were sent off. On day 5 his symptoms and lab abnormalities had begun to resolve. At discharge, his ANA, Lyme, and HIV tests were *negative*. On follow up he remained asymptomatic, but Dengue Fever IgM was detected at 5.02 (reference range >1.10); IgG was not detected.

IMPLICATIONS/DISCUSSION: Dengue virus, an arbovirus transmitted by the mosquito Aedes aegypti, accounts for 10.6% of post-travel febrile illness, second only to malaria. It is the most common cause of systemic febrile illness among travelers returning from Southeast Asia (32%), the Carribean (24%) and South America (14%). Dengue Fever (DF)/Dengue Hemorrhagic Fever (DHF) is oft undiagnosed secondary to its nonspecific nature, self resolution and under-recognition by physicians. DF classically presents 4 to 7 days after infection, no more than 14 days, with sudden onset of fever with severe headache, fatigue and severe myalgias and arthralgias, from which it derives its moniker "break bone fever," with severity of clinical features increasing with age. The fever lasts between 5 to 7 days, followed in half the cases by a macular/maculopapular rash beginning at defervescence, which is confluent with small areas of sparing referred to as island sparing. The rash usually lasts no more than 4 days and may be pruritic. DHF, which is much more severe and may progress to dengue septic shock, may develop in patients with a prior episode of DF who are infected with a different serotype. DHF is characterized by evidence of hemorrhage, and either increased hematocrit or plasma leakage (i.e. pleural effusion or ascites), usually occurring 3 to 7 days after onset of illness. A suspected diagnosis of dengue fever is made by classic clinical features combined with common laboratory values of thrombocytopenia and leucopenia with lymphopenia, as well as mildly elevated AST. The diagnosis is most commonly confirmed with IgM capture ELISA, which is negative early and gives only a probable diagnosis. DF is usually self-limiting and can be managed with rest, antipyretics and fluid replacement, while DHF requires prompt initiation of IV fluids and close monitoring for hemoconcentration to prevent hypovolemic shock. In areas where dengue is not endemic, clinicians should be aware of the clinical manifestations and management of this disease in returning travelers, particularly in those with prior infections.

TO CARE FOR HIM WHO SHALL HAVE BORNE THE BATTLE D. Helmer[1]; A. Kolpakchi[1]. [1]Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX. *(Tracking ID # 205873)*

LEARNING OBJECTIVES: 1. Define polytrauma in recent US combat veterans. 2. Recognize the complexity of treatment of veterans with polytrauma.

CASE INFORMATION: A 38 year old man presented with pain in the right lower back and right leg pain and numbness since injury by a rocket propelled grenade in Iraq in 2004. In the same episode he experienced a blast injury, major blood loss, and loss of consciousness for two weeks. He was diagnosed with post-concussive syndrome(PCS) and post-traumatic stress disorder(PTSD) and required prolonged rehabilitation. Patient described the pain as a constant aching with intermittent radiation down to the foot. He used NSAIDs and acetaminophen for pain, but refused opioids because of an episode of withdrawal in 2006 after escalating doses of oxycodone/acetaminophen. Patient couldn't work or attend school because of memory and concentration problems. Six months before presentation, he physically assaulted his wife for the first time in their ten-year relationship. Although she dropped the charges after further treatment for PTSD and PCS, she rarely left him alone with their children. On exam patient spoke angrily in clipped sentences peppered with profanities, often repeating himself. While walking, his right leg acted as a pivot, swinging out slightly with poorly coordinated flexion and extension throughout. He was missing 1/3 of his hamstring; skin grafts were well-healed, but hypersensitive to light touch. Deep palpation of the posterior leg elicited shooting pain. Right leg strength was 4/5 throughout. Right hip, knee and ankle had limited range of motion. The patient was diagnosed with polytrauma and multidisciplinary team was assembled because he needed better control of chronic pain, treatment of PTSD and PCS, improvement in mobility and social integration. The team, led by a general internist, included a psychologist, psychiatrist, neuropsychologist, physiatrist, and social worker. During a two-week telephone follow-up, patient reported better pain control and a more positive outlook on his situation overall.

IMPLICATIONS/DISCUSSION: Polytrauma is defined as "injury to the brain in addition to other body parts or systems resulting in physical, cognitive, psychological, or psychosocial impairments and functional disability." By late 2008, 10,000–55,000 of more than 1.6 million servicemembers deployed to Iraq and Afghanistan survived with polytrauma. While veterans with polytrauma are eligible for specialty services from the Departments of Defense and Veterans Affairs, many reside far from these services and will instead expect their local general internist to manage their needs. The existing data on the outcomes of treatment of polytrauma is extremely limited due to difficulties conducting such studies. Patients, caregivers, and providers report higher satisfaction with multidisciplinary approaches, but outcomes are not uniformly better than with usual care. Regardless, one individual must assume overall responsibility for eliciting, synthesizing, documenting, and implementing the overall plan for the patient. As general internists with expertise in the biopsychosocial model of care and trained to understand complex patients, we are called to treat the veterans and

lead the multidisciplinary team. It is our responsibility learn about polytrauma to ensure that veterans are provided with the highest quality of care.

TRADING TROUBLE FOR TROUBLE! COMPLICATIONS OF CORONARY INTERVENTIONS V.G. Andukuri[1]; V.M. Alla[1]; M. Kaushik[1]; T. Lanspa[1]. [1]Creighton University, Omaha, NE. *(Tracking ID # 205977)*

LEARNING OBJECTIVES: 1. To recognize the potential risks of percutaneous coronary intervention. 2. Identify risk factors and outline management strategies for coronary perforations.
CASE INFORMATION: A 60-year-old white female with hypertension, hyperlipidemia and tobacco use was admitted for evaluation of worsening shortness of breath. Electrocardiogram was unremarkable, and an echocardiogram revealed mild concentric left ventricular hypertrophy, preserved ejection fraction and no regional wall motion abnormalities. Dobutamine stress echocardiography was inconclusive and she subsequently underwent a diagnostic cardiac catheterization. This revealed a left dominant system with normal left main coronary artery, circumflex artery, a 70% stenosis in mid-LAD (left anterior descending) artery close to D1 (first diagonal) branch, diminutive right coronary artery and a left ventricular end diastolic pressure of 19 mmHg. The D1 branch was jailed (compromised) during placement of a drug eluting stent in the LAD lesion. Later, there was an accidental perforation of the jailed D1 by the guidewire during attempts to cannulate it. There was mild extravasation of contrast into the pericardium. Heparin was immediately reversed and prolonged balloon inflation was done at the site of the micro-perforation. An emergent echocardiogram revealed a small pericardial effusion; however, there was no hemodynamic instability. Final contrast injection of the left coronary system revealed resolution of the contrast leak requiring no further interventions like covered stent, etc. All anti-platelet agents were discontinued and patient was closely monitored over the next two days. Serial echocardiograms revealed no worsening of the pericardial effusion or signs of tamponade and the patient remained stable. Anti-platelet agents were started on day 2 uneventfully and patient remained asymptomatic until discharge.
IMPLICATIONS/DISCUSSION: Perforation is a major but relatively infrequent complication of cardiac catheterization occurring in about 0.3–0.6% [2]. Coronary artery perforations are classified into three types by Ellis et al, based on angiographic appearance [1]. Ellis type I perforations are small with no extravasation of contrast, rarely cause tamponade or myocardial infarction (MI) and are usually non-fatal. Ellis type II perforations have no contrast jet extravasation with low incidence of tamponade and MI. Ellis type III perforations are >1 mm with frank extravasation and can lead to tamponade in about 60% and can be fatal in close to 25%. In type III "cavity spilling" perforations however, it opens into an anatomic chamber have minimal consequences with almost no deaths, tamponade or MI [1]. Risk factors for perforation include 1) Lesion morphology (bifurcation lesions, chronic occlusions); 2) Hardware issues (larger balloon/artery ratio, stiffer guidewires); 3) Technique; 4) Vessel related factors (tortuousity, angulation); 5) Nature of procedure (rotablation) [2]. Management strategies include prolonged inflation (conventional/perfusing balloon), reversal of anticoagulants and anti-platelet agents, covered stent placement, embolization and emergent surgery [1, 2]. References 1. Rogers JH, Lasala JM. Coronary artery dissection and perforation complicating percutaneous coronary intervention. J Invasive Cardiol. 2004 Sep;16 (9):493–9 2. Gruberg L, Pinnow E, Flood R, et al. Incidence, management, and outcome of coronary artery perforation during percutaneous coronary intervention. Am J Cardiol 2000;86(6):680–2, A8

TREPOPNEA IN A DIABETIC PATIENT F. Aslam[1]; A.L. Kolpakchi[1]; L. Lu[1]. [1]Baylor College of Medicine, Houston, TX. *(Tracking ID # 203679)*

LEARNING OBJECTIVES: 1) Rediscover trepopnea as a presenting complaint. 2) Recognize that unilateral diaphragmatic paralysis (UDP) can result from diabetic phrenic neuropathy.
CASE INFORMATION: A 55-year-old man with a ten-year history of poorly controlled diabetes presented with a two month history of severe shortness of breath while lying on his left side only. His wife reported some 'weird' right sided abdomino-thoracic movements which woke him up at night. He denied fever, cough, chest pain, dyspnea on exertion, palpitations, leg swelling or numbness or tingling in his extremities. He denied a history of recent surgery. Physical exam showed dullness to percussion and decreased breath sounds in the right lower lung. Transient paradoxical chest movements on the right were also noted. There were no signs of heart failure and peripheral neuropathy. His baseline HbA1c was 8.5. A chest radiograph showed an elevated right hemi-diaphragm. A chest CT revealed an elevated right hemi-diaphragm compressing the right atrium. A fluoroscopic sniff test confirmed the diagnosis of right UDP, most likely caused by diabetic phrenic neuropathy, and ruled out diaphragmatic eventration. Diaphragmatic plication was advised.
IMPLICATIONS/DISCUSSION: Trepopnea, difficulty breathing in only one lateral decubitus position, is a relatively common complaint seldom elicited by physicians. This case is the first to describe trepopnea as a presenting complaint in a patient with a diabetic neuropathy induced UDP. Trepopnea is historically common in heart-failure and its pathophysiology includes postural compression of vessels with position of the heart, decreased sympathetic tone and avoidance of lung compression by the displaced paralyzed hemi-thorax. Etiologies of UDP include thoracic or head and neck surgery, malignancy, trauma, inflammatory disorders, spinal cord injury and diabetes. Phrenic neuropathies resulting in bilateral and unilateral diaphragmatic paralysis in diabetic patients have been reported. Filho et al reported phrenic neuropathies, in streptozocin induced diabetic mice, which resolved with insulin. Disease duration or peripheral neuropathy has no correlation with phrenic neuropathy. Evidence exists to suggest that UDP is under-reported in diabetic patients and can cause dyspnea if no other cardiopulmonary etiology is evident. In one study, by Wolf et al, phrenic nerve latencies were prolonged in 23% of 30 diabetic patients with exertional dyspnea. Trepopnea and paradoxical breathing are clues to the diagnosis of UDP. The finding of an elevated hemi-diaphragm should not be merely labeled as 'incidental' or 'chronically elevated'. Asymptomatic UDP does not require treatment; diaphragmatic plication is offered to symptomatic patients and is often successful. Chances of spontaneous recovery are minimal after one year. Versteegh et al showed that plication improved dyspnea level, mean vital capacity, and forced expiratory volume at one second in all patients one year after plication. In general, the prognosis of UDP is excellent except in patients with underlying pulmonary disease. Differential diagnosis of trepopnea in a diabetic patient should include UDP. Paradoxical chest movements and the finding of an elevated hemi-diaphragm on chest x-ray in a diabetic patient with trepopnea merits investigation to diagnose a treatable condition like UDP.

