

Canadian Frailty Network (CFN) National Conference Abstracts Contributions from the CFN Trainees

<https://doi.org/10.5770/cgj.20.284>



CANADIAN FRAILTY NETWORK ABSTRACTS FROM THE MEETING IN TORONTO, SEPTEMBER 27-29, 2015

INTRODUCTION

The Canadian Frailty Network (CFN) was funded in July 2012 under the Canadian Networks of Centers of Excellence (NCE) program. CFN aims to facilitate evidence-based research, knowledge sharing, and clinical practices that improve healthcare outcomes for frail elderly Canadians, their families, and caregivers across all settings of care. CFN's vision is to position Canada as a global leader in providing the highest quality of care for its aging population. As part of the NCE's mandate and CFN's strategic priorities and mission, we have developed a unique Interdisciplinary Training Program, designed to promote and facilitate interdisciplinary learning by providing experiential and entrepreneurial opportunities that cross health sciences, law, social sciences, and ethics. The goal is to develop Highly Qualified Personnel (HQP) with the disciplinary, interdisciplinary, and transdisciplinary skills, experiences, and attitudes necessary to provide creative solutions to the complex and multifaceted issues confronting the frail elderly. The program provides trainees with unique educational experiences that deepen appreciation for holistic care, increase exposure to interdisciplinary research through knowledge creation and translation projects, and advance intellectual and professional development.

The goals for the CFN Interdisciplinary Training Program are aligned with the NCE training mandate, which is to: 1) create a collaborative, multidisciplinary training program to develop HQP, 2) improve trainee's viability for future employment, and 3) provide support to trainees to facilitate their success. The training program was launched in Summer 2013. We currently have over 180 HQP in approximately 25 different disciplines—including law, ethics, public policy, social work, engineering, and other disciplines—with an interest in improving care for the frail elderly participating in our training program. These individuals may be undergraduates, graduates, postdoctoral fellows, or working professionals. The program emphasizes the acquisition and application of knowledge and skills across all its components. All HQPs collaborate online through a learning management system that provides opportunities

to interact with colleagues, and access disciplinary and interdisciplinary data and diagnostic tools.

There are three main ways an HQP can enter the program:

- The Interdisciplinary Fellowship Program;
- As HQP within TVN-funded research programs; or
- The Summer Student Award Program.

Within the Interdisciplinary Fellowship program, HQPs work in teams of four to identify and develop an online collaborative project. Online collaborative projects facilitate interprofessional collaboration through multisector and multidisciplinary learning by enabling interactions. The fellows also participate in an external placement in a sector and/or discipline that they have not been previously engaged in, and that aligns with their learning goals. Under the direction of their supervisors and mentors, fellows complete at least two academic products involving knowledge mobilization efforts. Mentorship is another component of the training program, whereby HQPs meet with interdisciplinary mentors, patients and their families and support system (PFSS), and peers. The essence of each meeting is captured in a reflection on what they discovered through dialogue with their mentors, and how this discussion will influence their future studies and practice.

One of the components of the CFN Interdisciplinary Training Program is for HQPs to disseminate their work through publication and meetings. The main dissemination event of CFN is the annual conference; the 3rd CFN Annual Conference on Improving Care for the Frail Elderly was held in Toronto, September 27-29, 2015 and the 4th CFN Annual Conference was held in Toronto, on April 23-24, 2017. The goal for both conferences was to bring together key researchers, practitioners, educators, policy-makers, advocates, and organizations devoted to improving health care for the seriously ill, frail elderly, and to highlight HQP research. All 2015 and 2016 HQPs in the Summer Student Award Program, the Interdisciplinary Fellowship Project, and project HQP involved with a CFN-funded project submitted an abstract for their affiliated conference. The abstracts were reviewed for quality, and the authors

presented them as posters during the conferences. In what follows, we present the compilation of research abstracts that were presented by CFN HQP at the 3rd and 4th annual conferences. The annual conference will continue to be expanded in coming years, and next year we will accept abstracts from all researchers who are engaged with the seriously ill, frail elderly.

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Ultrasound of Thigh Muscle Can Predict Frailty in Elderly Patients

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Background: Sarcopenia, defined as loss of muscle mass and function, has been associated with high morbidity and mortality in patients over 65 years. Yet, it is not part of the routine screening process in geriatric care. Computed tomography (CT) scan has been used as the gold-standard tool to identify sarcopenia. Unfortunately, the high cost, limited availability, and radiation exposure limits the use of CT scans. Thigh muscle ultrasound (US) may provide a feasible diagnostic modality to identify frail older patients. We hypothesize that thigh ultrasound is predictive of frailty and post-operative complications in high-risk elderly patients.

Methods: Thirty-eight patients above the age of 65 years referred to Acute Care Surgery service were recruited. Using ultrasound, thigh muscle thickness was standardized to patient height. CT scan images at L3 were analyzed and the skeletal muscle index was calculated. Sarcopenia was defined as skeletal muscle index < 41cm²/m² for females and < 43cm²/m² or < 53cm²/m² for males (with BMI 25kg/m², respectively). Rockwood Clinical Frailty score (1-3 non-frail, >4 frail) was used to assess patient condition.

Results: The mean age of our preliminary study group was 78 ± 8 years and 68% (n=26) were females. Sarcopenia was identified in 69% of the patients via CT. Sarcopenic patients had a greater number of in-hospital complications (48% vs. 16.6% in non-sarcopenic, $p=.0001$). There was no difference in duration of stay between sarcopenic and non-sarcopenic patients (14 vs. 11 days, $p=.06$). There were significant differences between sarcopenic and non-sarcopenic females in skeletal muscle surface area (113 ± 9 versus 91 ± 10 cm², $p < .001$), and skeletal muscle index (35.2 versus 46.3 cm²/m², $p < .001$). CT scan skeletal muscle index of sarcopenic

patients showed significant correlation with frailty score ($r^2=0.21$, $p<.05$). US of rectus femoris in all females was significantly associated with frailty score ($r^2=0.19$, $p=.008$). The receiver-operating characteristic (ROC) for thigh ultrasound was not able to distinguish sarcopenic patients (area ROC curve=0.6, $p=.8$).

Conclusion: CT identified sarcopenia was associated with high-risk frail patients. US measured muscle thickness was predictive of frailty but not of CT identified sarcopenia.

Validity and Reliability Testing of Two Acute Care Nutrition Support Tools

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Abstract: Poor food intake is common with patients in acute care, which can affect their recovery. Research describes that many barriers to food intake and poor intake is associated with a longer hospital stay. Thus, identifying problems and intervening as soon as possible is important. The aim of this project was to test the validity and reliability of recently developed tools designed to monitor food intake and barriers experienced by patients. 120 patients over the age of 65 were recruited at four hospitals. Patients reported their food intake for a single meal on the My Meal Intake Tool (M-MIT) and reported mealtime barriers at a single meal on the Mealtime Audit Tool (MAT). Validity of the M-MIT was determined by comparing patient completed M-MIT with food intake estimations conducted by on-site dietitians. Sensitivity (SE) and specificity (SP) for solid food and individual fluid intake ($\leq 50\%$ vs. $> 50\%$) was adequate (solids: SE 76%, SP 74%; juice: SE 74.1%, SP 88.1%; coffee/tea: SE 70.6%, SP 97.0%; milk: SE 64.3%, SP 83.3%). According to the MAT, the mean number of food intake barriers that patients experienced across the four hospitals was 2.93 ± 1.58 out of 18 potential barriers. Some of the most common barriers experienced included: meal tray not looking/smelling appetizing, food not served hot, tray not set up for patient, patient not provided snacks between meals, and the patient being disturbed during the meal. Inter-rater reliability testing of the MAT was conducted at

one of the four hospital sites in 90 separate patients across 30 different mealtimes. Two separate investigators completed MAT independently with each participant after the meal. An intra class correlation coefficient (ICC) was calculated for the total MAT score (i.e. the total number of food intake barriers encountered). The ICC for the MAT was 0.684 ($p < .05$), which indicates good agreement between the raters. Kappa coefficients were also calculated to determine the inter-rater reliability of each of the 18 barriers listed. All but five kappa coefficients were greater than 0.5, also indicating good agreement. M-MIT and MAT are the first tools of their kind that have been tested for validity and reliability. These tools have utility for both research and practice to document current and improved processes, and stimulate change in nutrition care. Both tools will be used in the More-2-Eat project, which is testing the implementation of the Integrated Nutrition Pathway for Acute Care.

Implementing Best Practice in Hospital Nutrition Care: Knowledge to Action Process

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Background: Prospective use of knowledge translation and implementation science frameworks can increase the likelihood of meaningful improvements in health care practice. An example of this creation and application of knowledge are a series of 4 studies conducted by and in partnership with the Canadian Malnutrition Task Force (CMTF). Following a cohort study and synthesis of evidence regarding best practice for identification, treatment and prevention of malnutrition in hospitals, the CMTF created an evidence-informed, consensus-based pathway for nutrition care in hospitals, focused on the food access issues of frail older adults. The purpose of this poster is to detail the steps taken in this research program, as an example of the Knowledge-to-Action (KTA) process.

Methods: The KTA process includes Knowledge Creation and Action Cycles. The steps of the Action Cycle within this program of research are iterative and, up to this point, have been informed by 3 studies with a fourth underway. Identify the problem: the first study identified the magnitude of malnutrition at admission to hospital and how it is undetected and undertreated (Study 1). Knowledge creation resulted in an evidence-based pathway created to address care gaps (Study 2) and development of monitoring tools (Study 3). Adapt to local context: focus groups face validated the pathway; during the final implementation study site implementation teams will continue to adapt the pathway (Study 2&4). Assess barriers: focus groups and interviews were conducted to inform the pathway implementation

(Studies 1,2,4). Select, tailor, implement interventions: in the final study in this research program, Plan-Do-Study-Act cycles are used to make changes and implement the pathway (Study 4). Monitor knowledge use and evaluate outcomes: audits, staff surveys, patient outcomes etc. record process evaluation (Study 3&4). Sustain knowledge use: incorporate a sustainability plan into the final study of the program (Study 4).

Results: Use of frameworks can increase the likelihood of meaningful and sustainable improvements in health care practice. The example of this program of research demonstrates how existing evidence has been used to identify, create and adapt knowledge as well as use multidisciplinary teams to effect change in the hospital setting.

Conclusion: Effective implementation is essential in nutrition and this multidisciplinary program of research provides an example of how the iterative KTA process can facilitate implementation and promote sustainability.

Cardiac Surgery Among the Frail and Elderly Towards Optimal Decision Making

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Background: We were the first study to demonstrate that frailty among cardiac surgery patients confers increased risk of mortality, major morbidity, and prolonged institutional care. We were pioneers in describing a marked increase in frail and elderly patients referred for cardiac surgery interventions over the last decade in Canada. While other studies have subsequently confirmed this relationship, the impact of frailty on the ultimate functional recovery, independence, and quality of life among elderly patients undergoing cardiac surgery is not known. A pilot study was done to explore the association between frailty and cardiac surgery outcomes.

Methods: Frailty was determined with the Frailty Assessment for Care Planning Tool (FACT), a seven-level instrument in four domains (mobility, social, daily tasks, and memory/cognition) based on the Clinical Frailty Scale, but with greater detail in terms of the domains in which frailty resides. Using FACT, input was sought separately from the patient and from the collateral (family member or care giver). Health related quality of life (HRQoL) was measured preoperatively with the EQ-5D-3L. The results of these questionnaires acted as baseline HRQoL measure and vulnerability scores. Postoperatively, patients were monitored and their primary and secondary outcomes recorded. To further understand

how frailty affects surgery outcomes, participating patients were approached for a follow up HRQoL interview, 6 months following their surgery.

Results: 57 patients were recruited from those over the age of 65 undergoing cardiac surgery. We found that 52% of these were positive for at least one category of frailty at a level of 4/7 (vulnerable). As a group, these frail patients experienced higher rates of mortality; major complication; and prolonged institutional care, compared to those who had no deficits across the FACT domains.

Conclusion: We propose to more fully explore the relationship between more subtle degrees of frailty and cardiac surgical outcomes. This will better inform patients and clinicians involved in decision making about cardiac surgery among the frail and elderly. Developments in this area will advance our understanding of frailty and age in a cardiac surgery population. As a result, we will be able to scale these initiatives to other cardiac surgery providers across North America, as well as to surgical providers across several surgical disciplines.

Impact of Post-Operative Delirium on Mortality: a Systematic Review Protocol

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Background: Delirium is associated with negative post-operative outcomes including longer hospital stays and institutionalization. The impact of a change in cognitive state in the postoperative period may have a significant impact on outcomes, although there is controversy as to whether delirium is an independent predictor of mortality. In addition, age is a particularly important risk factor for delirium and the rapid aging of our population means that many elderly patients require surgery. Therefore, post-operative delirium may be an increasingly important outcome and risk factor in the perioperative setting. However, a formal synthesis of literature has not been performed. Our systematic review will examine, *in adult non-cardiac surgery patients, does incident post-operative delirium impact mortality?* We hypothesize that incident postoperative delirium increases the risk of mortality.

Methods: The protocol for this systematic review will be registered with PROSPERO. A systematic search of Cochrane, Medline/PubMed, CINAHL, and Embase

has been designed in collaboration with an information specialist. The 2702 returned citations will be screened and data extracted independently by two reviewers using piloted datasheets in DistillerSR. Eligible studies will include randomized controlled trials, cohort studies and case-control studies. Mortality data will be collected as our main outcome measure; incident postoperative delirium as our main exposure. Planned subgroup analyses will be conducted on mortality outcome ascertainment window, and relevant exposure data (i.e., delirium definition, surgical factors, patient factors). Meta-analysis using random effects modelling will be performed for the primary outcome of mortality. All data will be expressed with appropriate ratios and confidence intervals and the risk of bias will be assessed using previously validated tools. The results of this review will be reported according to PRISMA guidelines.

Conclusion: This will be the first systematic review to specifically assess the impact of incident postoperative delirium on mortality. This review will provide a better understanding of the impact that incident delirium has on postoperative mortality across a variety of non-cardiac surgical procedures, while providing insight into factors that may modify the impact of delirium on mortality after surgery.

Identifying and Responding to Frailty in Emergency and Acute Care: a scoping Review

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Introduction: Many older adults, particularly those seen in a clinical setting, are frail and require modifications to standard protocols. As such, early identification of frailty in clinical care is vital. Consensus on an operational definition of frailty, what instrument(s) should be used, and whether tools should be the same across care settings is lacking.

Objectives: To identify and document the nature, extent and quality of research evidence, policy, and practices available for frailty identification and management in pre-hospital and in-hospital settings.

Methods: A scoping review will be conducted using Arskey and O'Malley's and Levac *et al.*'s, methodologies as a guide. Systematic searches will be conducted in academic literature databases (MEDLINE, Cochrane, CINAHL, Embase, PsychINFO and Eric). A grey literature search of relevant websites identified by multidisciplinary team members, government reports, and practice guidelines will

be conducted. The primary search terms will be “frail” and appropriate synonyms of “acute care” and “pre-hospital”. To confirm that all evidence is appropriately captured, reference lists of all relevant articles will be cross-referenced by hand searching, and experts in the field will be consulted. Only studies in acute care or pre-hospital settings will be included. Studies will be excluded if published before 2000 or if those above the age of 65 are not included. The search will not be limited based on language, study design, study quality, or outcome measure. Using DistillerSR software, two individuals will independently screen the title and abstract of articles extracted from the literature search. Full text will be retrieved for studies that met reviewers’ agreement. For relevant articles, reviewers will extract descriptive data (ex: demographics, study design), frailty measurement tools, feasibility estimates and outcome measures.

Results: To date, the literature search of the five databases has been conducted. The number of articles identified is: 2263 from MEDLINE, 3060 from CINAHL, 3284 from Embase, 396 from PsychINFO and 834 from Eric. Overlap is expected.

Conclusion: The findings of this scoping review could assist with frailty assessment and management in pre-hospital and in-hospital setting. Identifying frailty early could lead to more targeted assessment and end the unnecessary assessments of the severely frail. Proper management can improve health outcomes across clinical settings and can help with care planning.

A Pilot Study of a Medication Rationalization (MERA) Intervention

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Background: The focus of medical care is often on reversing acute conditions and preventing long-term complications, even for patients with a poor short-term prognosis and significant symptom burden. As a result, many seriously ill or frail elderly patients receive medications that offer little or no benefit, or may even be harmful, while they do not receive medications for comfort. We developed an interprofessional team (the Medication Rationalization [MERA] team) to review these patients’ medications and recommend changes that would align them with the goals of the patient and their medical situation.

Methods: A pilot study of patients over age 80 or with an expected prognosis of <6 months, who have been admitted to the general internal medicine (GIM) service at Toronto General Hospital. Consenting patients complete surveys regarding their medications (Beliefs about Medicines Questionnaire (BMQ) and Patient Attitudes Towards Deprescribing) and symptoms (Edmonton Symptom Assessment System (ESAS)) and have their medications reviewed by the MERA team and their admitting team. All recommended changes are reviewed with the patient and made with their consent. Quantitative and qualitative methods are used to determine patient and medical team attitudes towards the MERA process.

Results: After 6 weeks, 21 patients were enrolled (42% of overall target enrollment). Participants had a generally negative belief about medications (mean BMQ 50.1) with a strong willingness to stop some medications if possible. Participants reported moderate numerical scores for pain (4.2), tiredness (5.5), shortness of breath (4.0) and wellbeing (5.2). On average, MERA meetings lasted 7.8 minutes, and the MERA team recommended 3.0 medications be discontinued, 0.5 medication dosage changes, and 0.4 medications be started. MERA recommendations were accepted by the admitting team in 87% of cases and by the patient in 99% of cases.

Conclusion: The MERA team is a feasible intervention that is highly accepted by both patients and medical staff, and results in important changes to medication prescription for seriously ill and frail elderly inpatients. In the remainder of our pilot, we will continue to collect qualitative data to inform the team function, and aim to develop a automated processes to enhance the capacity of the MERA team to serve a greater number of patients more efficiently.

E-CYCLE: A Pilot RCT of Early In-Bed Cycling in Elderly, Mechanically Ventilated Patients

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Background: Elderly patients recovering from critical illness are at high risk of sustaining physical and neurocognitive disability. Over the last 20 years, elderly patients have received more life support therapies (e.g., mechanical ventilation (MV), vasopressors) in the intensive care unit (ICU), with improved survival. But this survival comes with significant disability; 45% of elderly ICU survivors did not return to baseline function one year post-hospital discharge. Rehabilitation, such as in-bed leg cycling (“cycling”) started during a patient’s ICU stay, can improve patients’ function. However, the effects of starting cycling very early in a patient’s ICU stay are unknown, particularly in an elderly population.

Objective: To determine the feasibility of enrolling older adults (≥ 65 years) in a multi-centre pilot randomized clinical trial (RCT) of early cycling versus usual care physiotherapy (PT) to inform a larger RCT (NCT02377830).

Methods: We include medical-surgical patients within the first 4 days of MV and first 7 days of ICU admission, who could walk independently before hospital admission and have no exclusion criteria. After consent, patients are electronically randomized to receive either 30 minutes of cycling and usual care PT or just usual care PT. At ICU awakening, ICU discharge, and hospital discharge, we assess patients’ strength and function. Outcome assessors at hospital discharge are blinded to group assignment. Participating ICUs: Hamilton, ON: St. Joseph’s Healthcare, Juravinski Hospital, Hamilton General; Toronto, ON: Toronto General Hospital.

Conclusion: We will consider our study successful if we achieve the following:

1. Accrual: The overall average accrual rate is 3 patients per month.
2. Protocol violations: The in-bed cycling protocol can be successfully implemented with 80% of outcomes measured as scheduled.
3. Blinded Outcome Assessment: $>80\%$ of outcomes assessed by personnel blinded to group allocation.

Results: To-date, 14 PTs in 4 ICUs have learned the cycling protocol, and 21 PTs have learned outcomes assessments. Enrollment started March 2015 and is ongoing.

Acute-Care Frailty Ladder

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Abstract: Hospital care affords the opportunity to identify frailty and to provide interventions to delay its progression. Most frailty measures aren’t optimized for deployment in the busy hospital setting and none meet modern psychometric standards for true measures. Existing measures are of two types: composite, summarized as a count of the number of problematic domains; or ordinal index, summarized by adding numerals assigned to response options. This study, funded by CFN, aims to develop a frailty measure with modern robust psychometric standards. The specific objectives are to: (i) estimate, for an in- and out-patient geriatric population, the prevalence and severity of impairment on existing frailty indicators at two points in time over a one month period; (ii) estimate the extent to which these frailty indicators form a unidimensional hierarchical measure with linearized units; and (iii) contribute evidence for the validity of the prototype version of the Acute-Care Frailty Ladder. A prospective study is planned on two samples of 200 and 100 seniors, ≥ 70 years, receiving in- or out-patient care at a university health centre. The sample will be chosen to target seniors without terminal illnesses or severe cognitive impairment. This study will create a bank of mathematically calibrated items drawn from existing tests and measures. Rasch analysis will be used to estimate the extent to which the items fit a unidimensional hierarchical model. When the data fit the Rasch model, item responses have calibrated forming a true measure of the frailty construct. Once the final set of items has been calibrated, the prototype Acute-Care Frailty Ladder will be tested on a new sample of 100 patients to confirm the item hierarchy and provide preliminary estimates of validity, responsiveness, minimal important change and minimal important difference. To paraphrase Lord Kelvin, we can’t fix what we can’t measure. Decades of research on frailty have consolidated our understanding of frailty, but measurement has not kept up with modern psychometrics. This study will bridge the measurement gap enhancing our capacity to develop effective interventions to prevent frailty. This emerging measure will satisfy all of the requirements for a patient-centered outcome as both patient-reported and performance outcomes will be included ensuring the patient’s voice is part of the assessment.

Transvenous Phrenic Stimulation Feasibility and Safety: a Literature Review

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Background: Mechanical ventilation (MV) is a lifesaving but often injurious intervention that can lead to ventilator-induced diaphragm dysfunction (VIDD), ventilator-induced lung injury (VILI) and ventilator-associated pneumonia (VAP), thus compromising the patient's ability to regain independent breathing and wean from MV. Over 50% of difficult-to-wean MV patients are elderly and/or frail; those who remain MV-dependent become the most expensive in-patients in Canadian hospitals, and many die in the intensive care unit (ICU). Lungpacer Medical Inc. is developing a minimally-invasive intravenous catheter-based system that paces the diaphragm in conjunction with MV. This pacing therapy aims to protect the diaphragm from disuse atrophy (VIDD), minimize the risks of VILI and VAP, and support rapid weaning from MV in the ICU.

Objective: To establish the feasibility of transvenous electrode insertion, phrenic nerve capture and diaphragm stimulation in adults, based on published literature. Safety of short-term phrenic nerve capture was also examined through any reported adverse events or complications.

Method: The PubMed database was used to conduct a search for intended use (capture, pace, pacing, stimulation, stimulating) and target structure (phrenic nerve, respiratory, diaphragm). Articles were selected if they described phrenic nerve stimulation and diaphragm activation using a minimally invasive procedure. In addition, the article had to meet at least one of the following criteria: (i) temporary use, (ii) adverse events associated with pacing, or (iii) use of a catheter, electrode, or lead for stimulation. The search returned 517 articles in English. Following screening, 13 articles were identified for detailed review.

Results: All 13 studies successfully captured the phrenic nerve and reported very few adverse events or complications (electrode stability; proximity to sinus node). Five of the 13 articles described transvenous phrenic nerve stimulation; 8 articles used transcutaneous stimulation as a diagnostic tool.

Conclusion: In contrast to the surgically invasive or skin surface phrenic pacing methods in clinical use for decades, transvenous phrenic nerve pacing has been largely overlooked. Short-term transvenous diaphragm pacing in humans is possible and has few adverse events or complications. The findings indicate that the intended therapeutic use of the Lungpacer transvenous pacing system is feasible and likely to be safe in critically-ill MV patients.

Glycemic Variability and Delirium in the Critically Ill Elderly Patient

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Background: Delirium increases ICU morbidity and mortality but the pathophysiology is poorly understood. Increasing evidence suggests that less intense serum glucose control is associated with better ICU outcomes, but little is known about the importance of blood glucose variability.

Objective: To evaluate the association between blood glucose variability and delirium incidence in critically ill patients.

Methods: We divided study participants receiving Intensive Insulin Therapy (IIT) into those with a positive Intensive Care unit Delirium Screening Checklist (ICDSC) score, and those with a negative score. The serum glucose levels of these two groups were analyzed using standard statistical measures, such as mean and variance, as well as specific metrics, such as hyperglycemic index (HGI) and mean absolute glucose (MAG). Using MATLAB statistical software we wrote a program that computes HGI and MAG. HGI is calculated by determining the area bounded between patients' serum glucose curves and a predetermined serum glucose level of 7mmol/L. All areas are added together and then divided by the patient's total length of stay for normalization. HGI is calculated by determining the magnitude of difference between successive glucose recordings and summing these differences for all values. This sum is then normalized by the length of stay of the patient. The relationship between these measures and a positive ICDSC score will be evaluated.

Results: A total of 49 ICU patients were assessed, 41% (n = 20) received IIT. Of patients receiving IIT, 85% (n = 17) had adequate ICDSC information for analysis. In this group, 82% (n = 14) had at least 1 positive ICDSC screen during their admission and 18% (n = 3) did not.

Conclusion: We have successfully created a software program to calculate MAG and HGI. Data analysis will be carried out upon completion of data collection.

An Integrated Care Pathway for the Management of Agitation and Aggression in Dementia

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Background: Aggression and agitation are highly prevalent among patients with Alzheimer's dementia (AD). They impose a tremendous burden on the individuals living with AD, their families, caregivers, and the health care systems. Anti-psychotics are commonly used to treat agitation and aggression associated with AD. Anti-psychotics are associated with significant negative outcomes including increased mortality, cerebrovascular accidents, infections, and falls. These detrimental outcomes are particularly high if these medications are used inappropriately. These medications are often used before or without the use of non-pharmacological interventions that could prevent, delay, or minimize their use. Finally, response to interventions aiming to address agitation and aggression is often not measured using standardized measuring tools to guide the use of interventions. To address the above deficiencies, we developed, implemented and tested in our inpatient services an integrated care pathway (ICP) to treat agitation and aggression associated with AD.

Methods: The ICP consists of four components: (1) an assessment phase to determine the etiology of agitation and aggression which includes a washout period of contributing, unnecessary, or non-effective medications; (2) a suite of non-pharmacological interventions that are supported by research evidence; (3) an algorithm of pharmacological interventions, including anti-psychotics, with precise titration schedules, predefined minimum and maximum dosages, and predefined switching schedules based on effectiveness; and (4) the use of standardized assessments at baseline and various treatment points to guide the ICP.

Results: To date, 25 patients entered the ICP based on their BPSD/behavioural symptoms; 16 patients left the pathway on step one medication, 4 patients left on the step two medication and 2 patients exited without requiring any medications. Overall 80% of patients leave the pathway responding to the first two medications on the algorithm. Of the 25 patients, 19 patients enrolled and tolerated three or more non-pharmacological interventions, 2 patients enrolled and tolerated two or less non-pharmacological interventions.

Conclusion: By design, our ICP eliminates the risks for unnecessary use of anti-psychotics, limits the selection to medications with best tolerability and evidence, and eliminates poly-pharmacy by applying a standardized approach. It also introduces systematic non-pharmacological interventions to augment medications use.