TUMORS WITH A SWEET TOOTH A. Bonawitz[1]; V. Pantone[1]; J. Elliott[1]. [1]Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205396)*

LEARNING OBJECTIVES: 1. Describe a rare cause of hypoglycemia 2. Recognize the urgency of tumor resection to cure hypoglycemia caused by solitary fibrous tumors
CASE INFORMATION: A 74 year old man with a history of systolic congestive heart failure, diabetes mellitus type 2, hypertension was sent to the emergency room from clinic for hypoglycemia. The patient had been hospitalized for abdominal pain 4 months earlier and was found to have recurrent abdominal sarcomal tumors (5.1 cmx6.4 cm and 12.4 cmx11.3 cm). A biopsy showed a spindle cell neoplasm (CD34+) consistent with a solitary fibrous tumor without malignant feature. His previous tumor in 1995 also had spindle cells (CD34-), minimal pleomorphism and was diagnosed as a low-grade fibrosarcoma. Surgery was delayed for further risk assessment. A month after diagnosis, the patient's primary doctor decided to discontinue his metformin due to finger sticks in the 50 s. A CT scan showed increased size of the smaller tumor. The patient continued to have glucose levels in the 40's and complained of dizziness and diaphoresis which were relieved with juice. Four months after diagnosis, he was found to have a glucose of 37 and was admitted for further evaluation. On exam he had a distended abdomen with hard palpable masses in the right lower quadrant. In order to ensure an adequate serum glucose, the patient was maintained on continuous D51/2NS. While his glucose remained within normal limits during the day, his early morning glucose would fall to dangerously low levels (30–50) until he was given extra IV dextrose. Excess exogenous and endogenous insulin was ruled out as his insulin

level was less than 2.00 (5.0 – 30) and c-peptide 0.3 (0.9 – 4.0). A non-islet cell, insulin-like growth factor II (IGF-II) secreting tumor became the most likely source of his hypoglycemia and was supported by low levels of growth hormone 0.13, low-normal IGF-I 59 and elevated IGF-II 2067. The pathology report again supported the diagnosis of solitary fibrous tumor, but with focal necrosis consistent with malignancy. After the resection, the patient required no further dextrose and his morning glucose returned to 150–190.

IMPLICATIONS/DISCUSSION: Solitary fibrous tumors (SFTs) are rare tumors with an incidence of 2.8/100,000, occurring between the 4th and 7th decades of life and are often found in the pleural cavity. Although infrequent, those that arise extrapleurally are more likely to be symptomatic, either due to mass effect or hypoglycemia. Hypoglycemia is seen in 5% of all SFTs and is likely due to IGF-II production. Normal IGF-II is a 7.5 kDa cytokine produced by various tissues and shares a high degree of sequence homology with insulin. Tumor-derived IGF-II has a higher molecular weight (15–20 kDa) and is believed to be similar to the normal pro-IGF-II prior to processing and possesses the same biological activities. This higher molecular weight IGF-II cannot form its normal complex to become normal IGF-II. Thus, the tumor-derived IGF-II passes through capillary walls, causing increased IGF-II activity. Overproduction of tumor growth factors, like IGF-II, likely causes the shorter doubling time, hypoglycemia and malignancy seen in larger tumors. Malignancy, seen in 12% of tumors, is diagnosed based on increased cellularity, necrosis and tumor size >8 cm. Surgical resection should be performed early to resolve hypoglycemia and to prevent malignant transformation.

UNDRESSING THE PROBLEM S. Krishnan[1]. [1]Tulane University, New Orleans, LA. *(Tracking ID # 203840)*

LEARNING OBJECTIVES: 1. Recognize the clinical presentation of Addison's Disease. 2. Recognize an unusual case of Drug Rash with Systemic Symptoms (DRESS) Syndrome. 3. Identify the treatment options for DRESS Syndrome.

CASE INFORMATION: A 64 year-old woman with a presented with unresponsiveness for an unknown duration. Two months earlier, she had a left knee infection requiring removal of her knee prosthesis and placement of a tobramycin antibiotic block in the knee. She developed a rash, and the vancomycin was changed to linezolid. On the morning of presentation, she became acutely confused, intermittently regaining normal mentation en route to the hospital. . Her vital signs included a temperature of 97.1 ° F, blood pressure 97/66 mmHg, heart rate of 100 b/min., respiration rate of 18 b/min., and oxygen saturation of 100% on room air. An erythematous, maculopapular rash was located throughout her body. While a brace was present on the left knee, there was no edema, erythema, or drainage under the brace. Her white blood count was 17,100 cells/mm3, with 15% bands, 19% eosinophils. Her sodium was 128 mmol/L, the potassium was 5.8 mmol/L, the BUN was 81 mg/dL, the creatinine was 3.7 mg/dL, and the glucose was 53 mg/dL. The AST was 303 units/l, the ALT of 214 units/l and the alkaline phosphatase was 1343 units/l. A random cortisol level was 14 ug/dL. Atypical lymphocytes were seen on the peripheral smear. It was believed that her altered mental status was due to dehydration and hypoglycemia. In the face of hypotension, hyponatremia, hyperkalemia, and a low cortisol level, she was started on hydrocortisone for Addison's disease. Cultures were drawn, linezolid was continued, and piperacillin/tazobactam was empirically added to provide coverage for pseudomonas. While the rash resolved and the eosinophilia decreased to 1% with steroids, her liver and kidney functions worsened. She was given a diagnosis of acute interstitial nephritis and liver injury secondary to DRESS Syndrome. After one week of significant improvement with treatment, she became hemodynamically unstable and was transferred to the ICU requiring intubation. After a prolonged ICU course, her family decided to withdraw care.

IMPLICATIONS/DISCUSSION: Drug reactions are a common feature of the general internist's clinical practice. DRESS Syndrome, also called Drug Induced Hypersensitivity Syndrome (DIHS), should be considered when a patient presents with a widespread erythematous eruption, lymphadenopathy, leukocytosis in the presence of eosinophilia and atypical lymphocytosis, and liver dysfunction. It can present up to eight weeks after initiation of therapy with drugs, and is most commonly associated with vancomycin, phenytoin, phenobarbital, carbamazepine, sulfonamides, and allopurinol. DRESS can be distinguished from Stevens-Johnson Syndrome and toxic epidermal necrolysis (TEN) by the lack of mucocutaneous involvement. DRESS carries a serious mortality risk (ten percent), and mortality is correlated with the degree of hepatic or renal involvement. As there is an intimate relationship between the reactivation of human herpes virus 6 (HHV-6) and the development of DRESS, the gold standard for diagnosing DRESS is measuring HHV-6 IgG and HHV-6 DNA two to three weeks after the drug eruption. Treatment involves administering systemic corticosteroids. Importantly, as DRESS can affect the lungs, heart, and thyroid, these organs need to be monitored even several months after resolution of the acute illness.

UNEXPECTED FALLS: AN UNUSUAL MANIFESTATION OF HEPATIC ENCEPHALOPATHY TRIGGERED BY ANTI-VIRAL THERAPY A.M. Defonseka[1]; E.T. Cheng[1]. [1]Greater Los Angeles Veterans Healthcare System, Los Angeles, CA. *(Tracking ID # 203678)*

LEARNING OBJECTIVES: 1. Recognize that treatment with interferon can lead to hepatic decompensation 2. Appreciate the early manifestations of hepatic encephalopathy

CASE INFORMATION: A 64 year old right handed gentleman with a history of hepatitis C, cirrhosis, and hypertension presents with disequilibrium and repeated falls onto his left side since starting anti-viral therapy 2 months ago. His medications include peginterferon, ribavirin, and anti-hypertensives. There have been no medication changes over the past couple months other than the addition of anti-viral therapy. Vitals including orthostatics are within normal limits. Cranial nerves II-XII are intact with no nystagmus, strength is 5/5 in all extremities, and sensation is intact to light touch. Reflexes are 3+ bilaterally and symmetric. Gait is ataxic with swaying to the left but not shuffling or antalgic. He has clumsiness on rapid alternating movements and dysmetria on finger to nose testing. The following day, the patient has asterixis and difficulty concentrating. Labs are ammonia 125.8, albumin 2.7, alkaline phosphatase 134, ALT 34, AST 63, total bilirubin 2.1, glutamyl transferase 213 (10–55), LDH 195. Head CT is unremarkable. Temporal correlation of the neuromuscular symptoms with the initiation of anti-viral therapy as well as the exclusion of other potential causes result in the presumptive diagnosis of mild hepatic encephalopathy triggered by anti-viral therapy. His symptoms resolve with discontinuation of the offending agents and administration of lactulose.

IMPLICATIONS/DISCUSSION: Hepatic encephalopathy describes the neuropsychiatric changes seen in patients with liver disease after exclusion of other potential neurologic and metabolic disturbances. Early symptoms include disturbance in the diurnal sleep pattern, bradykinesia, asterixis, ataxia and hyperactive deep tendon reflexes. If left untreated, these symptoms can progress to loss of reflexes, confusion, somnolence, and coma. Hepatic encephalopathy is a rare but life threatening adverse effect of anti-viral therapy, occurring in clinical trials less than 1% of the time. Therefore, it is recommended that liver function be assessed periodically and the dose of interferon be decreased if ALT levels progressively rise above baseline or that anti-viral therapy be discontinued completely if signs of hepatic decompensation occur.

UNEXPLAINED POLYDIPSIA IN A SCHIZOPHRENIC PATIENT P. Wu[1]; N. Mikhail[1]. [1]Olive View - UCLA Medical Center, Sylmar, CA. *(Tracking ID # 205424)*

LEARNING OBJECTIVES: 1) Recognize the clinical features that suggest a diagnosis of central diabetes insipidus (DI) 2) Be able to differentiate between central and nephrogenic diabetes insipidus, and psychogenic polydipsia

CASE INFORMATION: A 50-year-old woman with a long history of schizophrenia was brought into the Emergency Department with complaints of fatigue, jaundice, and right upper quadrant abdominal pain. Initial vitals signs were: temperature 38.5, blood pressure 110/49, heart rate 101 and O2 saturation 90% on room air. Laboratory work-up was significant for abnormal liver tests with AST 423, ALT 163, AP 255 and INR 1.62. CT scan of the abdomen showed a 15 cm right liver cyst. While awaiting drainage of the cyst, she was kept NPO with maintenance intravenous fluids. The patient developed polyuria with

urine output of seven liters on hospital day 3, and eleven liters on hospital day 4. Concomitantly, the serum sodium increased from 139 to 159 on hospital day 4. Work-up for diabetes insipidus was initiated. The patient's urine osmolality was 150, serum osmolality was 313 and antidiuretic hormone (ADH) level was 5.2 pg/mL (reference range 1–13.3). MRI of the brain was negative. A therapeutic trial with Desmopressin Acetate (DDAVP) was initiated with titration of dose to 0.3 mg twice a day. The patient's urine output and hypernatremia responded dramatically, and at time of discharge her urine output had normalized, with sodium of 138, and urine osmolality of 213. On further inquiry, the patient's family noted that she had symptoms of polyuria and polydipsia for over ten years.

IMPLICATIONS/DISCUSSION: Diabetes Insipidus is characterized by polyuria and polydipsia of central, nephrogenic or psychogenic processes. In central DI there is deficiency in production of antidiuretic hormone most commonly caused by trauma, brain surgery, tumors, hypoxic encephalopathy or of idiopathic cause. In nephrogenic DI there are normal ADH levels, but renal resistance to the hormone. This can be caused by drug toxicity, most commonly lithium, chronic renal insufficiency, tubulointerstitial disease or as a rare hereditary defect. Psychogenic polydipsia is primarily caused by compulsive water drinking in patients with a mental health disturbance. The reported prevalence of polydipsia is anywhere from 10–20% of schizophrenic patients. Our patient's delay in diagnosis of her central DI for over ten years was probably due to the assumption that her symptoms were psychogenic in nature because of her underlying schizophrenia. The patient initially presented with a normal sodium level and it was only after restricting her access to fluids, that the underlying pathology was unmasked. Diagnosis of DI is clinical and laboratory tests are used to support the diagnosis. A standard water deprivation test might have been difficult to perform on our patient given her underlying psychiatric illness. However, with limited access to water while NPO, polyuria was noted, suggesting a central rather than psychogenic process, and a therapeutic trial of DDAVP with resolution of her symptoms confirmed the diagnosis. At two month follow-up, the patient was doing well and had a normal sodium level, urine output, and was no longer complaining of polydipsia or polyuria. Central DI can coexist with schizophrenia, but this is rarely reported. A literature search revealed only one prior case report of a schizophrenic patient with central DI, but unlike our patient, presented in conjunction with psychogenic polydipsia.

UNILATERAL MYDRIASIS DUE TO ATROPA BELLADONNA
M. Soper[1]; N. Afsarmanesh[1]. [1]University of California, Los Angeles, Los Angeles, CA. *(Tracking ID # 204135)*

LEARNING OBJECTIVES: 1. To distinguish benign causes of anisocoria (unequal pupil size) from acute cerebrovascular accident. 2. To recognize household plants as a potential cause of anisocoria and acute visual disturbances.