Web-based Videoconferencing for Rural Palliative Care Consultation in the Home

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Abstract: Poor health, limited finances, and few transportation options can make it difficult for seriously ill, elderly patients in rural areas to travel to see a palliative care specialist. Barriers of time, distance, and weather can prevent timely home visits by palliative care consultants. Hence, rural patients and families can have delayed access to support with a negative impact on their quality of life. Telehealth videoconferencing technology offers an alternate visit format but is usually only in facilities, thus still posing the barrier of travel for these frail individuals. An in-home videoconferencing option is needed—and is the focus of our currently running proof-of-concept study. This study is being conducted in the rural area of the Calgary Zone of Alberta Health Services (AHS), where the Rural Palliative Care Consultation Team (RPCCT) helps primary health care providers (HCPs) manage end of life care challenges, such as complex symptoms, emotional distress, and advance care planning, in a dispersed population of 200,000. Almost 75% of patients seen by the RPCCT are at home and almost 70% are over the age of 65. Travel time to a home visit is up to 2 hours one way. In this study, we are trialing and evaluating the use of mobile Web-Based Videoconferencing (WBVC) to connect frail elderly patients with life-limiting illness to a distant RPCCT physician, from the comfort of their rural homes. In this pilot phase, a RPCCT nurse is also in the patient's home to help with set up and support. The purpose of the study is to determine if this innovative method of conducting palliative care consults is a feasible, acceptable, effective alternative to standard in-person or telephone formats, and if of adequate quality, improves access, and reduces cost and resource use. We plan to conduct 10 WBVC events using a laptop computer equipped with Microsoft Lync® software, camera, speakerphone, and aircard to enable participants to see and talk to each other over a secure internet connection. We are collecting quantitative and qualitative data using questionnaires, interviews, and focus groups, and plan to conduct analyses using SPSS and NVivo software. Advancing WBVC technology for Rural Palliative Care Consultation in the home has the potential to provide more timely support to seriously ill elderly patients and their families, improve their end of life care, and their quality of life.

Comfort Conversations in Complex Continuing Care

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Abstract: Providing person-centered care that meets the comfort needs of patients in complex continuing care is key to ensuring quality end-of-life experiences for this specialized population. Using Kolcaba's Comfort Theory and the Person-centred framework developed by McCormack and McCance, we designed a tool for engaging in Comfort Conversations with patients and their family members. Comfort Conversations create a relational foundation on which interprofessional team members can build upon in future end-of-life conversations. We found that this approach to purposeful conversations with patients and families regarding their comfort needs in the physical, psychospiritual, sociocultural and environmental contexts, facilitated knowing the person and understanding their values and beliefs. Conversations guided by Comfort Theory can be applied across care settings, involve different interprofessional team members and occur at different points of time in the wellness and illness trajectory. Comfort Theory concepts may also be used to structure documentation and facilitate interprofessional communication regarding patients' and families' needs and preferences over time. Participants will take away from this presentation knowledge of Comfort Theory concepts and strategies for tailoring Comfort Conversations for use in different practice settings. This innovative and applied work adds to current palliative care knowledge and practice because it facilitates early conversations with patients and families. It eases the experience for patients, family members and the practitioners guiding the conversation, and does so in a non-threatening and person-centered way. This approach to exploring patients values, beliefs and comfort needs can be easily transferred to other continuing care settings such as long term care. It can form the foundation for on-going advance care planning and end-of-life conversations.

Patient Reported Outcome/Experience Measures for Elderly Patients in Acute Care

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Background: Elderly patients with serious illness in acute care have complex health needs and their needs should be routinely and comprehensively assessed. Patient Reported Outcome Measures (PROMs) and Patient Reported Experience Measures (PREMs) are multi-dimensional tools that measure health and health-related quality of life directly from the perspective of patients, and provide essential information to understand their needs without prior interpretation by any other sources. The objectives of this knowledge synthesis were to identify PROMs and PREMs that have been used for elderly patients with serious illness

and their family caregivers in acute care and to evaluate and compare the quality of these PROMs and PREMs.

Methods: This project had three stages. In Stage 1, we identified a comprehensive list of 186 PROMs and PREMs that have been used in elderly patients in acute care and their families. With the input from our interdisciplinary team of experts, the focus of Stage 2 was to record the characteristics of a subset of 88 PROMs and PREMs that measure domains relevant to elderly patients in acute care and their family caregivers. We summarized the applicability and use of these PROMs and PREMs, including length of the instruments, mode(s) of administration, scaling, and translations. In Stage 3, we evaluated the quality of the PROMs and PREMs with psychometric validation studies on elderly patients in acute care and/or their family caregivers. Three instruments, Quality of Dying and Death (QODD), Canadian Health Care Evaluation Project Questionnaire (CANHELP), and Canadian Health Care Evaluation Project Questionnaire – shorter version (CANHELP LITE), met our inclusion criteria. The Evaluating the Measurement of Patient-Reported Outcomes (EMPRO) tool, a standardized tool for evaluating the quality of self-report health instruments, was used to assess the quality of the three instruments. The CANHELP and CANHELP LITE received the highest score (over 90 out of 100) and the QODD had the lowest.

Conclusion: Our project revealed that there are many PROMs and PREMs used for seriously ill elderly patients and their family caregivers in acute care. However, few PROMs and PREMs have been explicitly validated for seriously ill elderly patients in acute care. More validation studies are required to ensure that the complex health needs and experiences of elderly patients with serious illness in acute care and their families can be accurately assessed using these standardized instruments.

Quality of life Assessment and Practice Support System (QPSS) in Acute Care

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Abstract: Older adults who have chronic life-limiting illnesses present challenges for healthcare delivery. Patients' and family caregivers' (FCGs) perspectives can be addressed and made more visible through routine assessment of their perceived healthcare needs and aspects

of their quality of life (QOL). Our aim was to gain input from users on the design and use of an electronic quality of life assessment and practice support system (QPSS) for these patients and their FCGs on acute care units. To inform QPSS design, 4 focus groups were conducted with 6-9 interdisciplinary acute care clinicians in each group. Four additional individual interviews were conducted with clinicians from a unit where a QOL assessment instrument was used in daily practice. Six interviews were completed with patients, FCGs, and clinicians to explore the user experience. Qualitative data analysis was done using interpretive description. Three main themes were identified in the clinician interviews. First, ideal characteristics of QOL assessment instruments included allowing patients and FCGs to express their experiences without undue burden, and facilitating holistic assessment of symptom management and QOL. Second, desired features of the feedback system were ease of use, dissemination of information in real-time at the point of care, prevention of charting duplication, and visual representation of data over time. Third, integration with interdisciplinary care planning included referring patients to team members and tracking interventions. Preliminary analysis of the patient and FCG data suggests that QOL assessments using the QPSS were seen as a springboard for further discussion of identified concerns and, where needed, were used to clarify responses to some questions. The QPSS was viewed as a user-friendly system. The presence of the clinician to facilitate use of the QPSS was seen as important, and some integration challenges, related to the nature of the unit and its patient population, were noted. Clinicians' input helped determine which QOL assessments were most applicable to their practice setting, how these could be integrated into practice, how results could be meaningfully reported, and which feedback mechanisms would be helpful in real-time. Patient and FCG input informed how acceptable and relevant the assessment instruments and QPSS delivery platform were in their care. These findings have informed further implementation of the QPSS.

Assessing the Palliative Content of Dementia Care Guidelines: a Systematic Review

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Sciences Corporation, Hamilton, ON, Canada; ⁷Geriatric Education and Research in Aging Sciences (GERAS) Centre at McMaster University and Hamilton Health Sciences/St Peter's Hospital, Hamilton, ON, Canada.

Background: The rising prevalence of dementia, a neurodegenerative life-limiting disease, has spurred the development of guidelines for management. Practice guidelines aim to improve the quality of care and well-being of patients with dementia and their families. However, the majority of research has focused on improved diagnosis and treatment of dementia, with current recommendations focusing on physical management. Recommendations regarding psychosocial or end-of-life care may impact people's quality of life and death. The Canadian Hospice Palliative Care Association (CHPCA) outlines a framework, the 'Square of Care', for delivering holistic, palliative care within eight domains.

Objective: We aim to assess the presence of palliative care content in recent international dementia management guidelines. This review will raise awareness amongst clinicians and guideline developers about the extent to which guidelines incorporate a palliative approach to care and may suggest improvements or revisions based on the findings.

Methods: A systematic search of EMBASE, MEDLINE, CINAHL and PSYCHINFO databases and grey literature including: the National Guideline Clearinghouse (NGC), Database of Abstracts of Reviews of Effects (DARE), Guidelines International Network (GIN) and the New Zealand Guideline Group was conducted for guidelines produced or revised in English after 2008. National and international organizations related to dementia were searched as well as reference lists of guideline articles. Sixteen guidelines were included from 3267 articles for assessment by two independent reviewers using the Appraisal of Guidelines Research and Evaluation II tool (Agree-II). Guidelines achieving an overall assessment of 4 or greater will be assessed for palliative content using the CHPCA 'Square of Care' framework.

Results: A summary with descriptive statistics of domains included in guidelines and examples of recommendations will be reported.

iGAP-Medical Education: Evaluating the Effect of an ACP Learning Module.

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Background: The Improving General practice in Advance care Planning (iGAP) research project is seeking to test tools

and strategies to improve Advance Care Planning (ACP) engagement in primary care. As part of a Knowledge-to-Action (KTA) cycle, stakeholders have been consulted at multiple stages of the study process in order to inform and adjust the project's research priorities. One identified area was ACP education of all healthcare providers, which further prioritized the training for resident physicians in Family Medicine, to facilitate ACP discussions.

Objective: We evaluated the effect of an ACP module implemented in a Doctor-Patient Relationship (DPR) course offered to first year residents in family medicine at the University of Alberta, in Edmonton.

Methods: The University of Alberta Doctor-Patient Relationship program's ACP workshop comprises of a lecture, during which an expert on the topic presents on how to have ACP conversations in family practice and discusses some of the associated challenges to ACP in practice. Following this, the residents have the opportunity to debrief in small groups, followed by interviews with standardized patients where they practice having relevant ACP conversations with patients. After each interview, the residents are given the opportunity for self-reflection and to receive feedback from their peers as well as from the facilitators. The data collection for this project involved the completion of surveys by the residents participating in the ACP module of the DPR workshop, both before and after the workshop. This allows us to document the effect of the module by seeing changes in the degree to which the residents understand ACP, in their level of comfort having ACP discussions, as well as their knowledge of barriers and facilitators on the topic.

Results: Preliminary analysis shows that the ACP module does have a positive effect on how residents understand ACP issues. Perhaps more importantly, it shows that the understanding of ACP issues prior to the workshop is uneven, and often deficient, and that the workshop is a useful tool in addressing this situation. More data will be collected in order to reach a satisfactory level of saturation in the data set. Furthermore, the survey data will be supplemented by additional qualitative data resulting from interviews with residents after the workshop in the 2015-2016 academic year.

Using Stakeholder Dialogues to Improve Capacity for Advance Care Planning

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Abstract: Advance care planning (ACP) is crucial to improving the quality of care for individuals nearing end of life (EOL). Towards ensuring timely ACP, one component of our project includes developing an algorithm to identify frail elderly nearing EOL. Similar efforts abroad were met with public backlash about the creation of a 'death list', illustrating the importance of stakeholder involvement in developing and implementing such initiatives. Two stakeholder dialogues will be held to elicit provider, policymaker, patient, family, and citizen perspectives on EOL identification and recommendations for subsequent ACP. These dialogues will be based on McMaster Health Forum's deliberative dialogue approach. Approximately 20 individuals will participate in a one-day event (herein "the dialogue"). Prior to the dialogue, an evidence brief will be circulated to attendees. The dialogue will consist of a structured discussion comprised of four topics: 1) the context, 2) the problem, 3) potential solutions, and 4) implementation considerations. Proceedings and next steps will then be compiled into the post-dialogue summary and circulated to attendees. This work will provide knowledge about the acceptance of computer-based algorithms for identifying frail elderly nearing end of life, and will help create an action plan for engaging patients and families in ACP upon identification.

Evaluation of a Volunteer Navigator Curriculum to Support Rural Older Adults

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Background: Rural-dwelling older adults face unique challenges in Canada, particularly at the end of life. Rural areas may have limited palliative care services, which can lead to fragmentation of care, distress, and high levels of caregiver burden. The navigator role emerged from oncology and has evolved to become an effective way to collaborate with patients, families, and communities to broker resources to overcome barriers, foster independence, and promote quality of life. Yet little research has explored the potential for navigation services outside of the oncology context. Duggleby *et al.* explored the volunteer navigator role for rural palliative care and developed five broad competencies: (1) Patient/Family Screening (2) Advocacy (3) Facilitating Community Connections (4) Coordinating Access to Services and Resources and (5) Promoting Active Engagement. Based on these competencies and the concepts of family-centric care and "best-fit" between

patients, families, and resources, we developed curricula for volunteer and healthcare professional navigators. The volunteer curriculum was implemented and evaluated during a three-day workshop in a rural community in British Columbia (BC).

Objective: To report the preliminary findings of an educational intervention delivered to nine volunteer palliative care navigators in a rural community in BC.

Methods: The three-day workshop included lectures, skits, and discussions based on the competencies for volunteer navigators. Nine volunteers with diverse backgrounds who resided in the rural community were recruited for the study.

Results: Overall, the educational workshop was favourably evaluated. On a Likert-type scale (0-5), participants reported they gained a good understanding of the concepts (mean score 4.3); the training was worthwhile (4.3); and they would recommend the training to others (4.2). The lowest mean score (3.7) involved the length of time given to the training.

Conclusion: Preliminary data suggest the curriculum and workshop were effective, yet require further refinement and evaluation. The next steps include additional workshops in rural communities in BC and Alberta, with continued refinement of the volunteer navigator curriculum and workshop components. The healthcare professional navigator curriculum will also be implemented and evaluated. Patient navigation may be an important way to enhance rural palliative care delivery, promote quality of life, and achieve equity of care for rural-dwelling older adults.

Developing an Illness Trajectory Resource for Dementia Caregivers: SPA-LTC

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Background: 75% of persons residing in LTC are living with some form of dementia. These persons and their families can benefit from a palliative approach to care which includes planning ahead regarding end of life preferences, values and beliefs. One of the barriers to advanced planning is lack of sufficient information about the types of decisions, symptoms and issues persons with dementia and their families may face at the later stages of the illness.

Objective: The purpose of this project was to produce an educational pamphlet that includes evidence informed information about the expected trajectory of Alzheimer's

disease and related dementias, tips for families to support quality of life throughout the illness, and questions to ask health providers as changes are observed. The pamphlet will be part of a series of interventions aimed at promoting a palliative approach to care in LTC by supporting early communication about end of life issues.