CASE INFORMATION: A healthy 68-year-old woman presented to the emergency room with several hours of blurry vision in her right eye. She denied headache or any neurologic symptoms. On exam, she was noted to have anisocoria (unequal pupil size), with an 8-mm right pupil and a 2-mm left pupil. The right pupil was not reactive to light or accommodation. Visual acuity was 20/50 in the right eye and 20/40 in the left eye. A neurologic exam was otherwise normal, and a fundoscopic exam was unremarkable. On further history, the patient reported that she had been trimming her deadly nightshade (Atropa belladonna) bushes at the time her symptoms began. Topical pilocarpine 1% drops were applied to the right eye and did not induce pupillary constriction, confirming that an anticholinergic agent, rather than stroke-induced oculomotor nerve palsy, was responsible for the mydriasis.

IMPLICATIONS/DISCUSSION: Deadly nightshade (Atropa belladonna), as well as other plants including jimson weed (Datura stramonium), angel's trumpet (Datura suaveolens), and black henbane (Hyoscyamus niger), can cause mydriasis when applied to the eye. The alkaloids found in these plants block muscarinic acetylcholine receptors and hence mediate parasympatholytic effects. Case reports in the literature describe unilateral mydriasis secondary to jimson weed and angel's trumpet, as well as secondary to accidental ocular application of anticholinergic medications such as scopolamine and ipratropium. The differential diagnosis of unilateral mydriasis also includes oculomotor nerve palsy, which can be caused by a cerebrovascular accident, space-occupying lesion, or infection. The application of pilocarpine 1% drops to the affected eye can help narrow the differential. Pilocarpine, a non-selective muscarinic receptor agonist, is competitively inhibited by anticholinergic substances in the eye and will not produce miosis in this setting. It will, however, produce miosis if the mydriasis is secondary to oculomotor nerve palsy. This case report illustrates that topical application of anticholinergic substances, including alkaloid-containing plants as well as anticholinergic medications, can mimic a cerebrovascular accident or other intracranial pathology by causing unilateral mydriasis. Careful history-taking can establish the cause and eliminate the need for expensive neuroimaging.

UNMASKING HYPORENINEMIC HYPOALDOSTERONISM WITH LISINOPRIL AND TRIMETHOPRIM
S.L. Shaffer[1]. [1]University of Pittsburgh, Pittsburgh, PA. *(Tracking ID # 204939)*

LEARNING OBJECTIVES: 1. List 10 medications that lead to hyperkalemia by unmasking hyporeninemic hypoaldosteronism. 2. State the etiology, diagnosis, and management of hyporeninemic hypoaldosteronism.

CASE INFORMATION: Mr. L is an 83 year old with diabetes, CHF, and hypertension who started on lisinopril 10 mg/day leading to an increase in his potassium (K+) level from 4.4 to 6.2 mmol/L. His creatinine was unchanged at 1.0 (creatinine clearance 92). The lisinopril was stopped, and Mr. L was treated with kayexalate. His K+ came down to 5.2 mmol/L, and three weeks later his K+ continued to be high at 5.8 mmol/L. Two weeks later, Mr. L developed a urinary tract infection, and he was treated with trimethoprim-sulfamethoxazole 800/160 mg bid. After 7 days of treatment Mr. L reported paresthesias and muscle cramps in his extremities, and his K+ was 7.2 mmol/L. He was again treated with kayexalate. In 24 hours, his K+ came down to 4.1 mmol/L, but follow-up K+ was back up to 5.5 mmol/L. Diagnostic evaluation for the cause of his acute on chronic hyperkalemia showed a normal morning cortisol of 13.1 μg/dL, low aldosterone of 7.2 ng/dL, low plasma renin activity of 0.69 ng/ml/hr, and a low transtubular potassium gradient of 5.8. These lab results along with Mr. L's age and diabetes support a diagnosis of hyporeninemic hypoaldosteronism unmasked by lisinopril and trimethoprim.

IMPLICATIONS/DISCUSSION: The majority of potassium (K+) excretion takes place in the kidney. Aldosterone and sodium delivery to the distal nephron are two main determinants of urinary K+ excretion. Medications that block aldosterone or decrease sodium delivery to the distal nephron can increase plasma K+ levels. Medications that cause hyperkalemia by decreasing aldosterone synthesis or activity include: nonsteroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, heparin, cyclosporine, and potassium-sparing diuretics such as spironolactone. Medications that cause hyperkalemia by decreasing sodium delivery to the distal nephron include: trimethoprim, amiloride, triamterene, and pentamidine. Most of these medications usually only raise K+ levels to a mild degree. However, when coupled with renal insufficiency or hyporeninemic hypoaldosteronism (HH), K+ levels can reach fatal levels. While renal insufficiency is diagnosed by routine measurement of creatinine, HH goes unrecognized. Although often unrecognized, HH is a common disorder, especially in older patients with mean age of 65. 70% of HH patients also have renal insufficiency, and 49% have diabetes. HH is due to defects in the kidney leading to hyporeninemia and the adrenal glands decreasing aldosterone production. Patients with HH also have decreased renal responsiveness to aldosterone. Measurement of plasma renin activity (PRA), aldosterone, cortisol, and transtubular K+ gradient aid in the diagnosis of HH. Patients with HH have low PRA, low-normal aldosterone, normal morning cortisol, and low TTKG (<7). Treatment of HH includes fludrocortisone 0.4 to 1 mg/day, but it is often limited by edema, hypertension, and CHF. Patients with HH must avoid the medications above, excessive volume depletion, high dietary K+ intake, and liberalize dietary sodium intake. Defronzo, RA.Kidney Int 1980;17:118. Greenberg S, et al.Ann Int Med 1993;119:291–95. Nieman LK.Etiology and treatment of hypoaldosteronism (type 4 RTA).UpToDate 8/2008. Rose BD.Diagnosis of hyperkalemia and hypoaldosteronism (type 4 RTA).UpToDate 8/2008.

UNUSUAL THYROID INFECTION AND ASSOCIATED MALIGNANCY
M.A. Jurdi[1]; L. Kfoury[1]; R.D. Smalligan[1]. [1]East Tennessee State University, Johnson City, TN. *(Tracking ID # 203908)*

LEARNING OBJECTIVES: 1. Recognize Clostridium septicum as a cause of thyroid infection. 2. Remind physicians of the association between C. septicum and malignancy.
CASE INFORMATION: An 85yo male patient with a history of CHF, HTN, hypothyroidism, atrial fibrillation and a long-standing goiter presented after head trauma. The patient had a two-day history of chills and a recent change in his voice causing hoarseness. There was no history of dysphagia, weight loss or bloody stools. On physical exam he had a 6×6 cm tender thyroid mass with the remainder being normal. Initial labs showed WBC 13.8 k with 87% neutrophils, Hgb 10.7, TSH 2.609 and normal electrolytes. Workup of head trauma included a CT of the head and neck which showed an air-fluid level in the thyroid mass. Cultures of blood and the abscess grew Clostridium septicum. He was treated with IV antibiotics and later underwent thyroidectomy. Outpatient colonoscopy later revealed an adenocarcinoma of the cecum but the patient decided not to pursue any further treatment.
IMPLICATIONS/DISCUSSION: Bacterial infections of the thyroid are rare, presumably due to a combination of factors including its anatomical position within a firm capsule, its rich blood supply with abundant lymphatic drainage and its high iodine content. The most common causes of bacterial thyroiditis are staphylococci, streptococci, pneumococci and anaerobes, including in rare cases, C. septicum. These infections often occur in longstanding goiters and are more common in women. Presentation includes anterior neck swelling, pain, hoarseness of voice and dysphagia. The diagnosis is suggested clinically when these symptoms are combined with an elevated white cell count and radiologic studies, most often an ultrasound or CT of the neck which can localize the gas precisely. Thyroid function tests are usually normal or show mild hyperthyroidism, with hypothyroidism being a delayed complication. Proper treatment is aspiration or surgical drainage of the abscess along with IV antibiotics. If the diagnosis is delayed, life-threatening complications can occur including rupture into the trachea, mediastinitis, and respiratory compromise among others. The association between C. septicum infections and colon cancer has been documented in the literature with concordance rates of up to 85%. C. septicum is thought to spread to the blood stream through breaches in the GI mucosa caused by spontaneous rupture, tumor necrosis or following chemotherapy. Patients at highest risk for this unusual combination of diagnoses are diabetic patients, the elderly and other immunocompromised hosts. All patients with C. septicum infections should have complete gastrointestinal screening for malignancy, preferably before hospital discharge and close follow-up even if the initial screening is negative. C. septicum is not considered carcinogenic, but is more acceptably viewed as a marker of underlying malignancy. Whether the presence of these infections allows for earlier diagnosis of an occult gastrointestinal malignancy, as occurred in our patient, and therefore an improvement in survival is still unclear. This case serves as a reminder to physicians to maintain a high level of suspicion of occult malignancy in patients with any type of confirmed infection caused by C. septicum.

"WE HAD NO ICE IN THE HOUSE": A CASE OF NON-TYPHOIDAL SALMONELLOSIS K. Suresh[1]; J. Bachmann[1]. [1]Johns Hopkins University, Baltimore, MD. *(Tracking ID # 205992)*

LEARNING OBJECTIVES: 1. Identify the typical presentation of typhoidal vs. non-typhoidal Salmonella 2. Relate the immune response to Salmonella to the type of diarrhea observed clinically 3. Understand the various organ targets of Salmonellosis.
CASE INFORMATION: L.M. Is a 73 y.o African American male with a past medical history relevant for CKD, HTN, and SVT who presented to the ED with nausea, vomiting and diarrhea. He first noticed watery, non-bloody stools three days prior to admission . He then continued to have 5–6 very voluminous stools per day, followed by nausea, non-bloody bilious vomiting and crampy abdominal pain. He denied fevers or chills. Though alert and oriented, L.M.'s responses to questions were delayed and occasionally tangential. With regards to his lunch on the day the diarrhea started, he stated that his son could not "find ice in the house". Upon further questioning, it was revealed that his freezer had been broken for several days and he had in fact been eating thawed meats and vegetables. He did not smoke or drink, and had no sick contacts. He had no pets and denied recent travel. On exam, he was delirious. His JVP was flat, membranes dry, lungs clear. He had increased bowel sounds, no guarding and was heme-occult positive. His laboratory data was relevant for Creatinine of 9 and leukocytosis with 30 percent bands. HIV ELISA was negative. He was begun on fluids and antibiotics. Over the next 24 hours, L.M's blood cultures grew Gram negative bacilli. A CT scan showed colitis of the large bowel. His stool and blood cultures subsequently speiated non-typhoidal Salmonella (Group D). Repeat blood cultures were negative. Over the next 72 hours, as his diarrhea decreased and he remained afebrile. On day 3, he complained of a small nosebleed. At this time, papular, erythematous rash was also noted on his chest and neck.
IMPLICATIONS/DISCUSSION: Non-typhoidal Salmonella strains are typically associated with outbreaks involving non-pasteurized foods and reptilian pets. Unlike S. typhi and S. Paratyphi (the typhoidal strains), non-typhoidal Salmonella infect both humans and non-humans. The typical course involves a self-limiting gastroenteritis characterized by watery diarrhea, without a prodrome of fever typically seen with typhoidal Salmonella. Non-typhoidal Salmonellosis is almost always heralded by voluminous, watery stool due to the a massive PMN response to the infiltration of the intestinal mucosa. Mucosal invasion by typhoidal strains produces a primarily mononuclear response, so diarrhea may or may not be present. Rose spots and epistaxis can both be seen with Salmonella infections. Although his mental status showed some suggestion of cognitive decline, L.M. did not exhibit any muttering delirium or coma vigil, two neuropsychiatric manifestations sometimes seen in Salmonella infections. Late complications of Salmonellosis include perforation of the gut as well as gastrointestinal hemorrhage. Seeding of Salmonella during the bacteremic phase can produce intraabdominal abscess, lobar pneumonias, prostatitis as well as a myriad of other localized infections. Low grade (non-persistent) Salmonella bacteremia, as was in this case, is typically treated with 1–2 weeks of antibiotics and is associated with a relatively low incidence of endovascular seeding, such as endocarditis and arteritis.

WEGNER'S GRANULOMATOSIS OR LYMPHOMATOID GRANULOMATOSIS : QUESTIONING THE DIAGNOSIS C. Lewis[1]; G. D'Alonzo[1]; R. Pechulis[1]. [1]Temple University Hospital, Philadelphia, PA. *(Tracking ID # 204694)*

LEARNING OBJECTIVES: Recognize Lymphomatoid Granulomatosis (LYG) as a distinct entity. Recognize the difficulty in distinguishing LYG from limited Wegner's Granulomatosis (WG).
CASE INFORMATION: A 56-year-old white male with no past medical history presents with a chief complaint of dyspnea, cough and fatigue after removing moldy drywall from his basement. CT showed perihilar nodules and dense consolidations bilaterally. Laboratory results: negative p-ANCA and c-ANCA, normal serum ACE level, normal CBC and Chem-7. Bronchoscopy with transbronchial biopsies showed poorly formed granulomas; the patient was started on prednisone for presumed hypersensitivity pneumonitis with minimal improvement. Pathology specimens were further reviewed; peribronchial granulomatous inflammation was confirmed with additional note of small and medium vessel granulomatous vasculitis consistent with wegner's granulomatosis. Prednisone was continued and cyclophosphamide was started. One week later the patient was admitted with LE swelling and worsening SOB. Physical exam noted hypoxemia improving to 96% on 2 L/min NC and LE edema. CT thorax demonstrated small bilateral peripheral PE's, an increase in nodules and consolidations bilaterally, some of which were now cavitating. The patient's hospital course was complicated by persistent fever and leukocytosis. Bronchoscopy with BAL and transbronchial biopsy showed no fungal, bacterial, or viral pathogens. An open lung biopsy revealed emphysematous changes and patchy subpleural and parenchymal fibrosis. The patient developed hypotension and hypoxia leading to multi-organ failure and expired day 58 of his hospital stay. Autopsy showed diffuse large B cell lymphoma-lymphomatoid granulomatosis type-grade 3 involving lungs, diaphragm and kidneys.
IMPLICATIONS/DISCUSSION: Lymphomatoid granulomatosis (LYG) is an aggressive, EBV-associated extranodal B-cell lymphoproliferative disease primarily affecting the lungs. Liebow et al first described LYG in 1972 as a granulomatous vasculitis with lymphoid infiltrate, angiitis, and granulomatosis. The lymphoid infiltrate consists of cells showing varying degrees of atypia, usually B-cells (CD20+) containing the Epstein-Barr virus. LYG usually occurs in males age 30–50 who present with a 4 to 8 month history of dyspnea, cough, and pleuritic chest pain. Extrapulmonary manifestations in the CNS and skin occur in about one

third of patients. Diagnosis of LYG includes the use of a grading system. Grade 1 shows few or scattered EBV-positive cells. Grade 2 shows increasing numbers of EBV-positive cells. Grade 3 has the clinical and pathologic features of diffuse large B cell lymphoma. Prognosis for LYG is poor, with a >50% mortality despite treatment with grade 3 lesions showing the worst outcome. Our patient carried a biopsy confirmed diagnosis of WG. Clinically, it was limited disease due to the lack of involvement of the upper respiratory tract and kidneys. Limited WG can be indistinguishable from LYG; however, the behavior of LYG is that of a lymphoma with a precipitous downward course differing from limited WG, which has a more favorable prognosis. In our patient, the pathologic findings indicating LYG were the presence of EBV in neoplastic cells, extensive vascular invasion/necrosis and metastatic spread to the kidneys. Clinically our patient's disease progressed relentlessly despite appropriate therapy. Progressive worsened of disease in the setting of correct medical therapy should lead the clinician to question the initial diagnosis.

WHAT CURES A BROKEN HEART? NOT OPIATES NOR A BOWEL PREP! A CASE OF TRANSIENT LEFT VENTRICULAR APICAL BALLOONING SYNDROME CAUSED BY AN ALLERGIC REACTION TO POLYETHYLENE GLYCOL ORAL SOLUTION. J.P. Lafreniere[1]; B. Gumpert[1]; K. Zawacki[1]. [1]Naval Medical Center Portsmouth, Portsmouth, VA. *(Tracking ID # 203703)*

LEARNING OBJECTIVES: 1. Recognize the transient left ventricular apical ballooning syndrome (LVABS) as a cause of acute coronary syndrome and identify an acute allergic reaction as a condition that may precipitate LVABS. 2. Review the diagnostic criteria for LVABS and its proposed pathophysiology and acute management.
CASE INFORMATION: A 55-year-old postmenopausal female with a history of well-controlled hypertension, chronic pain and anxiety was admitted for expedited endoscopy to evaluate CT findings consistent with Crohn's disease. Relevant medication history included a recent week-long taper from her chronic daily dose of narcotics. After ingesting 2 liters of GoLytely solution she immediately complained of flushing, hives and perioral parasthesias, as well as acute, nonradiating, epigastric pain with associated shortness of breath. Vital signs were unremarkable. The patient appeared anxious. There was flushing and hives across the upper chest and neck. There was no facial or oropharyngeal edema. The JVP was not elevated, the lungs were clear. There was no peripheral edema. The remainder of the exam and admission labs were unremarkable. The patient was promptly treated with diphenhydramine and ranitidine. An electrocardiogram showed new anteriolateral T-wave inversions. Troponin-I peaked at 0.8 ng/mL (0.01–0.3 ng/mL) six hours following the event. Coronary arteries were found to be free of disease during catheterization but a left ventriculogram demonstrated an ejection fraction of 40% and anteroapical akinesis consistent with transient left ventricular apical ballooning syndrome. The patient was diagnosed with stress-induced cardiomyopathy and treated with lisinopril, metoprolol, aspirin and atorvastatin. At follow up eight weeks later, she was symptom free and an echocardiogram confirmed complete resolution of the wall motion abnormalities with an ejection fraction of 65%.
IMPLICATIONS/DISCUSSION: The transient left ventricular apical ballooning syndrome (LVABS), also known as stress-induced cardiomyopathy or "broken heart" syndrome, is important to both general internists and hospitalists who evaluate patients for acute coronary syndromes (ACS). LVABS has been shown in recent series to account for up to 2% of all ACS evaluations, and greater than 10% of evaluations in certain subgroups. It is not only relevant, it is also clinically important; although generally associated with a favorable outcome, documented complications of LVABS include: ventricular arrhythmias, ventricular thromboses with resulting cardioembolic events, and cardiogenic shock requiring intraaortic balloon pumps. To our knowledge, ours is the first reported case of LVABS caused by an acute allergic reaction, and is only the second reported as occurring in the setting of opiate withdrawal. We use our case to illustrate the Mayo diagnostic criteria for LVABS, and highlight the unique wall motion abnormalities characteristic of LVABS using echocardiographic and angiographic images obtained during cardiac catheterization. We review the physiologic mechanisms that have been proposed to explain the development of this cardiomyopathy and the suggested management. The views expressed in this article are those of the author(s) and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the United States Government.

WHAT LIES BENEATH: NECROTIZING FASCITIS ASSOCIATED WITH BLUNT TRAUMA J.C. Ling[1]; N. Hickey[1]; S. Swenson[1]. [1]California Pacific Medical Center (CPMC), San Francisco, CA. *(Tracking ID # 206106)*

LEARNING OBJECTIVES: 1) Recognize non-penetrating blunt trauma as a risk factor for necrotizing fascitis associated with Group A Streptococcus pyogenes; 2) Understanding the necessity of a high index of suspicion for the timely diagnosis of necrotizing fascitis
CASE INFORMATION: A previously healthy 44-year-old male presented to the emergency department complaining of excruciating back and right buttock pain after sustaining a fall of approximately 4 feet onto his sacrum two days earlier. In the ED, the patient required significant amounts of medications for pain control, including morphine, hydromorphone, ketorolac, and diazepam. Physical exam was notable for tachycardia to the low 100's, and a markedly swollen right gluteal region with overlying erythema. Labs were remarkable for a leukocyte count of 10 with 93% polyneutrophils, creatinine of 1.5, CPK of 15,000, and lactate of 6. CT scans demonstrated a diffusely enlarged right gluteus with abnormal density, and a possible fluid collection in the lumbar spine soft tissue. The patient subsequently developed septic shock, and was treated with aggressive hydration as well as empiric vancomycin and piperacillin/tazobactam. The patient ultimately underwent extensive debridement and resection from the T1 paraspinous muscle down through the right leg for necrotizing fascitis of the right buttock, hip, thigh, and lower back. Wound cultures demonstrated Group A Streptococcus pyogenes, and his antibiotics were narrowed to penicillin and clindamycin.
IMPLICATIONS/DISCUSSION: Necrotizing fascitis caused by Group A Streptococcus pyogenes (GAS) is primarily community acquired and can occur in any age group and in patients without previous medical issues. Due to its rapid progression, GAS has been dubbed the "flesh-eating" bacterium with mortality rates nearing 70% or higher. Cases without a recognized precipitating factor are more likely to be caused by a GAS infection; however, predisposing factors may include IV drug use, penetrating injuries, and, as in this case, a history of blunt trauma. Even without a portal of entry, seemingly innocuous, non-penetrating injuries such as muscle strains may facilitate soft tissue infections through hematologic dissemination of GAS from the oropharnyx to the site of prior muscle trauma. How this occurs is not completely understood; however, blunt trauma may be linked to increased production of a GAS-binding protein (vimentin) in response to non-penetrating trauma on the surface of injured skeletal muscle, creating a potential site for a GAS infection to take hold. Diagnosing necrotizing fascitis may be difficult due to a convoluted clinical picture, rapid progression and often equivocal inciting factors. However, timely diagnosis is necessary to decrease morbidity and mortality. As seen in our case, patients may classically present with pain disproportionate to exam, tachycardia, and tense edema around the area of compromised skin. Yet frequently the physical exam, laboratory tests, and imaging all yield nonspecific results; therefore, diagnosis rarely rests on any one of these alone. While multiple algorithms exist to aid in the diagnosis of necrotizing fascitis, ultimately, a high index of suspicion in combination with the clinical picture is the most important means for diagnosis.

WHEN "HISTORY AND PHYSICAL" AND "HISTOPATHOLOGY" COLLIDE IN EVALUATION AND TREATMENT OF A MASSIVE HEAD AND NECK TUMOR K.M. Swetz[1]; K.A. Price[2]; A.P. Wolanskyj[1]. [1]Mayo Foundation for Medical Education and Research, Rochester, MN; [2]Memorial Sloan-Kettering Cancer Center, New York, NY. *(Tracking ID # 204991)*

LEARNING OBJECTIVES: 1. Discuss the epidemiology of head and neck cancer worldwide. 2. Review the etiology of hypercalcemia of malignancy, and how associated renal failure can differ by tumor type.
CASE INFORMATION: A 70-year-old Nigerian male presented via aircraft for outpatient evaluation of an enlarging neck mass (embryonal rhabdomyosarcoma on outside biopsy). Upon arrival, he was lethargic, with slurred speech, and presented to our emergency department.

There, he was obtunded, with profound hypercalcemia (16.7 mg/dL), hyponatremia, and non-oliguric renal failure. Neck CT revealed a 13× 7.5×21 cm soft tissue mass with erosion of C1, C2, and the clivus, temporal, and occipital bones. There was mass effect on the cerebellum, pons, and 4th ventricle, as well as the nasopharynx and oropharynx. Encasement of the left internal carotid artery was noted, as was extension through the foramen magnum. He was admitted to intensive care and underwent tracheostomy for airway protection. His presumed hypercalcemia of malignancy was aggressively treated with intravenous saline, bisphosphonates, calcitonin, and corticosteroids (given intracranial mass effect). Aggressive volume repletion improved serum calcium level, though this led to pulmonary edema, worsening anemia, and no improvement in renal function. Renal replacement therapy was initiated. Parathyroid hormone (PTH) was suppressed, and PTH-related peptide was undetectable. Transnasal biopsy was nondiagnostic, so open neck biopsy was performed. Evaluation of anemia including blood smear showed rouleaux; immunoelectrophoresis showed monoclonal IgA kappa, Ig kappa free chains, with elevated IgA levels. Bone marrow biopsy revealed multiple myeloma with >95% malignant plasma cells. Concurrently, open neck biopsy revealed plasmacytoma. No evidence of Epstein-Barr virus (EBV) or sarcoma was noted on biopsy. The neck mass responded to corticosteroids, hypercalcemia improved, and radiation therapy was considered. However, complications including pancytopenia, respiratory failure, hypotension, and sepsis developed. Despite maximal measures, the patient expired on hospital day 13.