Methods: We identified and critically appraised 5 publicly available online resources for family and informal caregivers regarding dementia in the context of a palliative approach to care. A simple, paper-based, educational pamphlet was developed based on available evidence and the team's collective expertise in palliative care, dementia, and LTC. The pamphlet was reviewed by specialists in palliative care (PC) (n= 2), Alzheimer's and dementia (n=1), LTC staff (n= 34) and residents (n=1), resulting in numerous revisions. The pamphlet was then assessed for readability with the Flesch-Kincaid, Gunning-Fog and SMOG instruments, resulting in an overall average reading level of 7.9.

Results: Initial reviews of the Palliative Approach to AD in LTC pamphlet has suggested it is acceptable to residents, families and staff in LTC and fills an important gap in service provision. Next steps involve piloting the implementation of the pamphlet in 4 LTC homes in southern Ontario to further assess acceptability, feasibility of implementation and outcomes.

Conclusion: The Palliative Approach to AD in LTC pamphlet is a simple, evidence informed tool that may encourage residents, families and staff to discuss end of life care early on in the care trajectory. The development of similar pamphlets for other chronic conditions common in LTC environments including heart failure, chronic kidney disease, and chronic obstructive pulmonary disease is currently underway.

Developing a Tool to Support Advanced Care Planning in LTC

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Background: The increasing prevalence of frail older adults in long-term care (LTC) homes marks a need for the development of interventions that employ a palliative approach to care. While evidence based mechanisms to support communication when end of life is near have been developed and tested within a LTC environment, there are limited tools or programs aimed at promoting early discussions of resident values, wishes and preferences suitable for LTC. Without the initiation of early conversations,

there is no way to ensure that residents will receive end-of-life care that is consistent with their preferences, especially if they become unable to articulate their wishes at a later stage of the care trajectory.

Objective: To generate a list of evidence-informed resident-centred values, wishes or care preferences from studies or tools, that have focused specifically on LTC or on patients with illnesses prevalent in LTC such as heart failure, and dementia.

Method: A literature search was conducted in the summer of 2015 through PubMed and Primo. The following search terms were used: resident, experiences, wishes, values, end of life care, palliative care, long term care, and advance care planning. Only articles published within the last ten years and within a North American context were extracted. A total of 6 articles were identified that met inclusion criteria (date of publication, location, LTC setting or chronic condition prevalent in LTC environment). The list of items was reviewed by the SPA-LTC team and one resident for the comprehensiveness, relevance and independence of items.

Results: Our literature review resulted in the identification of 46 items. Those most commonly cited in the literature and deemed by the team to be highly relevant to LTC were: importance of communication and trusting relationships between family caregivers and staff, knowledge and information provision around illness trajectory, and discussion of PC in ACP.

Conclusion: To present, the items were presented to a group of residents currently living in LTC to ensure relevance, comprehensiveness and acceptability. We also plan to convene a panel of experts and use a method of data reduction to refine the list to 10–15 items ranked as most important and acceptable. Experts will also be consulted on the best way to incorporate the items into a tool that could be implemented and evaluated in practice.

DECIDE II COMMUNICATE: Patient Data Collection and Feedback Pilot.

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Background: Patient-level outcomes are a key focus in quality improvement, and are highly desirable as translational outcomes for medical education. However,

they are challenging to collect, particularly in real time for seriously ill and frail elderly patients. We conducted a pilot study to determine the feasibility of using an electronic platform to collect patient-level data about communication skill and empathy for individual trainees, and feed this data back to the trainees to guide their own learning.

Methods: This is a two-site pilot study of an electronic data collection and feedback tool. We enrolled seriously ill and frail elderly inpatients or their family members who had discussed goals of care with a medical trainee in the previous 72 hours. Consenting patients or family members completed the CARE and CANHELP Lite surveys on a tablet computer. This data was aggregated, de-identified and fed back to trainees who consented to participate.

Results: We enrolled patients for 6 months at one site and 2 months at the other. We enrolled 44 of 88 eligible patients (50%) and 54 of 89 (61%) eligible trainees over the study period. The trainees were predominantly first year trainees (78%) from internal medicine (67%). The mean age (range) of the patients was 62 (33-99), and the most common admitting diagnoses were cancer (23%) and infection (20%). Overall, 50% of participating trainees had at least one evaluation from a patient during their rotation on the medical ward, and 25% received more than one patient evaluation; 37% of trainees who completed 2 months on the ward received 2 or more evaluations, which allowed for aggregated and de-identified feedback. Patients reported high mean scores on the CARE (42 out of 50) and CANHELP Lite (80 out of 100) tools, but the CARE scores were not significantly correlated with the CANHELP Lite scores (ANOVA, $p=.09$). Patients reported being very comfortable giving feedback about trainees and giving negative feedback if appropriate.

Conclusion: It is feasible to collect real-time measures of communication and empathy for inpatients, and link these measures to an interaction with a specific trainee. Patients can separate the communication skill of a trainee from their overall experience with the healthcare team. It may be feasible to use an electronic platform to reliably aggregate, de-identify and feedback patient survey data to a specific trainee, but there are obstacles to using this approach on clinical teaching units.

Key Stakeholders' Perceptions of the Quality of Frail Seniors' Healthcare in Canada

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Background: Despite the development of a range of resources and health services (HS) in Canada to meet the needs of frail seniors (FS), the health care (HC) system continues to be challenged by a fragmentation of services, which adversely influences HS accessibility and efficiency. The main objective of this study is to describe key stakeholders' perceptions of the quality of FS care in Canada.

Methods: This is a mixed methods study comprising a qualitative component with semi-structured interviews and questionnaires about quality of care indicators. A purposeful sample of 20 patients and/or caregivers, 20 HC providers, and 20 decision makers (DM) from five Canadian provinces [Nova Scotia, Quebec (QC), Ontario, Alberta (AB) and British Columbia (BC)] was determined to represent variations of experiences and settings of care. DM and HC providers are being recruited among various professional networks. To recruit patients and caregivers, we are using two strategies: (1) we asking participating providers to identify FS, or (2) we are using advertisements posted in geriatric clinics. Before the interview, participants complete a questionnaire to describe their sociodemographic characteristics and to evaluate 36 indicators of the quality of FS care. Six trained moderators then conduct the individual one-hour interviews, that aims to explore participants' perceptions of (1) the quality of HC received by FS, (2) the factors influencing the quality of FS care and (3) the potential improvements to HS that would be key to improving quality of FS care. All discussions are being transcribed, and 2 researchers will independently perform an inductive thematic qualitative data analysis using N'Vivo.

Results: To date, we obtained a 75% recruitment rate of DM and clinicians. Despite our efforts, we still have not been able to recruit FS or caregivers. So far, we interviewed 11 DM (5 in QC, 4 in AB, 2 in BC) and 7 HC providers (3 in QC and 4 in AB). Of the 11 DM interviewed so far, 10 were aged 45–59-yrs (1 aged 35–44 years) and most were women (8/11). They reported an average of 20 years of experience as DM (SD:9). We interviewed 7 HC providers (4 physicians, 2 nurses, and 1 social worker), of whom 5 were women and most were aged over 45 yrs (5/7).

Conclusion: We will discuss challenges and solutions to recruit FS and their caregivers to clinical studies. We

will also present qualitative findings on stakeholders' perceptions of the quality of FS care in Canada.

Voice in the Home: an Electronic Quality of Life Assessment and Practice Support System

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Background: The health needs and quality of life (QOL) concerns of palliative homecare patients and their family caregivers (FCGs) are complex and should be routinely and comprehensively assessed. Patient-/family-reported outcome measures (PROMs) and patient-/family reported experience measures (PREMs) are increasingly utilized to obtain information about patients' quality of life and health care needs (symptoms; daily functioning; psychological, social and spiritual or existential well-being; and experiences care). The routine use of PROMs and PREMs in clinical practice can 1) reduce patient and clinician burden, 2) enhance visualization and monitoring of patient concerns through ongoing and immediate feedback, and 3) make patient- and family-reported information become part of administrative data for program evaluation and cost-effectiveness analysis.

Objectives: This project investigates the use of an electronic Quality of life Assessment and Practice Support System (QPSS) in palliative homecare population. Our research questions are: 1) How we can best facilitate the integration and routine use of the QPSS to improve the quality of care as a practice tool, and 2) will the use of the QPSS improve patients' and family caregivers' QOL and experiences with the care provided?

Method: Recruited from a palliative homecare service in British Columbia (BC), 90 clients and caregivers were asked to complete a series of QOL and healthcare experience measurement instruments by using the QPSS. To understand how to integrate a QPSS into palliative homecare nursing, we conducted two focus groups with homecare clinicians and 11 interviews (5 clients and 6 FCGs) in BC, and three focus groups with 3–5 homecare clinicians, 11 nurses and one social worker in Montreal.

Results: Clients and FCGs cited that the QPSS was simple and easy to use, facilitated communication with the health care professionals and family members, and encouraged reflections on the illness process and care needs. Clinicians found that the QPSS increased the speed of access to

information, increased completion of tools at multiple time points, helped to visualize the trends in items over time and potential decrease in the amount of paper charting.

Conclusion: Integrating the QPSS into palliative homecare is promising. Our ongoing research will continue exploring whether the QPSS will improve QOL for palliative homecare patients and their family caregivers.

Recruitment Challenges and Strategies in a Multi-Site Palliative Home Care Study

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Abstract: Supporting Family Caregivers of Palliative Patients at Home: The Carer Support Needs Assessment Intervention aims to investigate the extent to which a Home Care Nurse (HCN) administered intervention can improve Family Caregiver (FCG) quality of life during the caregiving period and in bereavement. The study is a blinded, clustered, randomized controlled trial. HCNs are recruited, randomized to control or intervention arms, and asked to obtain consent to contact from FCGs of palliative clients. FCGs are assigned to the study arm of the recruiting HCN. Three types of recruitment challenges have been identified: those specific to HCNs, clinical setting factors, and the circumstances surrounding palliative participant populations. Recruitment challenges at the HCN level include workload, inadequate staffing, job changes, lack of peer support, and “gatekeeping”. “Gatekeeping” is a concern when providers are asked to recruit their own clients; waiting for the ‘right time’, or only approaching the ‘right’ participants, leads to missed recruitment opportunities. Confusion over eligibility criteria or study protocols can also result in hesitant recruitment. System barriers are related to organizational change and modifications of workflow. A trend towards later palliative admissions leading to shorter stays has been noted. Under these circumstances it is more difficult and often inappropriate to recruit. FCGs of palliative clients are especially vulnerable as research participants. Even with consent to contact, many feel too busy, stressed, or frustrated with the healthcare system to participate. Some are experiencing visits from multiple providers and further intrusion is unwanted. Initial strategies to engage HCNs included regular meetings, and ongoing communications. Support for the study was approved at the administrative level, including HCN time for study activities. HCNs are invited to symposiums on topics of their choice. A coordinator emails study updates, providing individualized tracking information to each HCN. Research Liaisons (RLs) provide support by visiting offices

and staying in contact with HCNs. Additional strategies are being implemented to address these challenges. Clinical leaders have been approached to provide feedback on how to integrate study activities within current workflow. RLs are engaging with HCNs in one-on-one meetings and participating in rounds and huddles to cue recruitment, answer questions, and discuss eligibility.

Palliative Care Units/Beds in Ontario: Results from a Cancer Care Ontario Study

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Background: Although there are many palliative care services in Ontario, a paucity of information toward their location, structure, and scope exists. Few systematic investigations toward resource availability and clinical utilization have been conducted. As part of a larger research program, this study aimed to describe service provision in in-patient palliative care units (PCUs) and beds, and to map these services as a baseline.

Methods: Cross-sectional, self-administered online retrospective study. A multi-pronged approach was used to identify service providers. The 75 question survey was grouped into: Facility Identification; Service Description; Referral, Admission and Discharge Processes; Services Provided; Human Resources; Clinical Tools; Quality Improvement, Research and Education; and Service Utilization Statistics.

Results: Of 46 facilities identified, 29 responded. The majority indicated that they had a PCU (21, 72%). Palliative care services were located in tertiary/acute care hospitals, community hospitals, and complex continuing care (CCC) facilities. While most facilities provided interventions for patients with acute complex needs (not only end of life), there was variability in the types of services. Blood transfusions were provided by 22; 11 reported intrathecal/

epidural use. The alive-discharge rate varied from 5% to over 50%; mean length of stay was 21 days (median 14 days), and average occupancy rate was 92%. A large proportion of PCUs face significant challenges related to funding and health human resources.

Discussion: Following the study, a Provincial PCU Day was hosted by Bruyère Continuing Care, bringing together stakeholders from the 21 PCUs and representatives from the Declaration of Partnership Leadership structure. Study results were explored in-depth, as were enablers and challenges. Current funding formulae were identified as challenging, specifically for CCC-based PCUs who provide acute palliative care. Potential solutions to ensure viability while providing efficient high quality care were discussed.

Conclusion: This study, along with the Report from the Day, will aid in the dissemination of information about available palliative care services – a vital component to inform referral decisions – as well as in advocacy to enhance the acquisition of resources. Aiding in the organization and facilitation of PCU Day, and the creation of the Report, was a cornerstone to the work of the Summer Student.

Distortions in Duration Estimation During a Postural Perturbation

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Background: Does processing sensory information change during a fall? Reports suggest the perception of time does. Given the high incidence of falls among the elderly, a greater understanding of how the brain processes sensory information during falls can better inform fall preventative strategies (e.g., whether time seems to expand or contract during a fall could be used to identify those at risk of falling, and to assess the utility of fall alerting devices).

Methods: To date we recruited 20 healthy young, and 4 older adults who performed an auditory duration estimation task in the presence or absence of a fall. Blindfolded participants were presented with two auditory tones and asked to report whether the 2nd tone was shorter or longer than the 1st. One 300ms tone was constant while the comparison tone ranged from 50 to 550ms while controlling for presentation order. On each trial participants leaned into a standard 10 degree lean angle with a standard foot angle of 14 degrees using a lean-and-release system. The study was double blind to whether the trial was a control (no fall) or experimental (fall). 168 trials total were collected (60 control, 54 fall during 1st tone, 54 fall during 2nd tone) from which a psychophysical sigmoidal function was fit to the probability

of the comparison tone being longer than the standard tone for each aforementioned condition.

Results: Results show that young adults significantly under-represent the duration of an auditory stimulus (temporal compression) when they fall during the 2nd presented tone (222, s.e. 16.5ms; 26% compression), while duration estimation is veridical when not falling (306, s.e. 10.3ms), or when falling during the 1st presented tone (293, s.e. 9.6ms). Temporal compression is more pronounced in the elderly when they fall during the 2nd presented tone (155, s.e. 65.2ms; 48% compression) but the duration of an auditory stimulus is over-represented (temporal dilation) when they fall during the 1st presented tone (363, s.e. 8.2ms; 21% dilation).

Conclusion: Our results to date suggest that the perceived duration of auditory events changes dramatically during a fall, depending on age, and the order in which tones are presented relative to the fall. Future work will recruit more elderly participants and investigate the possible role of tone order and cued falling. Our preliminary research may have implications for monitoring increased likelihood of fall incidence and for identifying and optimally alerting those more likely to fall.

Interdisciplinary End-of-Life Care Education Using High Fidelity Simulation

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Abstract: The national Quality End-of-Life Care Coalition of Canada report advocates that professional healthcare education must become even more important for a systems-wide approach to handling hospice palliative and end-of-life care in order to ensure that the soaring numbers of dying Canadians receive quality care in all settings where they die over the next 10 years. Recognizing this critical societal need, and addressing it as an educational challenge, this grounded theory study examines learner experiences with high fidelity simulation labs in interprofessional palliative care. This study is guided by the central questions: What forms of knowledge and processes of learning are generated in an interprofessional palliative care simulation learning environment? And what is the experience and impacts of the interprofessional palliative care simulation from the healthcare learner's perspective? This research study recognized that learner participation in the instructional technological platform of simulation prompts questions about the nature of experiential learning and how it is that learning arises out of simulation. The study design followed standard processes in grounded theory by using constant comparisons throughout the data analysis process and by

adopting a constructivist perspective toward the research process. Nine participants completed two palliative care simulation lab experiences designed to provide opportunity to test drive their knowledge using a palliative approach, and to start a conversation about their role as palliative care practitioners. Data was collected from debrief sessions following the simulation labs; from the study's 3 phases' interviews that each participant individually engaged in (each participant \times 3 interviews); and from extensive observations and field note journals. Analysis followed grounded theory procedures using initial, focused, axial and theoretical coding. The substantive emergent theory is an explanatory model to address the studied phenomenon: the interprofessional palliative care learning experience using high fidelity simulation. This new theory, attempts to capture the experience in simulated death education as it pertains to learning processes, perceptions of learning, impacts on learning, and meanings associated with learning that resulted from participation in the study. The findings and 3H theory that emerged have significance and implications at individual, organizational, and societal levels of analysis.

Advance Care Planning for Mechanical Ventilation: Approaches to Cross-Cultural Care

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Background: Advance care planning (ACP) is a method used by patients to express preferences for life-sustaining treatments at the end-of-life. With growing ethnocultural diversity in Canada, healthcare providers are managing an increasing number of diverse beliefs/values that are commonly associated with preferences for mechanical ventilation (MV). This study aims to explore facilitators and barriers with current approaches used by healthcare providers to set care plans for MV with ethnocultural populations.

Methods: Semi-structured interviews were conducted with eight healthcare providers who engage in ACP from five acute-care hospitals.

Results: Three major themes emerged: 1) Goals of care across illness continuum 2) Respecting beliefs, values and wishes for care, and 3) Cross-cultural support in ACP. Using a value-based approach in ACP was described as an effective approach for managing and interpreting diverse beliefs/values that impact decisions for MV. However, personnel, organizational and systemic barriers continue to hinder the provision of cross-cultural ACP across health settings.

Strengthening a Palliative Approach in Long-Term Care: a Multi-component Program

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Abstract: Residents living and dying in long-term care (LTC) homes represent one of society's most frail and marginalized populations of older adults. The average length of stay within LTC has decreased significantly in recent years making LTC a major location of death for frail older adults nationally and internationally. The purpose of this poster presentation is to provide an overview of the development and components of a palliative intervention, called Strengthening a Palliative Approach in Long Term Care (SPA-LTC). First, an overview of the state of knowledge about palliative care in LTC care will be provided. Second, key components of the SPA-LTC program will be introduced including: (a) the formation of onsite interdisciplinary palliative champion teams; (b) Comfort Care Rounds; (c) implementing the Palliative Performance Scale to help trigger end-of-life Family Care Conferences (FCC); and, (d) providing bereavement follow-up for family members. Finally, recommendations or tips to implement the SPA-LTC program will be discussed. The findings of this study have the potential to improve the quality of life of older adults living and dying in LTC, and provide better support to their families. Given the growing aging population living and dying in this complex health environment, the proposed study promises to offer valuable information on implementation processes, clinical and administrative tools, and educational materials that will inform how qualified health professionals and decision-makers can improve the delivery of palliative care in LTC globally.

My Health, My Wishes, My Plan; How to Engage Patients & Care Givers in ACP

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Abstract: Advance care planning (ACP) is a process of discussing patient values and wishes with regard to future health care needs including but not limited to end of life care. Ideally ACP occurs prior to acute deterioration, however as highlighted by the national Speak Up campaign, many Canadians have not had advance care planning discussions. In the absence of ACP, patients may receive unwanted and inappropriately invasive care. However, when people have discussed their wishes prior to deterioration, there is

reported improved satisfaction of care from patients and their support network, and decrease in caregiver burnout and depression. When carried out well, ACP aligns treatment with a patient's wishes and increases patient autonomy. The East Toronto Health Link has developed an interdisciplinary facilitator model of the ACP process. Our model is stratified to respond to the spectrum of health experiences of patients (i.e., the healthy adult age 50, the adult with a progressive chronic disease, and the adult in their last year of life). The facilitated model uses a values-based practice model to assist patients with identifying their values and wishes for future care. Training for ACP facilitators therefore focuses on values-based practice, advanced communication skills, and an improved understanding of the ethical and legal issues of advance care planning. The session would provide an overview of the interdisciplinary model, approaches to common barriers to ACP in primary care and an approach to incorporating ACP into routine care of patients within a health care or community setting. EThEL will also showcase an innovative e-learning module that is available provincially to all health care providers demonstrating specific scenarios for ACP and how to begin such conversations with patients/clients and their care givers.

Frailty, Drug Use and Hospitalization Among Older Assisted Living Residents.

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Objectives: Assisted living (AL) is an increasingly popular yet poorly understood residential setting for older adults. We sought to estimate the prevalence of frailty among AL residents using the frailty index (FI), cardiovascular health study (CHS) criteria, and health instability (CHESS) scale; examine the association between frailty, antipsychotic use and hospitalization over 1 year; and, examine whether the frailty measures modified the association between antipsychotic exposure and hospitalization.

Methods: Participants were 1,089 residents (mean age 84.9±7.3; 77% female) from 59 facilities in the Alberta Continuing Care Epidemiological Studies (ACCES). Research nurses completed a standardized comprehensive clinical assessment of residents at baseline (2006–08) and 1 year. Standardized administrator interviews provided facility level data. Hospitalization was determined via

linkage with the Alberta Inpatient Discharge Abstract Database. Associations between frailty measures, antipsychotic exposure and hospitalization were examined with multivariable Cox proportional hazards models.

Results: The mean number of diagnoses was 4.7±2.0 and 57% had dementia. The prevalence of pre-frail/frail residents was 39%/28% [FI]; 55%/19% [CHS]; and, 29%/24% [CHESS]. The cumulative annual incidence of hospitalization was 38.9% (35.9-41.9%). All 3 frailty measures were significantly associated with hospitalization after adjusting for age, sex and comorbidity, with the highest risk observed for frail (vs. non-frail) residents defined by the CHS criteria (adj. HR=2.11, 95% CI 1.53-2.92). Antipsychotic use (26% [94% atypical agents]) showed no association with hospitalization. However, relative to non-frail residents using antipsychotics, pre-frail/frail residents using 1+ antipsychotics were significantly more likely to be hospitalized (adj. HR=2.30, 95%CI 1.43-3.70 and adj. HR=2.20, 95% CI 1.3-3.74, with frailty defined using FI and CHS, respectively). Frail residents using 1+ antipsychotics were also significantly more likely than non-frail users to reside in facilities with no licensed practical and/or registered nurse on site (26% vs. 14%) and with no pharmacist involvement in the past month (34% vs. 20%).

Conclusion: Our findings illustrate the importance of assessing frailty in relation to drug benefit/risk decisions among AL residents and suggest clinical and policy areas where targeted interventions may enhance quality of care and delay adverse care transitions.

A Scoping Review of Interventions to Prevent & Treat Frailty in Older Adults

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Abstract: The Canadian population is aging. With aging, due to the physiological changes such as declines in muscle mass and decreases in organ functions, older adults have increased vulnerability to poor outcomes and reduced ability to recover from an acute stressor. This increased vulnerability is also known as frailty. Frailty is common in older adults (OAs) and is associated with increased health care service use and adverse health outcomes. Literature

suggests that if older adults are screened for frailty, prevention and early treatment is needed to postpone or prevent negative outcomes (e.g. disability, nursing home admission, mortality). Although there have been several reviews on frailty, in particular with regard to definitions and measurement tools, there has not been a review of available interventions to prevent and/or treat frailty in community settings. With the aging of the population, there will be an increase of frail older adults residing in the community. Therefore, an overview of available interventions for this population can help health care providers in community settings to improve health and prevent/postpone adverse health outcomes for these OAs and their caregivers. This gap will be addressed by conducting a scoping review of interventions to prevent and/or treat frailty in community-dwelling OAs as well as international policies. As recommended by Arksey and O'Malley, our methodology will have 6 components. The specific objectives are: (1) To complete a systematic search of the literature to identify existing interventions/policies available for use with community-dwelling OAs to prevent/treat frailty and their impact on patient outcomes. (2) To evaluate the interventions and policies according to their relevance to knowledge users/stakeholders (relevance, feasibility, usability and acceptability). (3) To describe barriers and facilitators to the implementation of the interventions into clinical care for frail OAs, OAs with multimorbidity, or OAs with lower health literacy. Eligible studies for our review will include all types of studies/policies published. We will search 10 databases, as well as abstract only databases and search the grey literature. We will include studies published from Jan 2000 to Summer 2015. Examples of key search terms/mesh terms include decision making tools, decision support techniques, decision aid, decision support and neoplasms/cancer and Aged, 65 and over. Currently we are searching the literature and reviewing abstracts.

The Coexistence of Frailty, Dementia and Depression in Older Adults.

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Objectives: Frailty, dementia and depression often co-vary and individually predispose older adults to poor outcomes. The degree of overlap among these conditions may be influenced by the approach used to detect frailty. Utilizing data from a cohort of assisted living (AL) residents we explored associations between dementia,

depressive symptoms, and 5 frailty measures (2 versions of a cumulative deficit frailty index – one with 86 items [FI-86] and one with 44 [FI-44]; 2 versions of the cardiovascular health study [CHS] criteria – one using absolute cut-points [CHS-abs] and another relative cut-points [CHS-rel]; and a health instability [CHESS] scale).

Methods: Participants were 1,089 residents (mean age 84.9±7.3; 77% female) from 59 AL facilities. Research nurses completed a standardized comprehensive clinical and frailty assessment at baseline (2006-08). Descriptive analyses were conducted with related Venn diagrams to illustrate the degree of overlap. Associations between frailty and hospitalization were examined with multivariable Cox proportional hazards models.

Results: Among the 946 residents with complete data, 56% had dementia and 17% had significant depressive symptoms. Frailty prevalence varied significantly by measure: 23% with FI-86; 54% with FI-44; 48% with CHS-abs; 19% with CHS-rel; and, 23% with CHESS. The percentage of residents with all 3 conditions ranged from 5% (CHS-rel) to 13% (FI-44), see Figure 1. Three of the 5 frailty measures (CHSrel, FI-86, CHESS) were significantly associated with hospitalization after adjusting for age, sex, dementia, depressive symptoms and comorbidity, with the highest risk observed for CHSrel (adj. HR=2.02, 95% CI 1.44-2.84).

Conclusion: Different approaches to detecting frailty show varying degrees of overlap with dementia and depression and may identify different at risk sub-groups of older adults. A more restrictive definition for frailty might offer advantages in delineating a target group for interventions.

Optimizing Medication Use and Safety in Community Dwelling Seniors

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Abstract: As our population ages, patients manage increasingly complex medication regimes. It is common for medication to not be taken as prescribed, which can lead to negative patient outcomes such as side effects, overdose, and inconsistent effectiveness of medication. This poster will present preliminary work showing the effectiveness of an electronic medication administration tracking device, the eDosette, which is supported by a CFN grant. Community dwelling seniors are invited to store their medication dosette or blister pack inside of the eDosette for two weeks. During this time, researchers were able to track when the participants administered doses of medication and also when doses were missed. In addition, the eDosette

includes a side-effects button, which if pressed will prompt a phone call from a pharmacist within one business day. We are working on software that will make the medication tracking automated. So far eight patients have used the eDosette device. We found that patients had a high variability in medication compliance, with some seniors showing very consistent administration, while others vary widely in the times they take their medication. However, the seniors did find the device easy to use and unobtrusive. In addition, this project has led to a medication review for one patient who had especially poor medication compliance. We will present the current results as well as outlining a case study from the experiment.

Improving Nursing Home Care through Feedback on Performance Data (INFORM)

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Background: Delivering results of health research to participating care providers is essential to improving care quality. Therefore, systematic feedback of research results is an essential part of Translating Research in Elder Care (TREC) 2.0. TREC 2.0 is a longitudinal (2014-2018) observational study, which occurring in 91 nursing homes (NHs) from British Columbia, Alberta, and Manitoba. It involved personal interviews with healthcare aides (HCAs) regarding modifiable features of work environments and assessments of residents' health outcomes using the Resident Assessment Instrument Minimum Data Set (RAI-MDS) 2.0. However, little is known about HCA and NH administrator (NHA) perspectives on features of optimal feedback delivery.

Objectives: To discern barriers, facilitators and preferred characteristics of feedback delivery among HCAs and facility administrators; and to improve organizational context and quality of care in NHs by optimizing the content and methods of feedback delivery.