IMPLICATIONS/DISCUSSION: This case highlights an unusual presentation of several more common entities. Head and neck tumors account for 5% of adult malignancy in the US and are often associated with alcohol or tobacco use. EBV-associated nasopharyngeal cancer is well described worldwide; however, plasma cell tumors of the skull base and nasopharynx are rarely seen. In 15 publications, only 32 patients with skull base plasma cell tumors were reported. Diagnosis was rarely made prior to biopsy, and systemic signs of multiple myeloma were often not initially evident. Hypercalcemia occurs in many malignancies, particularly head and neck cancer. It can be caused by 1) humoral mechanisms (due to PTH-related peptide, ie. squamous cell carcinoma) or by 2) local osteolysis, with bone marrow invasion and cytokines leading to increase bone resorption (ie. multiple myeloma). Regardless of etiology, initial treatment involves volume repletion, bisphosphonates, and treatment of the underlying malignancy. Acute renal failure may develop from volume depletion, but in this patient's case, myeloma kidney was also a likely contributor. This case further illustrates the need for careful evaluation of all clinical information (patient symptoms, outside records, and current studies available) to arrive at the correct diagnosis and plan of care.

WHEN A CHEST X-RAY SHOWS MORE THAN LUNGS
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LEARNING OBJECTIVES: 1. Review the Diagnosis and treatment of Achalasia. 2. Recognize Cough as an atypical presentation of Achalasia.

CASE INFORMATION: 53 year old man with no significant medical history presented to clinic with chronic dry cough for ten years, worse for the past 3 years. He denied any fever, heart burn, nausea, weight loss, allergic symptoms or night sweats. He never smoked and is not on any medications. On exam his vital signs were normal. No postnasal drip, no sinus tenderness, no wheezing or crackles with good air movement bilaterally on auscultation and normal heart sounds. Labs showed H/H- 14/42, MCV- 82, Total Fe- 50, Iron Sat-15.5% and Ferritin-49 with normal chemistry. PPD skin test was positive. Chest X-ray showed clear lung fields and markedly dilated esophagus with proximal air fluid level and distal narrowing. An upper GI series with esophagram was performed. He was unable to effectively move air from the effervescent granules into the lumen of the stomach. The esophagus was markedly dilated with absence of primary peristalsis. No reflux or hiatus hernia is noted. EGD did not show any esophageal webs and antral biopsies were positive for H. Pylori which was treated with triple therapy. A screening colonoscopy was negative. Diagnosis of achalasia was made and treatment was started initially with nitrates and then nifedepine which did not give him relief. He underwent laparoscopic myotomy after which his symptoms resolved.

IMPLICATIONS/DISCUSSION: Achalasia is an uncommon disorder with an annual incidence of approximately 1 case per 100,000 people. It affects men and women equally and is usually diagnosed in patients who are between the ages of 25 and 60 years. Dysphagia for solids and liquids is the primary clinical feature of achalasia. Weight loss, regurgitation, chest pain, and heartburn occur in 40 to 60 percent of patients. Cough is a very unusual and atypical presentation with only few case reports in children. The symptoms of achalasia often are insidious in onset and gradual in progression. As a result, patients typically experience symptoms for years before seeking medical attention and many patients are treated for other disorders such as gastro esophageal reflux disease before the diagnosis of achalasia is made. Patients who have a clinical history suggestive of achalasia require radiographic, manometric and endoscopic evaluation to confirm the diagnosis. The diagnosis is occasionally suggested on a plain radiograph of the chest that shows widening of the mediastinum due to the dilated esophagus and absence of the normal gastric air bubble caused by the failure of Lower Esophageal Sphincter (LES) relaxation that prevents air from entering the stomach. Endoscopic evaluation is recommended for patients with achalasia to exclude malignancies at the esophagogastric junction that can mimic primary achalasia (pseudoachalasia). Initial medical therapy includes oral nitrates and calcium channel blockers to help relax the smooth muscle of the LES. These generally provide only short term relief and many patients experience side effects from them. Pneumatic balloon dilation has 60–95% success rates. Some require further dilations and there is a 5% risk of esophageal rupture. Laparoscopic esophagomyotomy is more successful with 90% patients having good results and side effect being reflux disease. Newest treatment is endoscopic injection of botulinum toxin to LES and effect may last only for months needing additional injections.

WHEN A DVT IS NOT A DVT
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LEARNING OBJECTIVES: 1) Recognize the clinical presentation of streptococcal myositis and distinguish it from other causes of extremity pain. 2) Manage group A streptococcal myositis.

CASE INFORMATION: A 39 year-old female patient with SLE, on chronic steroids, and a history of DVT 5 years prior presented with right lower extremity pain, fever, and chills for 3 days. The pain was below the knee, constant, radiating to the foot, and progressively worsening. There was no recent history of sore throat, injury to the leg, or infection. She had no shortness of breath or chest pain. In the ER, due to a high suspicion for DVT/PE, heparin drip was started and both ultrasound of the RLE and CT of the chest with contrast were performed, both of which were negative. Initial exam revealed an uncomfortable appearing woman with T 101.4, BP 84/47, P124, RR 18, O2 Sat 99% on room air. The RLE was soft, exquisitely tender, with mild swelling of the calf and ankle, mild warmth, mild erythema, normal pulses, and no rash. At this point, the differential included cellulitis, an occult fracture, septic arthritis of the ankle, myositis, and fasciitis. Labs were significant for WBC 13.2 with 88% segmented neutrophils, 11% bands; H/H 10.4/32; AST 83/ALT 116; creatinine 1.6. Ankle arthrocentesis was performed and was not consistent with septic arthritis. Plain film was negative for fracture. 4/4 blood cultures grew gram + cocci and the patient was started on vancomycin, IVF and pain control. On day two, the patient remained febrile and tachycardic, with worsening pain; the calf was noted to be more firm on exam. Blood cultures were speciated as group A beta streptococcus and the patient was started on cefazolin (due to a penicillin allergy) and clindamycin. CT with contrast of the leg was performed to evaluate for deep tissue inflammation and showed a mottled appearance of the soleus muscle and subcutaneous edema. CPK values were increasing from 50 on admission to 400, then 2000. Vascular surgery measured compartment pressures: anterior compartment 30 mm Hg, lateral 28, posterior superficial 39, and posterior deep 44 (normal=0–10 mm Hg). The patient was diagnosed with compartment syndrome and emergent fasciotomy was performed, which showed myositis and clean fascia. The patient recovered with antibiotic treatment, with complete resolution of symptoms and only residual post-surgical pain.

IMPLICATIONS/DISCUSSION: We describe a case of GAS myositis. This is a rare form of invasive S. pyogenes that presents with fever, pain, systemic toxicity, and board-like swelling of the affected muscle. Reviews of the literature cite a low number of reported cases- 21 from 1900 to1985, with a high mortality rate: 80–100%. The overlying skin

may be uninvolved, or may become erythematous or violaceous with petechiae and bullae. Most cases have no preceding illness or known portal of entry. The pathogenesis is unknown, but a proposed mechanism is bacteremia with seeding of the involved muscle. Compartment syndrome may develop from muscle edema, without concurrent fascial necrosis. The laboratory finding of increased CPK is suggestive of streptococcal myositis as opposed to nonstreptococcal pyomyositis, which is commonly casued by staphylococcal infections. Therapy consists of fasciotomy and debridement of necrotic tissue with concurrent antibiotic therapy with penicillin plus clindamycin (which has been shown effective in animal models, and theoretically has a suppressive effect on toxin production and other virulence factors).

WHEN A PIECE OF HEART HURTS THE BRAIN P. Kafle[1]; G. Dutta[1]; J.J. Yium[1]; V.O. Kolade[1]. [1]University of Tennessee College of Medicine, Chattanooga, TN. *(Tracking ID # 203860)*

LEARNING OBJECTIVES: 1. To review cardiac myxoma as a cause of stroke in young population. 2. To emphasize the importance of early neuroimaging and echocardiography in the absence of EKG or auscultation abnormalities especially in young patients with stroke-like symptoms.
CASE INFORMATION: A 19-year-old Hispanic male with no significant past medical history presented with sudden onset of weakness of the right half of his body and aphasia. He had no history of headache, loss of consciousness, head trauma, fever, chills, rigors or illicit drug abuse. Physical examination revealed vital signs and cardiovascular examination within normal limits. Neurologic examination was remarkable for expressive aphasia, right sided facial droop and hemiplegia with positive Babinski on the right side. Basic laboratory tests were within normal limits. CT brain without contrast was negative for acute abnormalities. MRA of the brain showed abrupt truncation of the left M1 segment distally secondary to a large clot. He was initially treated with tPA. However, he did not show significant improvement on his neurological function. Subsequently, he underwent Mechanical Embolus Removal in Cerebral Ischemia (MERCI) procedure which also did not improve his neurological function significantly. Echocardiogram done during the evaluation of his stroke demonstrated a large, friable, hypermobile mass in the left atrium attached to the interatrial septum. He underwent surgical resection which again showed a friable mass in the left atrium, and operative biopsy confirmed it to be a myxoma.
IMPLICATIONS/DISCUSSION: Cardiac myxomas are the most common primary cardiac tumor in adults, representing as many as 83% of all primary tumors of the heart. Myxomas are particularly frequent from the third to the sixth decades of life and show a 2:1 female predominance. The cardiovascular manifestations depend upon the anatomic location of the tumor. Approximately 80 percent of myxomas originate in the left atrium, and most of the remainder are found in the right atrium. The cardiovascular effects resemble symptoms of mitral valve obstruction and are frequently associated with electrocardiographic evidence of left atrial hypertrophy. Auscultatory abnormalities are found in about 50% of patients. They may also present with constitutional symptoms like weight loss and fever. Laboratory abnormalities like anemia and elevations in the erythrocyte sedimentation rate, C-reactive protein, or globulin level are also frequently seen with systemic symptoms. Myxomas in patients presenting with embolism have a friable surface. Ischemic cerebral infarction is the most common neurologic complication of cardiac myxoma and the mobility, not the size, of the myxoma appears to be related to embolic potential. Diagnosis is usually made with transesophageal echocardiography, which has been reported as having close to 100% sensitivity. This case again emphasizes that clinical findings may not be very obvious with myxomas and a high index of suspicion is essential, especially in young patients presenting with unexplained stroke-like symptoms.

WHEN ASTHMA BECOMES A RASH Y. Sun[1]; T. Goring[2]; A.P. Burger[2]. [1]Albert Einstein College of Medicine, Bronx, NY; [2]Jacobi Medical Center, Albert Einstein College of Medicine, Bronx, NY. *(Tracking ID # 205577)*

LEARNING OBJECTIVES: 1. Recognize Churg-Strauss syndrome as a cause of asthma, eosinophilia and pupura. 2. Review the diagnosis of Churg-Strauss syndrome.

CASE INFORMATION: A 23-year-old female with mild persistent asthma treated with inhaled glucocorticoids and a B2 agonist, recurrent middle ear infections, and nasal polyps with numerous polypectomies presented with one day of swelling, joint pain, and rash on her feet without any other complaints. She had no sick contacts or recent travel outside of the NYC area. Physical exam: afebrile, BP 98/61, HR 98, RR 16, and 99% on RA. She had a bilateral well-defined geographic palpable purpuric rash with scattered vesicles on the dorsal feet and extending 6 cm above the ankles. There was soft tissue swelling with mild tenderness and a small effusion of the right ankle. ROM was not limited. Cardiac and pulmonary exams were normal. Labs: 8600 WBC/ul with an absolute eosinophil count of 1720/ul (20%), 227,000/ul platelets, PT/PTT of 11.6/29.5, and normal chemistries. ESR 82 mm/h, CRP 53.8 mg/l, RF 160 IU/ml, normal C3 and mildly elevated C4 levels. Elevated levels of IgG 3421 mg/dl and IgE 1513 mg/dl. Normal IgA and IgM levels. Serum ACE and cryoglobulin levels were normal. ANA-ENA panel, c-ANCA, p-ANCA, and aspergillus antibody were negative. CXR showed a bilateral interstitial pattern. High resolution chest CT scan showed ground glass opacity in the right lower lobe and upper lobe bronchiectasis with a bronchiectatic cavity at the right apex. A skin biopsy showed leukocytoclastic vasculitis. Based on the biopsy results, labs, and other data, a diagnosis of Churg-Strauss was made. The patient was treated with oral glucocorticoids.
IMPLICATIONS/DISCUSSION: Churg-Strauss syndrome is a small and medium vessel vasculitis characterized by eosinophilia, granulomas, fibrinoid necrosis which is associated with asthma. The mean age of diagnosis is 48 years. The incidence is 1–3 cases/million/year; but, it may be as high as 67 cases/million in asthmatics. The disease is divided into three phases. The prodromal phase usually occurs in the second or third decades and consists of allergic disease including nasal polyposis, allergic rhinitis, sinusitis, otitis, and asthma. The eosinophilic phase, may occur years later, and affects blood and tissue, most commonly causing eosinophilic pneumonia or gastroenteritis. The vasculitic phase consists of a systemic vasculitis, often manifesting with constitutional signs and symptoms, and may lead to life threatening illness. In our patient the triad of nasal polyps, recurrent ear infections and asthma could have led to an earlier diagnosis before she developed eosinophilia and a purpuric rash. However, the diagnosis is often difficult to make due to a tendency to diagnose patients clinically with asthma when they first present in the prodromal phase. As a result, the diagnosis is usually delayed until systemic symptoms present. Diagnosis becomes more difficult when the asthma is severe and treated with chronic oral steroids as the systemic symptoms are masked until the steroids are withdrawn. Laboratory findings that aid in diagnosis include eosinophilia, elevated IgE, ESR, CRP, and positive ANCA studies. With lung involvement, CXR may show pulmonary infiltrates, opacities or pleural effusions. Chest CT may show ground glass opacities and nodules with or without cavitations. Biopsy from affected tissue may confirm the diagnosis. Therapy consists of glucocorticoids, with the addition of cyclophosphamide for more severe disease.