Methods: We reviewed the literature and conducted semi-structured individual interviews with NHAs and focus groups with HCAs using standardized interview guides to identify best practices, barriers and facilitators to feedback delivery. Purposeful and convenience sampling were used in selecting NHAs and HCAs.

Results: We included 19 NHAs and 50 HCAs from 18 and 13 unique facilities enrolled in TREC 2.0, respectively. Overall, NHAs preferred highly visual reports, with minimal explanatory text. HCAs preferred feedback

delivered on aspects of work life quality most, followed by characteristics of time rushed, best practice use, best practice attitudes, and demographic characteristics. Bar graphs and in-person presentations were favored feedback delivery formats and methods among both groups. Barriers to feedback delivery included staff workload, organizational hierarchy, and unspecific behavioural change targets. Key facilitators were staff willingness to improve care quality, coordination with staff, and managing expectations of performance data.

Conclusion: Providing timely, accurate, usable, and useful performance data is essential to the success of audit and feedback interventions. Our results demonstrate that this can be achieved in part, through consulting those for whom feedback data is designed. Future work should further involve these stakeholders in decision-making surrounding knowledge translation efforts and measure the effects of greater inclusivity on staff and resident outcomes.

A Scoping Review of Physical Rehab in Long-Term Care

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Abstract: Physical rehabilitation (PR) encompasses methods to maintain or improve mobility, physical activity, and overall wellness, and can be delivered by interdisciplinary team members. While PR is effective at improving function for residents in long-term care (LTC), it remains unclear which interventions are most appropriate, which outcomes or quality indicators (QIs) can be used to evaluate PR at the resident, facility or system-level, and what tools or models can be used to determine eligibility. A scoping review was conducted and a consensus meeting was held to answer the research questions: What types of PR have been evaluated in LTC? Which outcomes or QIs have been used? What tools exist for decision-making in the allocation of resources? A systematic search was conducted in six databases, as well as a structured grey literature search. Articles were screened and abstracted by 2 team members. Data abstracted regarding outcomes and QIs were mapped onto existing QIs used for public reporting by Health Quality Ontario. At the consensus meeting, nominal group technique was used to determine which existing QIs could be used to evaluate PR in LTC. 316 articles were included in the scoping review. The majority of articles were from the United States; most not

reporting the length of stay of included residents. Few articles included residents who were non-ambulatory, bedridden, or with evidence of cognitive impairment. The majority of interventions were delivered and evaluated at the person-level. Performance-based measures, activities of daily living (ADLs) and mood were the most frequently reported outcomes. No validated models or tools for determining eligibility for PR services in LTC were included. There was limited evidence in the literature around which QIs could be used to evaluate PR in LTC, though ADLs were most frequently suggested. 14 stakeholders participated in the consensus meeting. ADLs and falls were identified as the most important QIs for evaluating PR in LTC, however the importance of measuring QIs in relation to each other and focusing on resident-centered outcomes (quality of life and mood) was emphasized. Future research should consider the characteristics of the residents included, address comprehensive goals relevant to the characteristics of residents, differentiate length of stay of residents, examine realistic and sustainable delivery methods, and develop tools for determining service eligibility.

Decision Making About Relocation Among the Frail Elderly and Their Caregivers

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Background: Very little is known about the experience of the frail elderly and their family caregivers in choosing whether to stay at home or move to another location, such as a nursing home. We report on outcomes of decision making about relocation among the frail elderly and their caregivers.

Methods: Prior to a large cluster randomized trial of a shared decision making training program for home care teams in the Province of Quebec (the DOLCE trial), we completed a cross-sectional survey of eligible participants to assess comparability between the intervention and control arms. Eligible individuals were people aged ≥ 65 years who had made a decision about whether to relocate in the previous six months, and who were receiving care

from a home care team in one of 16 participating health and social services centers (HSSC). If individuals were unable to give informed consent due to cognitive impairment, their caregiver was invited to participate instead. Eligible participants were selected sequentially by a resource person from each HSSC and contacted consecutively by a research assistant (RA). Participants completed a closed-ended questionnaire administered by the RA. We assessed participants' preferences about relocation, the choice made, participation in the decision-making process, decisional conflict, decisional regret, and demographics.

Results: We recruited 31 elderly people and 48 caregivers. Mean age was 84 years (± 7) for the elderly and 67 years (± 13) for caregivers. Although the preference of 64.6% of the elderly and 68.7% of caregivers was to stay at home, only 32.2% of the elderly and 35.4% of caregivers reported that this was the option they chose. Active participation in the decision-making process was reported by 93.6% of the elderly and 70.9% of caregivers. Mean decisional conflict scores were 31.2/100 (± 23.7) for caregivers and 24.8/100 (± 20.1) for the elderly. Mean decisional regret scores were 19.2/100 (± 22.7) for the elderly and 15.2/100 (± 19) for caregivers.

Conclusion: Our results suggest that although the elderly and their caregivers have similar preferences and make similar choices about relocation, their experiences of the decision making process differ. Results for both groups also suggest that their preferences do not match their actual choices. These findings indicate the need to find decision support interventions that address the decision-making needs of both the elderly and caregivers together.

Enhancing Care for Frail Seniors through the ASILA Program

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Objectives: As the population of seniors rises, pressure increases on the care capacity of long-term care (LTC) organizations. Insufficient geriatric content in Canadian health care education and increasing complex care demands of residents in LTC has resulted in care deficits. These deficits lead to diminished health outcomes and poor quality of life for residents. This poster describes the Applied Simulated and Integrated Learning Approach (ASILA). This is a novel intervention, which targets clinical outcomes for LTC residents through the use of

evidence-informed case simulations related to common cognitive and physical challenges among frail seniors. The ASILA program builds on leading practices in simulation education to develop inter-disciplinary training scenarios for health care staff. ASILA employs the principles of Comprehensive Geriatric Assessments and the use of Minimum Data Set (MDS) tools to enhance staff's care approaches. The pilot study evaluated the feasibility of the ASILA Program and investigated the effects of ASILA on staff's knowledge and perceptions and residents' outcomes.

Methods: Two LTC homes (n=23 staff) participated in this pilot. Staff completed pre and post (immediate and 3-months post-intervention) knowledge and experience based questionnaires and participated in focus groups. MDS data was collected from residents (n=40) at baseline and 3 months post-intervention. All data underwent a descriptive analysis.

Results: Following ASILA, staff had higher scores in knowledge and positive perceptions of the use of comprehensive assessments and MDS tools to guide care. Several small, yet positive changes were found in resident clinical outcomes including: increased CPS, ADL, and CHESS scores, and decreased pain scores over the three month period. Depression scores did not appear to change after three months.

Conclusion: Pilot findings indicate that ASILA is a feasible and successful approach to enhance care for frail residents in LTC, emphasizing quality of life and promoting best practices.

Frailty & Recognizing Appropriate Medications in Geriatrics & Long Term Care: Protocol

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Background: Older adults in long-term care facilities (LTCF) often have multiple chronic conditions that increase their exposure to polypharmacy enhancing the risk for potentially inappropriate medication (PIM) use, adverse events, and increased healthcare service use and costs. Optimal prescribing for vulnerable older adults,

particularly those in LTCF, may be influenced by various system, provider, individual and caregiver factors, posing a challenging public health concern. Pharmacotherapy guidelines specific to vulnerable older adults remain limited by the absence of ecologically valid research and a tendency to exclude frail older adults in research. Consequently, our understanding of the benefits, harms, and costs related to PIM commonly prescribed in LTCF remains unclear.

Objective: To gain an in-depth understanding of the conditions and factors associated with PIM utilization in older adults in LTCF.

Methods: Design: The qualitative phase of this mixed-methods study will use an embedded single case design. Twelve LTCF will be recruited across Ontario using maximum variation sampling based on prescription rates of a select group of medications determined in phase 1. Sampling will also explore facility type, seasonality, healthcare staff mix and patient characteristics. Data collection: Data sources will include chart reviews, observations, interviews with administrators/providers and patients/families until saturation occurs. An education and pilot-testing session with the interprofessional research team was held. Data collection tools were tested and fine-tuned. Analysis: Charmaz's textual analysis and an iterative directed content analysis approach will be used to analyze interviews and observation field notes. A case study database will be prepared allowing for triangulation of key themes, categories and codes through a series of analytical sessions yielding a final case report (cross-syntheses). Strategies such as multiple data sources, chain of evidence audits, key informants, pattern matching, alternative evidence examining and stepped analyses will help ensure transferability of data.

Conclusion: The results along with a framework for complex interventions will align with priorities guided by national stakeholders to inform the design of pilot interventions aimed at improving pharmacotherapy and health outcomes for vulnerable LTC patients.

Development of a Decision Aid to Support Elderly in Decision Making About Location of Care

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Background: The decision faced by the frail elderly about whether to stay at home or move to another location of care is difficult and preference sensitive. Interprofessional (IP) home care teams are in a position to support such decision making processes, but lack the proper tools. We aimed to develop a decision aid (DA) for the frail elderly facing this decision.

Methods: Based on the International Patient Decision Aid Standards (IPDAS) framework we adopted a multipronged study design to develop a DA in both English and French concomitantly. We organized a multidisciplinary development team (family physician, decision making specialist, nurse, manager with occupational therapist background, manager of university affairs and IP practice, caregivers). As a starting point, we used the Ottawa Personal Decision Guide (OPDG) which we adapted to meet the specifics of the decision. We conducted an umbrella review to find evidence about the options. Multiple end-users reviewed the draft DA (caregivers, a health manager and representatives from the Quebec Ministry of Health and Social Services). French- and English-language linguists reviewed the texts to increase comprehensibility. We evaluated the texts with readability software to assure the DA is understood by the users (French DA: Scolarius, English DA: Readability Plus).

Results: We adapted the OPDG to the specifics of the decision by 1) specifying the decision to be made; 2) adding a section for noting the elderly person's functional autonomy profile score, a measure used by home care teams to assess the level of need for care; and 3) adding a section for listing the location of care options based on this score. There is also a section where users (patients and others involved in the decision) can add information specific to their situation. The new DA describes each option, allows listing of pros and cons in a balanced format, and provides an explicit values clarification exercise. End-users were generally positive with some divergence among them regarding what was important to keep or to change. Both texts were readable at a Grade 5 level.

Conclusion: We developed a DA to support the frail elderly in the decision to stay at home or move to another location. The DA was found to be acceptable to multiple stakeholders. The impact of the DA is being evaluated in a multicentre cluster randomized controlled trial to implement shared decision making for the frail elderly facing the decision to relocate.

Antidepressant Guidelines for the Frail Elderly With and Without Dementia

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Abstract: There are over 200,000 elderly living in long-term care (LTC) facilities across Canada. Residents in LTC are typically frail with shortened life expectancy, declining health status, vulnerability to poor health outcomes, and increased potential for medication-related adverse effects. Accordingly, clinical guidance is needed to address the potential risks and benefits of medical treatments. The Palliative and Therapeutic Harmonization program (PATH) and Dalhousie Academic Detailing Service have previously developed evidence-informed guidelines for the use of lipid-lowering and antihypertensive medications. We now turn our attention to the use of antidepressants. Approximately 40% of LTC residents are prescribed antidepressant medications. As such, there is a need for carefully considered evidence-based guidelines that consider the context of frailty, treatment efficacy and potential harm of this class of medication. In our review, we will incorporate the evidence and clinical perspectives on the ethical balance of desirable and undesirable outcomes, e.g., improvement in depressive symptoms; care giver burden; validity of assessment processes and the diagnosis of depression in frail elderly adults, with and without dementia. Our process differs from other reviews in that we carefully scrutinize the quality of evidence and the applicability of study outcomes to those who are frail. Our process includes: 1. Developing review questions; 2. Define inclusion/exclusion criteria; 3. CADTH Level 2 reviews in parallel with team literature review, i.e., identifying relevant papers and critical appraisal; 4. Developing a data extraction tool, including modified GRADE criteria; 5. Biweekly team meetings to present and discuss key findings; 6. Monthly partner meetings; 7. Developing final guideline recommendations and decision-aids for prescribers; 8. Disseminate guideline and decision-aids. To strengthen dissemination, we have developed partnerships with several initiatives and organizations with an interest in appropriate antidepressant use in frail, elderly adults, including: Care by Design; the SOME Polypharmacy project; the Canadian Coalition for Seniors Mental Health; the RxFiles LTC resource; the Atlantic Long-Term Care Network; and Northwood (Halifax) nursing home. We also wish to acknowledge support from the Nova Scotia Department of Health and Wellness, the Nova Scotia Health Authority Drug Evaluation Unit, and the Canadian Agency for Drugs and Technologies in Health.

Using technology to Optimize Assessment of Balance and Mobility in the Frail Elderly

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Background: The construct of a frailty ‘threshold’, including the specific tools/protocol to be used to assess frailty, requires further study. Advancing technology to improve the metrics used for quantifying health status is critical to defining frailty thresholds and for improving our ability to predict risk of progression. It also helps to assess the impact of risk factors (e.g. acute health events) and to evaluate interventions that may slow or reverse frailty-related changes. An essential metric in determining frailty and risk of injury (e.g. falls) is capacity for independent mobility. The aim of this project is to advance a prototype clinical balance and mobility ‘toolkit’, which couples wireless sensors with a tablet-based data collection, analysis and reporting system using an iterative cycle of software development and user feedback. The project consists of three stages of development: 1) evaluation and enhancement of the toolkit’s clinical content using pilot data obtained from the prototype, 2) gathering clinician perspectives on the prototype data acquisition and reporting system, and 3) secondary evaluation of the revised toolkit. This initial paper reports on results related to the first stage.

Methods: Data were examined from 139 ambulatory older adults living in a retirement care setting who completed a clinical assessment of physical function (age range: 68-97 years, mean age: 86 ± 5.2 years). Participants completed tests of standing balance, sit-to-stand, and walking. Performance was quantified using tri-axial accelerometers and Nintendo Wii balance boards. Descriptive analyses and comparisons with normative values published in the literature were used to identify redundancies across three functional domains (standing, transitions, and walking).

Results and Conclusion: Analysis of balance and mobility status revealed that few participants exceeded risk boundaries across multiple functional domains (16% across two domains, 3.5% across three domains). Of the 28 participants with impaired status based upon standing balance performance, 61% were below boundaries for both transition and walking domains. Examination of individuals with respect to individual domains, provided useful information regarding the nature of the impairment underlying poor performance. Results reveal the autonomy of functional domains in the assessment of balance and mobility, demonstrating the need to include outcomes from each domain in the toolkit to inform clinical decision making.

Tecla 3.0

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Abstract: Older adults, including those who would be considered frail, can use dedicated and costly alternative and augmented communication tools to support alternative communication needs. Another option is modifying or using mainstream technology, such as mobile phones, that offers solutions at a low cost. The Tecla Shield, an existing “switch interface” made by Komodo OpenLab, unlocks the functionality of mobile devices for those who cannot use a touch-screen or keyboard, and must rely on switch input (see Figure 1). The Tecla Shield has been available for four years and functions as a wireless bridge between existing adaptive switches and touchscreens, making smart devices accessible for switch users. As part of Komodo’s customer feedback process, users provided their experiences with the Tecla Shield by describing features that were found to be satisfactory, unsatisfactory and non-existent features that they would like. Satisfactory features included battery life and interoperability. Unsatisfactory features included system setup, status lights, changing modes, sturdiness, aesthetics and power status. Desirable features included a setup assistant, tutorials, ‘silent’ mode, easy mode switching, a sturdier connection to switches, and the ability to access environmental controls such as doors and lights. Working with Komodo, we will address these issues and suggestions by developing a kit called Tecla 3.0 to facilitate access to interfaces, as well as include the frail elderly in the target user group. Our goal is to ensure that users will be able communicate with caregivers and family, interact with their environment, and receive and respond to mobile notifications via phone or tablet, without direct use of a touch-screen. This includes accessible switches, mounting and positioning equipment, software, as well as an optimized interface that translates user input into device actions. To create an end-to-end solution in the prototyping phase we are using rapid prototyping technology (3D-printing), open source software, and emerging mobile accessibility techniques. The Tecla 3.0 will allow users to connect to multiple platforms and devices, and to switch between them without physical intervention. Komodo is currently developing a new android app that works in concert with the Tecla Shield to navigate the OS. They are also in the process of developing the hardware platform that allows interaction with multiple end devices.

Use of Frailty Measures in the Field of Intellectual and Developmental Disabilities

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Background: A growing number of adults with intellectual and developmental disabilities (IDD) are experiencing old age, and many who are frail face an increased risk of negative

health outcomes. The need for an appropriate measure of frailty is recognized, and a few measures have recently been developed. However how best to integrate such measures in care planning, service planning and policy development requires consideration.

Objective: To improve community care and clinical outcomes of Canadians with IDD who are frail by developing procedures for identifying them and prompting appropriate action on the part of providers, planners and policy makers.

Methods: A critical scoping review of the literature and key informant interviews. Standard scoping review methodology was applied to explore, summarize, and disseminate the knowledge of frailty in adults with IDD.

Results: The scoping review identified 214 abstracts. Abstracts without a full-text article in English were excluded. The authors selected 17 papers that specifically discussed frailty in adults with IDD. Four measures of frailty were identified, each with various levels of use in research and in different stages of validation. Most studies focused on determining the associations between frailty and health indicators (e.g. instrumental activities of daily living, mobility). Some examined frailty as a predictor of outcomes (e.g. care intensity, sarcopenia, fractures, falls, increased medication use, mortality). While none of the studies explored the use of frailty measures in practice, many discussed the possibilities of using frailty measures to identify individuals at risk of decline who could benefit from early interventions. A valid frailty measure was also thought to be useful for evaluating interventions, and describing individuals over time. Some studies indicated the need to collaborate with both general health care professionals, as well as practitioners who work specifically with adults with IDD before implementing a frailty tool.

Conclusion: Future research should continue to develop and validate appropriate measures of frailty; however, work is also needed to investigate the feasibility and effectiveness of using frailty measures in practice. Key informant interviews will seek to understand the willingness to learn about aging among persons with IDD; the presence of formal and informal partnerships; and the availability of resources for implementing and monitoring of evidence-informed policies.

Pad-Based Continence Management in Long-term Care: Rationale and Objectives

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Background: Urinary incontinence (UI) affects 40-65% of residents in long-term care (LTC) facilities. It is most commonly managed by the use of pads in a practice called “check-and-change” (C&C). Pads contain the incontinence and are checked for wetness at intervals, often with no reference to the resident’s voiding pattern. Consequently, there are potentials for a prolonged time spent in a wet pad, inefficient use of care staff time, and avoidable disruptions to residents. Furthermore, the number of pads used per day correlates poorly with the volume of incontinence. There is minimal data on the usual pattern of care and resource use for incontinent residents in LTC that are managed with C&C; this exploratory study aims to describe these unknowns.

Methods/design: This is an exploratory, observational study. Incontinent residents of a unit in a LTC facility ≥ 65 years of age who are managed almost exclusively with absorbent containment pads, and who do not have concurrent frequent faecal incontinence will be enrolled. For each instance of continence care, the care staff will record the time of the check, the state of the pad, and any presence of leakage. They will also record the time spent delivering care using a blinded stopwatch and store changed pads. The investigators will weigh the soiled pad to calculate the capacity at which it was changed. From this data, the frequency and times of UI checks per 24-hour period, the average time spent on UI care per resident per day, the number of and time spent on unnecessary checks per resident per day, and the number of pads that are changed before reaching their capacity will be established. At the time of writing, data collection is about to start.

Conclusion: Our findings will describe the pattern of and resource use in check-and-change UI care in the LTC setting. This information will prompt and guide future research in the care of incontinent LTC residents, for example by identifying the time burden on the care staff, and any inefficiencies or deficiencies in UI care.

Age Related Differences and Learning Effects in the Tether Release Paradigm

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Background: Falls are the leading cause of injury among older individuals yet limited research has attempted to characterize age-related changes in stepping responses after a trip (common cause of falls), and none has investigated potential age related differences in balance recovery after repeated perturbations. Therefore, the goals of this study were to investigate the potential effects of age and repeated

trials on metrics of balance control after a simulated trip using the ‘tether release’ paradigm.

Method: Study participants included 9 younger adults (21.5 ±1.5) and 9 older adults (66.4 ±4.5). Participants performed 100 trials wearing noise cancelling headphones and a blindfold and assuming a lean with 10% of their body weight. A motion capture system was used to collect 3D body position data (kinematics), sampled at 32 Hz. The kinematic data was used to calculate whole body center of gravity (COG) location, joint angles and step length. The 100 trials were averaged over each successive five trial group resulting in 20 successive ‘trial groups’. A mixed-model two-way ANOVA was performed to investigate potential main effects of age, trial groups, and interactions using a significance level of .05.

Results: Results showed a significant interaction effect for both trunk angle and hip angle ($p=.008$ and $p=.044$, respectively). A significant difference in step length between younger and older adults was also observed ($p=.045$). Finally, the interaction between trial groups and age neared significance for the difference between COGmax and COG at heel contact (i.e., how far the center of gravity pitched forwards after the stepping foot contacted the ground) with a p value of .074. The trends observed over the course of the 100 trials for trunk and hip angle appear to be inversely related. Older adults exhibited higher trunk angle from the 5th group of trials when compared to younger adults. Older adults exhibited consistently lower hip angles from the 7th group of trials. The difference between COGmax and COG at Heel Contact suggest that COG increases in older adults with repeated trials and decreases in younger adults. Finally, the interaction between step length and age suggests that older adults (who took larger steps) tended to increase their step length with repeated trials.

Conclusion: Ultimately, the age related differences over repeated trials can aid in the diagnosis of fall risk in older adults as well as provide information for balance control improvement exercise programs.

Translation of Safe Movement and Physical Activity Recommendations Within Long-term Care

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Abstract: In long-term care (LTC), up to 95% of women and 27-51% of men have osteoporosis and the fracture rate is 2-4 times greater than in the community. Exercise and

spine sparing strategies are recommended for people with osteoporosis to prevent fractures. However, implementation in LTC has unique challenges. Accordingly, there is a need to intensify the uptake of evidence-based exercise and physical activity recommendations in LTC. The objective of this project was to develop knowledge translation (KT) tools around evidence-based exercise and physical activity recommendations for LTC rehabilitation staff and personal support workers. The KT tools include a training webinar and slide kit, example plan for an exercise class, and a one-page summary of key messages around safe physical activity for people in LTC. The messages in the tools are extracted from the Too Fit to Fracture initiative, and the Fracture Prevention Recommendations for LTC was used to integrate exercise recommendations for residents both at high risk and not at high risk of fractures. Barriers identified during prior consultations with LTC knowledge users included physical and cognitive capabilities of the residents, frontline staff’s lack of knowledge on integrating spine sparing movements and exercises into daily activities, limited physical space, time constraints and fear of frontline staff to engage in exercise and physical activity with residents. They suggested educating frontline staff regarding their own spine health and involving the family of the residents to facilitate uptake. The barriers and facilitators were mapped onto the Behaviour Change Wheel to identify enablement, education, and modelling as potential KT interventions. The training webinar and slide kit educates the frontline staff on how to integrate exercise into daily activities. The example plan for an exercise class consists of exercises in standing, seating, and supine position to suit the physical capability of the residents. The one-page summary models and educates on integrating spine sparing movements into daily routine for residents and staff. Each tool has features to facilitate education, modelling and enablement, and address barriers such as cognitive capability of the residents, limited physical space and time constraints. The next steps are to disseminate the tools alongside the release of the Fracture Prevention Recommendations for LTC while evaluating uptake and usability.

Technology Support in Home Care

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Background: The dementia epidemic is affecting nearly half a million Canadians today and is placing considerable demands on health care costs and home caregiving. Caregiving is a complex behaviour and efforts to develop technological equivalents are not yet able to duplicate or replace human caregivers. The eHome-iCare research team believes that i-Technologies can supplement caregiving

and provide support to allow older adults with cognitive impairment to function more independently. These technologies can also enable early detection of disease onset and/or progression through continuous monitoring. i-Technologies refer to hardware- and/or software-based electronic solutions. Examples of i-Technologies include: automated medication dispensers, in-home remote monitoring (e.g., CareLink Advantage), and on-line caring networks (e.g., TYZE). Canada's aging population is straining current available home care resources and as a result, population needs are not being met. I-Technologies however, have great potential to increase capacity. The attitudes, knowledge and priorities of home care nurses and case managers towards i-Technologies are important to understand in order to inform efforts and implement technologies into the home setting.

Objective: The focus of this study was on exploring the perceptions of home care providers on the use of i-Technologies to support clients with cognitive impairments (e.g. dementia).

Method: An online survey was used to gather quantitative and qualitative data from a target population of approximately 150 home care clinicians serving older adults with mild to moderate dementia receiving home care services. Ethics approval was received from Island Health. The survey was pilot-tested prior to inviting broad participation by home care nurses and case managers.

Results: Findings provide insight into the barriers that need to be addressed for successful implementation of technology in home care to support caregiving. Results contrast differences in perceptions and knowledge by age and experience with technology.

Conclusion: The project increases our understanding of what supports may be needed for home care clinicians, as well as their clients with cognitive impairment, to successfully implement technology into home care. The priorities and preferences of home care nurses and case managers must be taken into account, so that technologies support their caregiving, and the independence of their clients.

Developing a System Navigator Role in Primary Care: Understanding the Context

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Background: Primary health care services could play a key role in coordinating health system access and care for older adults with chronic illness, but lack resources and strategies

to do so. Wagner's Chronic Care Model (CCM) provides a framework for developing an effective health care system for chronic disease prevention and management. Fundamental to the CCM are productive interactions of patients and families with health care providers, leading to improved outcomes. For older adults with chronic disease and their families, a system navigator role could support productive interactions and effective navigation through a complex health care system.

Objective: This project aims to understand how the role of a system navigator can be developed and implemented in a primary care context.

Methods: Working with multiple stakeholders in two Ontario communities (one urban, one rural), we used qualitative methods, within a developmental evaluation approach to develop a system navigator role. Focus group (n=4) and key informant (n=7) interviews with patients, family caregivers, primary care teams, and representatives of community support services were conducted to understand the context within which the primary care teams are operating, available community resources, and opportunities to support system navigation. Data were coded using a line by line, emergent approach. Results were reviewed with primary care and community representatives to refine the care pathways and to identify strategies for its implementation.

Results: The interviews identified health care and community needs, resources and opportunities to support system navigation in each primary care centre. For example, community services such as meals on wheels, adult day programs, and exercise programs were identified and charted onto referral maps to be used by the system navigator to link older adults to appropriate resources. Primary care teams and community stakeholders worked in partnership to develop a feasible model of system navigation, in which patients and families are engaged in decision-making around their care.

Conclusion: The model of care was developed in partnerships with older adults, caregivers, and health care providers to support older adults with chronic illness as they navigate through the health care system. The next phase of the work will involve implementing and evaluating the system navigation role, including its influence on patient experiences.

Promoting Mobility Among Frail Elders: Description of Methodology

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Abstract: Mobility is a broad concept that can be understood as the ability to move oneself within environments that expand from within one's residence to the neighborhood and to regions beyond. Understandably, older adults' mobility needs are affected by their functional status and living situation. In this way, mobility is conceptualized as a continuum where the mobility needs of individuals with functional limitations focus on movement within the home environment, while the needs of more independent seniors focus on access to their communities. Many interventions that promote mobility focus on health promotion and encourage mobility with the goal of achieving healthy, active aging. Such approaches, however, may exclude individuals with functional limitations or medical comorbidities characteristic of frail older adults in care settings. Although research studies have examined this issue, the synthesis work to guide practice has yet to be completed. Preliminary data on elders with dementia, for example, show that mobility interventions can lead to favourable outcomes among recipients of intense care. However, such activities have yet to be included within practice guidelines. This presentation will describe an ongoing synthesis project examining approaches to promoting mobility among frail older adults. The goal of this project is to answer the questions: What works to promote mobility among frail older adults, for whom is it most effective, and in what setting(s)? During the presentation the relevance, proposed methodology, preliminary findings, and anticipated implications of the project will be discussed.