WHIPPLE PROCEDURE? NOT SO FAST!!: A CASE OF PANCREATIC LYMPHOMA D.M. Wallace[1]; G. Patel[1]; A. Kulkarni[1]. [1]Allegheny General Hospital, Pittsburgh, PA. *(Tracking ID # 205471)*

LEARNING OBJECTIVES: 1) Recognize the diagnostic approach to a pancreatic mass and assess clinical and radiographic data distinguishing pancreatic lymphoma from adenocarcinoma. 2) Recognize differences in prognosis and treatment between pancreatic lymphoma and adenocarcinoma.
CASE INFORMATION: A 76 year old female with a known pancreatic head mass presented with jaundice, epigastric pain, and weight loss. Previous attempts at biopsy showed inconclusive pathology results. The patient demonstrated tenderness in the epigastrium and abdominal right upper quadrant with liver function tests elevated in an obstructive pattern. A CT scan was performed demonstrating a 5–6 cm pancreatic head mass with encasement of the portal vein and superior mesenteric artery as well as associated lymphadenopathy. The patient underwent ERCP with stenting of the common bile duct and endoscopic ultrasound with fine needle aspiration of the mass. Cytology demonstrated a monoclonal population of B cells with kappa light chain restriction suggesting Non-Hodgkin lymphoma. Following completion of the first course of chemotherapy, a repeat CT scan demonstrated significant reduction in the size of the pancreatic mass.

IMPLICATIONS/DISCUSSION: Primary pancreatic lymphoma is a rare condition representing 2% of extranodal malignant lymphomas and 0.5% of all pancreatic masses. The presentation of pancreatic lymphoma often mimics pancreatic adenocarcinoma and can lead to difficulties in diagnosis. Distinguishing pancreatic lymphoma from adenocarcinoma is important due to differences in treatment and prognosis. Characteristics in tumor growth, lymph node and vascular involvement, pancreatic ductal involvement, as well as laboratory values may help to suggest a diagnosis of lymphoma over adenocarcinoma. Pathologic evaluation of a tissue specimen is imperative when evaluating a pancreatic mass to make this distinction. Various methods are used to obtain a biopsy specimen, including CT-guided needle procedure, open surgical biopsy, and endoscopic ultrasound guided needle biopsy. Although surgical resection is the only curative treatment option in pancreatic adenocarcioma, the majority of patients with pancreatic lymphoma can be managed without surgery and treated with chemotherapy. Pancreatic lymphoma is also generally responsive to treatment and prognosis is better when compared with adenocarcinoma. This case highlights the differential diagnosis and evaluation of a pancreatic mass and the differences in treatment and prognosis between pancreatic lymphoma and adenocarcinoma.

WHY DOES THIS 28 YEAR OLD MALE HAVE CONGESTIVE HEART FAILURE? S. Lal[1]; V. Chiappa[2]. [1]Harvard Medical School, Boston, MA; [2]Massachusetts General Hospital, Boston, MA. *(Tracking ID # 203802)*

LEARNING OBJECTIVES: 1) Review the work-up of heart failure in young adults 2) Explore beri beri as a cause of heart failure 3) Understand pathophysiology of thiamine deficiency
CASE INFORMATION: A 28 year old male with Asperger's syndrome and family history of premature cardiac death presents with dyspnea, chest pressure, and productive cough. He experienced a cough two weeks prior to presentation. He received antibiotics for presumed pneumonia. Despite antibiotics, he developed chest pain, dyspnea with minimal exertion, and orthopnea. He also noticed fatigue and lower extremity edema. A chest x-ray showed cardiomegaly and pulmonary edema, prompting admission. At initial presentation, his pulse was 110 with a blood pressure of 186/98. He required 2 liters to maintain acceptable O2 saturation. He was obese, with frontal bossing and enlarged hands and feet. Significant physical findings included bibasilar crackles, an S3, and lower extremity edema. Lab values were remarkable for WBC of 15.5 with 73% polys and BNP of 2472. An EKG showed sinus tachycardia with no ST-segment changes. Echo revealed an ejection fraction of 19%. There was also evidence of global hypokinesis and biventricular hypertrophy. A cardiac catheterization demonstrated normal coronary arteries, thus leading to a work-up of non-ischemic dilated cardiomyopathy. Given the patient's heart failure, he was placed on furosemide, captopril, carvidilol, and atorvastatin. His blood pressure, O2 sat, and presenting symptoms improved. Etiologies of his heart failure were then sought. There was no history of alcohol or drug use. Iron studies, SPEP, ACE levels, TSH, and HIV tests were within normal limits. The patient's appearance suggested acromegaly, a known cause of cardiomyopathy, but an IGF-1 level returned negative. More esoteric possibilities were next considered. Thiamine and selenium levels were sent. The patient was referred for a genetic and metabolism work-up to exclude Carnitine transporter defect or Danon disease among other potential causes. Following discharge, the thiamine level returned undetectable. He was readmitted for IV thiamine replacement. His thiamine level normalized, and he feels symptomatically better. A repeat echo is pending.
IMPLICATIONS/DISCUSSION: Wet beri beri is a result of deficient thiamine pyrophosphate, the active metabolite of vitamin B1, and manifests as edematous cardiac dysfunction. Deficiency blocks oxidation of pyruvate and lactate, so these substrates cannot be used in oxidative phosphorylation and energy production. Initially, thiamine deficiency causes a high output state secondary to vasodilation. As energy production decreases and myocardial function declines, a low output state ensues. Symptoms of wet beri beri are dilated enlarged heart, dependent edema, and chest pain. Beri beri is generally seen with alcoholism, poor nutrition, or states of high energy consumption like hyperthyroidism or pregnancy. However, a patient in the western world who presents with beri beri is very rare and generally low on the differential as a possible cause of heart failure. Prognosis of beri beri is excellent if there is a high index of suspicion to diagnose thiamine deficiency before irreversible changes, such as Korsakoff amnesia, occur. Symptoms can be reversed with a correction of thiamine via parenteral or oral medication. The cause of low thiamine level should be evaluated to prevent the condition from recurring.

WHY THE LONG FACE? - A CASE OF BILATERAL BELL'S PALSY A. Joo[1]; J. Blank[1]. [1]Olive View-UCLA Medical Center, Sylmar, CA. *(Tracking ID # 205037)*

LEARNING OBJECTIVES: Recognize that bilateral facial palsies are uncommon and are usually associated with an underlying medical disease.
CASE INFORMATION: A 25 year old man with no past medical history initially presented with sudden onset left-sided facial droop without any preceding symptoms. The patient denied having any trauma or history of viral infection. He denied any recent vaccinations or chemical exposures. He denied using medications, recreational drugs, tobacco or alcohol. He also denied a history of skin rashes or sexually transmitted diseases, as well as limb weakness or numbness. On examination, he was unable to move the left side of his face. He could not smile, raise his eyebrows, or frown on the left side. He denied any pain and sensation was intact. One exam, he had no skin lesions or hearing abnormalities. All other cranial nerves and neurological function were intact. He was diagnosed with a left-sided Bell's palsy, then discharged with artificial tears and educated about the natural history of Bell's palsy and given return precautions. Four weeks later, the patient returned to the urgent care clinic with sudden onset right-sided facial droop. He still had evidence of the left facial droop which was improving. He again denied trauma, viral infections, vaccinations, or rashes. The patient had significant motor loss in the right side of his face but sensation was intact. He was unable to smile and loss of forehead wrinkles and lid closure was noted. Hearing sensation was intact bilaterally. The rest of the neurological exam was normal. Given the bilateral cranial nerve VII symptoms, additional lab tests were ordered. CXR was negative for mediastinal lymphadenopathy. Lyme serologies were negative, but HIV serologies were positive.
IMPLICATIONS/DISCUSSION: Unilateral Bell's palsy is commonly seen in the urgent care setting. Usually the cause of Bell's palsy remains unknown but viral illnesses, including herpes (zoster and simplex), have been suspected as possible causes. Typically, cases of unilateral Bell's is evaluated without extensive testing as most cases are mild and usually resolves with supportive care. Imaging and EMG studies as well as steroids and antivirals can be helpful in certain cases, especially in severe or unresolving presentations. Bilateral Bell's palsy, however, is an uncommon condition and the diagnosis should prompt further investigation. The conditions associated with bilateral facial palsy or involvement of the contra-lateral side after initially presenting as a unilateral lesion, include HIV, sarcoidosis, leprosy, Guillain-Barre, and Lyme disease. In the setting of bilateral cranial nerve VII findings physicians must be aware of the most common associated conditions in order to direct the appropriate workup and treatment.

WORSENING ACNE: AN OMINOUS SYMPTOM IN A PREVIOUSLY HEALTHY 33 YEAR OLD WOMAN E.M. Davis[1]; P.J. Zuromskis[1]. [1]Beth Israel Deaconess Medical Center, Boston, MA. *(Tracking ID # 205351)*

LEARNING OBJECTIVES: 1. Appreciate the diverse clinical manifestations and workup of hypercortisol states. 2. Understand the initial evaluation and treatment of adrenocortical carcinoma.
CASE INFORMATION: A 33 year old woman presented herself with a two month history of acne. The patient had facial acne in the past, but now it worsened despite doxycycline therapy. Review of systems was notable for fatigue, muscle weakness, an 8 pound weight gain, fluctuating mood, and insomnia. She missed her period last month but denied pregnancy or changes in hair growth. Medical history was notable for hypertension diagnosed two months ago. She was only on doxycycline. Family history was negative for endocrine neoplasia. She was a marathon runner and is married. She denied tobacco or alcohol use. On examination, blood pressure was 160/100, weight 140 pounds, BMI 22. She had a moon facies, an acneiform rash on the face, neck, and shoulders and a prominent dorsocervical fat pad. Visual fields were intact by confrontation. Abdomen was obese but without striae or masses. Serum potassium was 3.3 and bicarbonate was 34. Urine cortisol was elevated at 1633, ACTH was low, and cortisol was non-suppressible by dexamethasone. MRI of the abdomen revealed a 10× 12 cm left adrenal tumor. Further hormonal studies indicated elevated serum cortisol, DHEA-S, androstendione, and aldosterone/renin ratio. The patient underwent surgical resection of the mass and the diagnosis of adrenocortical carcinoma was confirmed.
IMPLICATIONS/DISCUSSION: Cushing's syndrome is a result of excessive glucocorticoid hormone. It may be manifested by central obesity, facial plethora, fatigue, hypertension, amenorrhea, acne, abdominal striae, and hirsutism. These are nonspecific findings but

the simultaneous presentation and acute onset are suggestive of this syndrome. 24 hour urinary cortisol is recommended to establish the diagnosis of hypercortisolism; other options include measuring salivary cortisol or performing a dexamethasone suppression test. Cushing's syndrome is due to ACTH excess in about 80% of cases, the remaining of which are ACTH independent. A low ACTH, as in our patient, is suspicious for a functional adrenal mass and should be evaluated by abdominal imaging. Adrenocortical carcinoma is a rare cause of Cushing's syndrome with an estimated annual incidence of 1–2 cases per million in the U.S. It has a poor prognosis with mean survival of approximately 18 months. The diagnosis is made based on hormonal studies and imaging. Our patient has excess of the glucocorticoid, sexual steroids, and mineralocorticoid hormones. The size of the adrenal mass remains one of the best indicators of disease with tumors greater than 6 cm highly suspicious for malignancy. Treatment involves surgical resection and adjuvant medical therapy. Mitotane, which causes necrosis of adrenocortical cells, is often used for adjuvant therapy and has been shown to significantly prolong recurrence-free survival after surgery. Our patient underwent complete surgical resection and was started on mitotane. Follow-up imaging three months later noted a new pulmonary nodule. Biopsy confirmed metastatic spread of her malignancy and the patient was started on adjuvant chemotherapy. As demonstrated in this case, acne can be indicative of hypercortisolism in the appropriate clinical setting, and adrenocortical carcinoma is a rare cause of ACTH-independent Cushing's syndrome.

"YOU TAKE MY BREATH AWAY" B. Gammon[1]; H. Hefler[1]; L. Richey[2]. [1]Tulane, New Orleans, LA; [2]Tulane University, New Orleans, LA. *(Tracking ID # 203910)*

LEARNING OBJECTIVES: 1. Recognize Myasthenia Gravis Crisis as a cause of respiratory failure. 2. Understand the diagnosis and treatment of patients with a myasthenia gravis crisis.
CASE INFORMATION: 75 year-old man presented with a two-day history of worsening shortness of breath. He also described a productive cough, fevers, and chills. He noted a three-week history of progressively worsening weakness in his lower extremities, precipitating recent falls. His blood pressure was normal, his heart rate was elevated and he was breathing 20 times per minute. He was alert, mildly anxious, and speaking in full sentences. His cardiac and pulmonary examinations were normal. He had 5/5 and 4/5 strength in his upper and lower extremities, respectively, with a decrease to 4/5 and 3/5 after repeated exertion. The remainder of the examination was unremarkable. He had a leukocytosis with a bandemia. A CT scan of the chest revealed right lower lobe consolidation with associated bilateral pleural effusions. An acetylcholine receptor binding antibody returned a value of 25 nmol/L (normal: 0.0–0.4 nmol/L). The patient was diagnosed with a lobar pneumonia and myasthenia crisis. He was admitted to the intensive care unit and treated with BiPAP, levofloxacin and plasmapheresis. The patient responded well to therapy and was subsequently discharged home on oral steroids and pyridostigmine. At the time of discharge he had significant improvement of his weakness, and his acetylcholine receptor binding antibody had decreased to 4.0 nmol/L.
IMPLICATIONS/DISCUSSION: Respiratory compromise is a common presenting complaint encountered by the general internist. In the setting of acute dyspnea and peripheral weakness, it's important for the general internist to suspect diaphragmatic compromise as the cause of the dyspnea. Myasthenia gravis (MG) is an autoimmune disease that is the result of antibodies produced against acetylcholine receptors. The clinical presentation includes weakness and muscle fatigability, characteristically worsened by prolonged or repetitive activity. Myasthenia gravis crisis (MGC) is an exacerbation of MG necessitating mechanical ventilation. Respiratory failure in MCG is secondary to combined weakness of respiratory and bulbar musculature. In sixty-five percent of the cases, an identifiable precipitant is found. Overall twenty percent of patients with MG will experience a crisis, and most of the time within the first two years of diagnosis, as was the case with this gentleman. Respiratory support is paramount in MGC, and clinicians should have a low treatment threshold for early intubation. Further, the precipitant of the crisis must be discovered and treated. Common triggers include infections, aspiration, psychosocial stressors or changes in medication. Finally, plasma exchange or intravenous immunoglobulins (IVIG) are frequently needed to treat the neuromuscular blockade. Long term therapy includes acetylcholinesterase inhibitors, corticosteroids, and immune-modulating agents. Improved recognition and advances in supportive care have resulted in improved outcomes for patients with MGC. The current mortality of MGC is six percent, compared with fifty percent in the 1960's. Effective management can help minimize morbidity and mortality; therefore, it is important to have a high index of suspicion for MGC, especially since it can be the initial manifestation of MG. The diagnosis of myasthenia gravis crisis should be suspected in all patients with respiratory failure, particularly those with unclear etiology.

2008–2009 REGIONAL RESIDENT AWARD WINNING SUBMISSIONS

CALIFORNIA REGIONAL RESIDENT AWARD WINNER: SURFING AS A RISK FACTOR FOR GASTRO-ESOPHAGEAL REFLUX DISEASE Y. Norisue[1]; J. Onopa[1]; *M. C. Kaneshiro*[2]; Y. Tokuda. [1]University of Hawaii, Honolulu, HI; [2]Cedars-Sinai Medical Center, Los Angeles, CA

BACKGROUND: Gastro-esophageal reflux disease (GERD) is characterized by the reflux of gastric contents into the esophagus. Studies support the role of increased intra-abdominal pressure contributing to reflux symptoms. We suspected that paddling in the prone position on hard surfboard surfaces would lead to increased intra-abdominal pressures, and subsequently increase the risk for GERD in surfers compared to non-surfing athletes. This survey compared the prevalence of reflux symptoms in surfers versus non-surfers who participate in other aerobic sporting activities.
METHODS: A modified Gastrointestinal Symptom Rating Scale (GSRS) was used to obtain the prevalence and ratings of subjective reflux symptoms in surfers (n=185) and non-surfer participants who participate in other aerobic sporting activities (n=178).
RESULTS: The prevalence of reflux symptoms at least twice a week (GERD) was 7% in non-surfers and 21% in surfers respectively. GERD was significantly higher in surfers, with an odds ratio of 3.6 ($p<0.001$) after adjustment for demographic variables, using the multivariate regression model. Among surfers, the prevalence of GERD was significantly higher in short-boarders than in long-boarders (95% CI, 1.2–6.7; P=0.016). The prevalence of GERD increased significantly as the frequency of surfing increased ($p<0.001$), and as the duration of surfing increased ($p<0.001$). The ratio of surfers who reported avoidance of meals shortly before surfing was significantly higher than that of non-surfers ($p<0.001$).
DISCUSSION: Surfing, especially short-boarding, is strongly associated with GERD, and leads to changes in behavior to reduce symptomatology.

MID-ATLANTIC REGIONAL RESIDENT AWARD WINNER: REVERSE MUNCHIES: A CASE OF CANNABINOID HYPEREMESIS *V. V. Oruganti*[1]; L. D. Ward[2]. [1]Temple University, Philadelphia, PA; [2]Temple University Hospital, Philadelphia, PA

LEARNING OBJECTIVES: Determine the common causes of recurrent vomiting. Recognize Cannabinoid Hyperemesis as an uncommon cause of cyclic vomiting.
CASE PRESENTATION: A 30 year old African American male with past medical history of cyclic vomiting syndrome (CVS) and hypertension presented with nausea and vomiting beginning the day before admission. He had 3–4 episodes on the first day which increased to 15–20 episodes of vomiting with concomitant abdominal pain on the day of admission. The pain was "burning," of 10/10 intensity, and located in the epigastric and hypogastric areas. Family history was unremarkable. Social habits were remarkable for frequent marijuana use. On physical examination, the patient was alert and oriented. Vital signs revealed a temperature of 97 F, pulse 105 regular, and blood pressure 160/100. On abdominal examination, hypoactive bowel sounds were present but there was no distention or tenderness to palpation. Laboratory data included: hemoglobin 13.8, WBC 14.1, lipase 19, albumin 4.9, total protein 7.4, direct bilirubin 0.1, total bilirubin 1, alkaline phosphatase of 57, AST 16, and ALT 17. An obstruction series which was normal and a CT of the abdomen and pelvis was unremarkable. However, the patient seemed hyper, unable to sit still for more than a few minutes at a time. In addition, he was taking multiple showers per day - at least once every hour. Further questioning revealed that this patient had been taking multiple showers a day for many months. According to hospital records, the patient had multiple admissions for idiopathic CVS although he always improved with antiemetics and hydration in the hospital. The only change was that the patient was forced to stop his drug use whilst in the hospital. In light of his extensive marijuana smoking history, cyclical vomiting that improves with the cessation of marijuana use, and abnormal bathing behaviors, the patient was diagnosed with cannabinoid hyperemesis.

DISCUSSION: Causes of recurrent vomiting include gastroesophageal reflux, esophageal malformations, certain medications, food allergies, and psychogenic vomiting. Our patient did not have any of these situations. Cyclic vomiting syndrome is characterized by recurrent, stereotypical episodes of vomiting which are interspersed with intervals of normal health in between. The pathophysiology of CVS is unknown but it has been linked to migraines, autonomic dysfunction, and chronic marijuana use. Cannabinoid hyperemesis is a disorder characterized by repeated episodes of vomiting and pathological bathing behavior. Susceptible individuals usually have a history of several years of cannabis abuse prior to onset of hyperemesis. These patients have cyclical patterns of vomiting for months to years that will stop with the cessation of cannabis use. The presence of compulsive bathing behaviors is a clue that can help diagnose cannabinoid hyperemesis. This may be secondary to the effect of marijuana on the limbic system in the brain, which deals with hunger and satiety as well as thermoregulatory centers. Cessation of marijuana use usually leads to the cessation of compulsive bathing behaviors as well. Our patient was treated with antiemetics and analgesics and counseled extensively on the cessation of marijuana use.

MIDWEST REGIONAL RESIDENT AWARD WINNER: SURVEILLANCE COLONOSCOPY: POOR COMPLIANCE AND UNDERUTILIZATION IN AN URBAN ACADEMIC INSTITUTION *A.J. Dichiara*[1]; D.P. Schauer[2]; E. Warn[2]. [1]University of Cincinnati, Cincinnati, OH; [2]University of Cincinnati, Cincinnati, Ohio. *(Tracking ID # 208615)*

BACKGROUND: Colorectal cancer is the second most common cause of cancer deaths, and colonoscopy screening and surveillance reduces its incidence. Surveillance colonoscopy is often left to the primary care physician (PCP) to manage. Reports of PCP over-utilization of colonoscopy after polypectomy is based on an often-sited survey in the literature asking PCPs to assign follow-up to a hypothetical set of cases; however, it is unclear if these surveys are representative of actual clinical practices. No studies assess actual surveillance patterns in reference to recent guidelines. The aim of this study was to assess if colonoscopy surveillance reflects an appropriate, over, or under-utilization of the open-access endoscopy system based on contemporaneous guidelines relative to initial colonoscopy date (American College of Gastroenterology, 2000) and determine factors which may affect follow-up.
METHODS: A retrospective medical record review was conducted of all Internal Medicine resident and faculty clinic patients who had an adequate, average-risk, outpatient screening or surveillance colonoscopy with polypectomy at University Hospital of Cincinnati during 2001–2002. Patients who had inflammatory bowel disease, polyposis syndrome, a prior history of colorectal cancer, incomplete polypectomy, poor colonoscopic preparation, new colon cancer diagnosis, colonoscopy for primarily an abdominal complaint, and those who died before follow up were excluded. The cohort of patients was followed through March 2008 to assess postpolypectomy surveillance compliance relative to contemporaneous guidelines. Comparisons were analyzed using chi-square and logistic regression models when appropriate.
RESULTS: Fifty-three clinic patients were identified as having had an adequate outpatient colonoscopy with polypectomy during 2001–2002. Only 40% of patients were compliant with surveillance colonoscopy based on guidelines. Of the 60% with inappropriate follow-up, 13% of patients had early follow-up, reflecting an over-utilization of colonoscopy, while 47% had late or no follow-up, reflecting an under-utilization of surveillance colonoscopy. Fifty-one percent of colonoscopy reports had no surveillance recommendations; 70% of those with recommendations were not compliant with contemporaneous guidelines (58% early, 12% late). Faculty patients were compliant with follow-up more often than resident patients (52% versus 28%, p=0.08). Thirty-three percent had no chart documentation of the initial colonoscopy results. Patients with chart documentation were more likely to get appropriate follow-up (50% versus 18%; p=0.036).
CONCLUSION: Contrary to survey data, our study indicates the actual clinical practice of PCPs is poor compliance with postpolypectomy surveillance guidelines, referring late or not at all. There was poor documentation by the PCP of colonoscopy results and timing of repeat testing. A majority of colonoscopy reports do not have follow-up recommendations or are usually inconsistent with guidelines. Our study suggests better documentation within the medical record would improve compliance with current guidelines. Further research needs to determine the best way to educate physicians, especially residents, about appropriate colonoscopy follow-up as well as the best way to document follow-up within the medical record.

MOUNTAIN WEST REGIONAL RESIDENT AWARD WINNER: STEROID-RESISTANT HASHIMOTO'S ENCEPHALOPATHY RESPONSIVE TO BROMOCRIPTINE THERAPY S Pati[1], Ed Littleton, G C Ebers, St Joseph Hospital and Medical Centre, Phoenix; John Radcliffe Hospital, Oxford

LEARNING OBJECTIVES: Hashimoto's encephalopathy (HE) is a steroid responsive disorder characterised by high titres of anti-thyroid antibodies. Clinical presentations are protean and often non-specific varying from sub-acute onset of confusion, to episodes of myoclonus, seizures, and stroke like episodes. Although excellent response to steroids is characteristic, other treatments such as plasmapheresis, administration of azathioprine, cyclophosphamide and IVIG have been occasionally tried in steroid resistant cases. We report what we believe to be the first case of steroid resistant Hashimoto's encephalopathy whose diagnosis was consistence with the proposed diagnostic criteria (Table 1) and responded well to bromocriptine.
CASE INFORMATION: A 67 year old Caucasian woman normally fit and well, presented with sub-acute onset confusion and amnesia. She denied any history of preceding personality or mood change. History of rashes, tick bite, seizures and travel were ruled out. The patient's past medical history was unremarkable. Physical examination was unremarkable except neurological examination which was positive for grasp and palmomental reflexes bilaterally. Cognitive assessment revealed inconsistence in episodic memory with deficits in orientation and biographical memory, digit span and three object recall were abnormal (19 out of 30 in Mini Mental State Examination). Further psychological assessment revealed dyspraxia, right left disorientation, substitution of body parts (brushing her hair with fingers), names the present president of USA as Mr Nixon, Prime Minister of UK as Ms Thatcher and believes the hospital as her home. Investigations including porphyria screen, autoantibody screens, metabolic, septic and paraneoplastic screen were normal. Immunological tests showed elevated thyroid peroxidase antibody 536 IU/ml (0–60 IU/ml). Thyroid function test were normal. Significant findings in lumbar puncture were a slightly raised CSF protein and absent CSF oligoclonal bands. MRI brain (T1, T2, FLAIR, DWI) were normal. EEG showed in excess of slow delta and theta wave activity in both temporal lobe functions suggesting encephalopathy.
IMPLICATIONS/DISCUSSION: On the basis of clinical picture, immunological test, EEG and raised CSF protein, diagnosis of Hashimoto's encephalopathy was made and was started on steroids. Following five days of intravenous methylprednisolone her confusion still persisted and a repeat EEG confirmed encephalopathic changes. As a consequence her steroid was stopped and she was switched onto Bromocriptine. Following two weeks of Bromocriptine cognitively she started to improve, right left disorientation was absent, and MMSE improved to 26/30. Hashimoto's encephalopathy can present in an euthyroid patient and should be a differential diagnosis in a cognitive impaired patient with positive thyroid peroxidase antibodies. Bromocriptine is a dopamine receptor agonist which has been advocated in resistant hepatic encephalopathy and in hypoxic encephalopathy. It increases cerebral blood flow, improves cerebral oxygen and glucose consumption. The utility of bromocriptine in steroid resistant Hashimoto's encephalopathy is illustrated in this case. Further research in basic science is needed to explore the use of dopamine receptor agonist in steroid resistant Hashimoto's encephalopathy.

NEW ENGLAND REGIONAL RESIDENT AWARD WINNER: TUBERCULA OR EGG: CONCURRENT PULMONARY SCHISTOSOMIASIS AND MYCOBACTERIAL INFECTION *E. Iliaki*[1]; R. Osgood[2]; L. Bruno-Murtha[2]; P. Cohen[2]. [1]Cambridge Health Alliance, Harvard Medical School, Cambridge, MA; [2]Cambridge Health Alliance, Cambridge, MA. *(Abstract ID # 685)*

LEARNING OBJECTIVES: Review the pathophysiology of Schistosomiasis. Update on Nucleic acid Amplification methods for diagnosis of Mycobacterial infection.
CASE PRESENTATION: 35 year-old Brazilian immigrant presented with a four year history of shortness of breath. He had intermittent dyspnea on exertion and paroxysmal nocturnal dyspnea. He denied fever, cough, night sweats or weight loss. He denied exposure to tuberculosis (TB) or risk factors for human immunodeficiency virus. He had intestinal parasites as an adolescent in Brazil. He was born in Brazil but had been living in Portugal for a few years prior to coming in

the United States. He worked as a painter, has never smoked and drinks minimal alcohol. On exam, vitals signs were normal and pulmonary exam revealed rare course breath sounds in the left lung base. A PPD was negative. His complete blood count, basic metabolic panel, and pulmonary function tests were normal. A chest plain film showed an ill-defined left upper lobe infiltrate, a chest CT with intravenous contrast revealed left upper and right lower lobe reticular-nodular infiltrates. A repeat CT in three months showed progression of the pulmonary reticular-nodular disease. Broncoscopy was nondiagnostic. Histology obtained from a video assisted thoracoscopy with wedge resection of a left upper lobe nodule revealed an adult male schistosome of the Mansoni type inside the wall of a pulmonary artery branch and caseating granulomas that were separate from the observed parasites and lacked an eosinophilic response. Histology (confirmed at the CDC) revealed rare acid fast bacilli (AFB) and tissue PCR for Mycobacterium tuberculosis complex (included primers for M.TB, M. Microti, M.Simiae, M.africanum) was positive. Tissue immunohistochemical studies verified the presence of mycobacterial infection. Mycobacterial cultures were negative.

DISCUSSION: Cercariae are the free forms of schistosoma found in fresh water. They enter through the skin, shed their tails to form schistomorula which travel to the lungs. They then migrate to the portal venous circulation where they mature and unite. The worm-pairs then travel to the superior mesenteric veins where the egg production begins approximately 4 to 6 weeks after the initial infection. The worms produce eggs for years. The eggs migrate from the vessels to the tissues and some are shed in the feces. Pulmonary schistosomiasis is rarely simultaneously diagnosed with pulmonary TB. AFB smear microscopy has poor sensitivity (45%–80% with culture-confirmed pulmonary TB cases) and limits timely diagnosis of TB. NAA methods (PCR being one of them) have the ability to detect one organism per 100 ml of specimen and may provide reliable diagnosis while awaiting culture results with a positive predictive value above 95% in smear positive cases. In smear negative patients the positive predictive value is in the order of 50% or less and the CDC recommends considering mycobacterial infection if two or more specimens are NAA positive. The gold standard of tuberculosis diagnosis is mycobacterial culture but there are cases of culture negative tuberculosis where the infection can be confirmed on the basis of the pathologic findings. In our case, the diagnosis was based on repeated positive NAA testing in the setting of pathognomonic caseating granulomas.

NORTHWEST REGIONAL RESIDENT AWARD WINNER: IS SULFA THE NEW GREAT MIMIC? A CASE OF HYPERSENSITIVITY MYOCARDITIS *J. Kearsley*[1]; R. Dworkin[1]; M. Kai[1]. [1]Providence Portland Medical Center, Portland, OR

LEARNING OBJECTIVES: (1) Consider hypersensitivity reactions as a cause of myocarditis(2) Learn the many potential adverse effects of sulfonamides

CASE PRESENTATION: A 48 year old previously healthy man presented with fever and rash. One week prior to admission, his primary physician incised and drained a pustule on his forehead, and started trimethoprim/sulfamethoxazole (TMP/SMX). Culture grew methicillin-resistant Staphylococcus aureus (MRSA). His lesion resolved, but 2 days prior to admission he developed increasing fatigue, myalgias, headache, fevers, and a facial rash. Upon admission, his temperature was 39.4 oC and he had a maculopapular, non-tender, non-pruritic, non-palpable rash involving his entire body, including palms and soles. His white blood cell count was 9.4 K with 58% bands. TMP/SMX was discontinued, and Vancomycin was initiated for possible MRSA bacteremia. On day 2, he developed tachycardia and chest pain with troponin elevated at 14 ng/ml and EKG showing non-specific ST changes. He was transferred to the ICU due to hypotension, where echocardiogram showed global left ventricular hypokinesis with an ejection fraction (EF) of 35–40%. His troponin level peaked at >50 ng/ml. A presumptive diagnosis of myocarditis was made. Blood cultures remained negative. Viral studies for Adenovirus, Enteroviruses, Cytomegalovirus (CMV), Influenza, HIV, Hepatitis C, Parvovirus B19, and Epstein-Barr virus were negative, as were tests for Lyme disease, Rocky Mountain Spotted Fever, and Syphilis. Antibiotics were discontinued, and he was treated supportively in the ICU for likely hypersensitivity myocarditis. Six weeks later in follow-up, he was asymptomatic and his echocardiogram was normal (EF 60–65%).

DISCUSSION: Myocarditis is inflammation of the myocardium unrelated to an ischemic event. Patients typically present with acute congestive heart failure, and the echocardiogram shows left ventricular dysfunction. Troponin levels are usually elevated. There are many etiologies including infections, immunologic syndromes such as giant cell arteritis and systemic lupus erythematosus, and drug-induced or "hypersensitivity myocarditis." Viruses are the most common infectious cause of myocarditis in developed countries and over 20 viruses have been implicated, with adenovirus (23%), coxsackie B (14%), and CMV (3%) being most common. In our patient, the correlation to initiation of TMP/SMX and the absence of identifiable infectious agent led us to consider drug hypersensitivity. The presence of a non-petechial rash, specifically involving the palms and soles, further supported a drug etiology. In considering hypersensitivity myocarditis, important clues are: 1) a temporal relationship to medication, 2) acute rash 3) fever, and 4) peripheral eosinophilia. However, peripheral eosinophilia is not always present. Many medications have been implicated in acute myocarditis including many different antibiotic classes with sulfonamides occurring most commonly. Adverse reactions to sulfonamides can involve almost any organ system. Myocarditis is uncommon, however skin reactions can occur in 3–4% of patients treated, gastrointestinal complaints in 3–8%, renal manifestations (including a mild rise in creatinine in 10% and hyperkalemia), and hematologic abnormalities such as leukopenia and thrombocytopenia also occur rarely. With the rising prevalence of community acquired-MRSA infection, the use of TMP/SMX will likely continue to increase. Providers will need to be aware of the many possible adverse reactions of this antibiotic.

SOUTHERN REGIONAL RESIDENT AWARD WINNER: TAKING A BITE OUT OF CAPNO *D. Bhatnagar*[1]; J. R. Hartig[1]. [1]UAB, Birmingham, AL

LEARNING OBJECTIVES: 1. Recognize the risk of post-splenectomy sepsis in an asplenic patient2. Recognize the importance of communication with lab for consideration of fastidious organisms.

CASE PRESENTATION: A 74 year old white male with a history of coronary artery disease, peripheral vascular disease, abdominal aortic aneurysm repair, as well as a history of splenic rupture, presented to the ER with subjective fever, chills, emesis and back pain. He was also noted to have headache and neck pain but denied photophobia. Additional history revealed a dog bite to both hands approximately 3 days prior to presentation. Initial exam was unremarkable but notable for no signs of cellulitis at the wound sites. The patient was admitted to the ICU due to persistent hypotension despite vigorous fluid resuscitation and antibiotic administration. He was noted to decompensate further, developing altered mental status, DIC and purpura fulminans. Due to the patient's unstable clinical condition, lumbar puncture was not performed. Patient was placed on pressors, intubated due to altered mental status, and was empirically covered with antibiotics. Initial blood culture returned on day 4 of hospitalization for unidentified gram negative rods. Further testing by microbiology was requested due to the concern for a fastidious organism in the setting of asplenia and an animal bite. One month later, blood culture yielded Capnocytophaga species at a reference lab. Patient completed treatment as an inpatient for approximately 2 weeks following the last documented negative blood culture. Long term complications of Capnocytophagum septicemia for this patient included distal necrosis of both fingers and toes requiring surgical follow up and ultimately amputation of his digits.

DISCUSSION: Asplenic patients with fever are at high risk for sepsis due to their susceptibility to encapsulated organisms. Patients may present with fever with rapid acute decompensation due to high grade bacteremia, resulting in DIC and purpura fulminans. Although asplenic patient are at risk for meningitis, lumbar puncture is often deferred in the acute setting due to DIC. Asplenic patients who present with significant illness following a dog bite or scratch should be considered for infection from Capnocytophaga species, an encapsulated gram negative rod. As a fastidious organism, it is often difficult to isolate as it needs anywhere from 1–14 days to grow. Communication with the microbiology lab is often needed to allow for longer incubation times for detection. An additional diagnostic tool for quicker identification may involve a peripheral blood film. Due to the degree of high grade bacteremia in asplenic patients, organisms may be seen on direct exam of the blood smear. Asplenic patients need to be counseled on their risk for overwhelming infection and encouraged to see a physician in the setting of fever and systemic symptoms. In particular, asplenic patients should seek treatment following minor animal bites as mortality from Capnocytophaga septicemia has been reported to be at 22%.