Sexuality in LTC: Considering the Needs of LGBT Residents with Dementia

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Abstract: Despite being recognized as an important part of human development throughout the aging process, sex and sexual expression are not often considered when evaluating the needs of older adults entering long term care. Stigma and misconceptions regarding sexuality amongst the elderly are a major obstacle to ensuring that the sexual rights of LTC residents are protected, respected, and facilitated. The concept of sexual rights when applied to older adults with cognitive impairment, such as dementia, becomes particularly complex given the added stigma that comes with the diagnosis and the potential for symptomatology to manifest as perceived sexually inappropriate behaviours.

Older adults of the LGBT community are at particular risk of having their sexual rights overlooked and/or discriminated against. By 2030, there will be an estimated 2 to 7 million older adults who identify as LGBT in Canada. Many LGBT elderly at some point have experienced systemic and open discrimination, homophobia, and even criminalization, to the detriment of their psychosocial well-being. The lack of attention to sexuality among older adults, and by extension LGBT older adults, is a further example of this discrimination and has been labeled a form of "ageism" in the literature. Homophobia and heterosexism in the healthcare system, though often subtle, have been identified as driving discrimination and creating obstacles to care for LGBT elderly. Research literature, policy makers, and services providers have given little attention to the experience of LGBT older adults in LTC and in general. What literature does exist suggests that LGBT elderly, in addition to stigma associated with aging and cognitive impairment, face discrimination from policy, staff, and peers. This poster will synthesize available literature regarding the experience of LGBT individuals with dementia within the context of LTC. Through this examination, we will identify gaps and spotlight areas of inquiry that are in need of further attention. This poster will examine challenges and barriers faced by the LGBT community when entering into LTC, and explore the layers of stigma, which serve to further marginalize this vulnerable group. Strategies to promote inclusion and sexual expression will be discussed with a focus on educating LTC staff and offering person-centred care. A discussion of next steps and future directions will follow.

Building Capacity for Healthcare Staff in Mental Health and Addictions

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Abstract: St. Joseph's Care Group (SJCG) offers services throughout the community with broad program areas including Rehabilitative Care and Chronic Disease Management, Addictions and Mental Health, and Seniors' Health. As part of their 2012-2015 strategic priorities, SJCG has committed to enhance staff knowledge and skills in supporting people with a mental illness. For example, mental health issues are becoming more prevalent in long-term care (LTC), as frail elderly are living longer (e.g., dealing with depression) and demands on staff are increasing (e.g., burnout). A corporate-wide survey was developed to ask staff about mental health topics that would be of value to them in their work. In Fall 2014, researchers met

several times with the Building Capacity Working Group to develop a list of mental health topics. Based on these discussions, the first draft of the survey was developed and piloted by 15 staff members. Next, the survey was revised and designed online using the Research Electronic Data Capture (REDCap). The survey link was emailed to all 1713 staff. Using a Likert-type scale (from 1 “Not Important” to 5 “Very Important”), participants were asked how important it was in their current role at SJCG to learn more about certain mental health topics divided into two categories: General and Advanced training. The total response rate was 29% (494/1713). All mean responses to topics were ranked as at least moderately important across divisions. The top ranked General topics were 1) How to engage with someone who has a mental illness (M=4.39, SD=0.94), 2) Understanding Mental Health (M=4.34, SD=0.90), and 3) Managing Challenging Behaviours (M=4.33, SD=1.00). The top ranked Advanced topics were 1) Strategies to manage signs, symptoms and behaviours related to mental illness (M=3.71, SD=1.37), 2) Fundamental Treatments in mental health (M=3.54; SD=1.42), and 3) Goal setting with clients who have complex issues (M=3.48, SD=1.53). The survey results were informative in identifying eight training topics. The first module, ‘Understanding Substance Use and Mental Health Issues’ is scheduled for Fall 2015. The commitment of SJCG to build capacity in mental health in staff across the organization may contribute to the quality of care for clients with mental illness. The staff education may especially benefit frail elderly with mental health issues, as SJCG’s 416-bed expansion is scheduled to open Fall 2015, making it one of the largest LTC homes in Ontario.

Identity Change as a Predictor of Caregiver Burden in Dementia: a Proposed Model.

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Background: Informal caregivers of persons with dementia experience significant difficulties or “caregiver burden”, which has been associated with caregiver and care-recipient relationship quality. Anecdotal evidence suggests that perceived changes in identity of the person with dementia, subsequent to dementia onset, may also impact the caregiver/care-recipient relationship. Reminiscence Therapy (RT) is an intervention that may help improve the quality of this relationship and mitigate caregiver difficulties. In rural and remote communities, the high proportion of older-adults with limited access to health services makes dementia care a challenge. This project explored the role of perceived identity change in burden (Study 1) and evaluated the effectiveness of an RT activity for caregivers (Study 2). The use of videoconferencing as an accessible method of service delivery was also assessed (Study 3). This abstract reports

preliminary results of Study 1, the objective of which was to investigate the relationships between identity, relationship quality, and burden with the aim of providing evidence for a proposed model of burden.

Method: 99 informal caregivers of persons with dementia who attended a memory clinic were administered measures of perceived change in identity of their care-partner, relationship satisfaction, and burden. Correlational and hierarchical regression analyses were conducted. It was hypothesized that perceived change in identity would correlate negatively with relationship satisfaction and positively with burden. We further hypothesized that identity and relationship satisfaction would be significant predictors of burden.

Results: Perceived change in patient identity negatively correlated with relationship satisfaction ($p < .01$) and positively with dementia severity ($p < .01$) and burden ($p < .001$). Notably, 96.4% of dementia caregivers ($n=56$) vs. 65% of non-dementia caregivers ($n=20$), endorsed a change in their care-partner’s identity post onset of difficulties. The results of the hierarchical regression revealed a good model fit when entering perceived identity change into step two [$F(4,48) = 9.8, p < .001$], accounting for 47.2% of burden variance. This was a significant change at $p < .01$, accounting for 10% greater variance than step one. Only relationship satisfaction and identity change were significant predictors of burden ($p < .05, p < .01$). The implications of the results will be discussed and a proposed model of burden presented.

Is Your Mom on Drugs? Ours Was. Here’s What We Did About It.

J. Timble. Patients for Patient Safety Canada (CPSI), Edmonton, AB, Canada.

Abstract: The symptoms were confusion, hallucinations, fever, rapid heartbeat, strange arm movements. They came on soon after new drugs were prescribed. The diagnosis was “vascular dementia” and we didn’t believe it. Convinced that Fervid, our 87-year old Mom, had a drug interaction, we requested a medication review. It took a long time to get one, but the resulting, guided, discontinuation trial brought a complete cognitive recovery from serotonin toxicity caused by the combination of an SSRI antidepressant and a common pain drug, tramadol. However, months of Fervid being bed-ridden, as we struggled to arrange a medication review, meant too much function had been lost. Fervid never returned to independent living. Taking multiple drugs often reduces quality of life for elders, or can even harm them. The “evidence-free zone” in research (drug trials rarely include older people with many chronic conditions) along with

guidelines-driven prescribing (guidelines often don't apply to this group), increases risk. The family must advocate for their loved one. Family cohesiveness, persistence, and remaining respectful are vital when insisting on a medication review. The family is the expert, recognizing what is normal for their loved one, whereas medical staff is often meeting this person for the first time. The staff jumps to conclusions about symptom causes based on what is usual in their residents—fever and confusion makes them think “UTI”. But the family knows their loved one and what is usual for them. Hours spent at the bedside also allows the family to see and hear symptoms staff may dismiss or not notice, to the detriment of an accurate diagnosis. Our story shows how a family can extend and improve the quality of life of an elder by keeping a close watch on prescribed drugs and advocating for their loved one.

Improving Care of the Frail Elderly via Community Based Participatory Research

K. Willison-Lakehead University, Thunder Bay, ON, Canada.

Background: This original scoping of the literature has focused on the use of a community based participatory research (CBPR) approach as a potential strategy to help improve communications between such patient populations as the frail elderly and their health care provider(s). Improvements in communication and decision making, on such matters as end-of-life care, have been identified as a high priority from a patient and family point of view. Such may represent one of the best ways to improve overall care. How to gain patient and family points of view, to in turn help build and facilitate effective communication, is in part what CBPR strives to do.

Methodology: This original review deployed a cross-sectional scope of relevant North American based, as well as English only, articles and reports, dating back approximately ten years (2005-2015). Towards doing so, the following data bases were accessed: Google Scholar, Sociofile, PsychLit, PubMed, CINHL, Medline and AgeLine.

Results: Based on a review of the relevant literature, use of a community based participatory research approach appears to have good potential to enable / empower aged individuals and/or their caregivers by providing them a greater say / voice regarding the type and quality of health and social care that is provided to them. While this may not extend people's longevity, it does show potential to enhance patient/client health-related quality of life.

Conclusion: CBPR appears to be a timely approach that may be used to help improve the care of the frail elderly

across Canada. Insofar as the frail elderly may not directly participate themselves in a CBPR approach, but their caregiver(s) and/or proxy representatives may. Overall, CBPR shows potential utility towards revealing both real, as well as, perceived health and social care needs of such highly vulnerable populations as the frail elderly. This is timely, as there is reasonable evidence that CBPR could contribute towards better care and/or intervention. There is further indication in the literature that, for a CBPR approach to be feasible, such requires: [1] a supportive organizational infrastructure; [2] existence of “champions” to spearhead CBPR in the first place; [3] an equitable sharing of resources. This includes power sharing; and [4] a substantial time commitment - in part to help build trust amongst all involved. Advanced care planning may help offset this particular challenge. Further funding and research on this topic is urged.

Access to Services by the Frail Elderly using the Andersen-Newman Model

K. Willison. Lakehead University, Thunder Bay, ON, Canada.

Background: This original and recent scoping of the literature draws heavily from the Andersen-Newman model. As a theoretical construct, this model/framework has been of use within such fields as public health over the past thirty plus years. Of relevance here, it has the potential to be put to use to better understand the mixed array of factors that potentially impact access to health and social care services by the frail elderly in Canada. As reflected within the health and social scientific literature, research in Canada pertaining to access to services by the frail elderly remains lacking. Generally, the Andersen-Newman model has been used to emphasize the importance of: (a) the characteristics of the health and social services delivery system(s); (b) the changes in medical technology and social norms relating to the definitions and treatment of illness; and (c) individual determinants of utilization. Moreover, this model has been particularly and widely endorsed by health services researchers in the assessment of health care utilization / access for both elderly and non-elderly populations. Presently, this model may help to define and measure equitable access to health and social services, plus, assist in the creation of policies that would help to improve such access. While there is some question whether this model was meant to predict or explain health care and other service use, Andersen himself indicates he had both in mind.

Methodology: This original review deployed a cross-sectional scope of relevant English only articles. Varied data bases were accessed, including: PubMed, CINHL, Medline and AgeLine.

Results: Based on a review of the relevant literature, use of the Andersen-Newman Model, or modified version thereof, appears to have excellent potential in providing health researchers, their caregivers and others a more thorough understanding of potential correlates impacting health and social service use by such populations as the frail elderly.

Conclusion: An improved understanding of the correlates of health and social service use, by such vulnerable populations as the frail elderly, has the potential to facilitate health care planning and policy development, particularly for those who have indicated lack of such access.

Living at Home Versus Alternative Elder Locations of Care: an Umbrella Review

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Background: Many elderly must decide whether to stay at home or move to another location of care. Evidence about location of care is needed to inform their decision. We examined the impacts of location of care on the elderly.

Methods: We conducted an umbrella review of systematic reviews. We searched MEDLINE, the Cochrane Library, EMBASE, and CINAHL. Eligible systematic reviews were based on the PICOS question: adults ≥ 65 years, location of care, any comparison, elder health outcomes, and systematic reviews. Independent reviewers screened titles, abstracts, and full texts. Data was extracted using a pre-piloted form and studies were appraised using the Assessing the Methodological Quality of Systematic Reviews checklist. Data were analyzed descriptively.

Results: The search yielded 2923 citations. Of these, 15 systematic reviews were included with a total of 536 studies and over 2,174,017 participants. Locations of care discussed were: independent living at home, home with supports, foster care, long-term hospital stay, rehabilitation centers, and nursing and institutional care. Overall, 5/7 systematic reviews reported insufficient evidence to make recommendations regarding location of care. In-home support interventions were effective in maintaining elder independence in two reviews. In-home supports to reduce falls were ineffective

in one review. Another review showed that the risk of falling was greater in institutional settings compared to community. 3/4 reviews reported no difference between home rehabilitation compared to conventional rehabilitation, whereas one review concluded that home rehabilitation was superior to conventional options for short-term outcomes. Regarding cognitive impacts, one review found that home-like foster care increased agitation in elders with dementia and one review showed higher prevalence of delirium in institutional settings compared to home. The match between elders' preferred location of death and actual place of death improved with home palliative services in one review; however, another review reported insufficient evidence about location of death preferences for persons with dementia. The average study quality was moderate, with a mean AMSTAR score of 6.6/11 (range 3 to 11).

Conclusion: There is insufficient evidence to predict elder health outcomes based on location of care. Decisions about location of care for the elderly should be informed by personal preferences regarding reasons for and against each option.

Analysis of Medical Records for Patients Discharged from ICU to Hospital Ward

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Background: Elderly frail patients admitted to the intensive care unit (ICU) have the most complex medical problems in the healthcare system. When these patients are discharged from ICU to hospital wards, large amounts of information that are essential to the continued recovery of the patient is passed between providers. The medical record is an important source of patient information and often contains handwritten or typed notes from multiple disciplines. Very little is understood about the medical record; the types of information contained in it, the relevance of this information, its accessibility (i.e. legibility), or how providers choose what to record, in what detail, and during which stage of the patients journey through the health care system. It is also poorly understood how providers receive information contained in the medical record; what they choose to read, in what order, or if different providers focus on different aspects of a medical record.

Objective: This study will use qualitative textual analysis strategies to provide a description of the content and

structure of patient medical record data related to ICU to hospital ward transfers (before, during, and after transfer) gathered from ten hospitals across Canada.

Methods: Patient chart data (n=500) from ten study sites across Canada will be photocopied, de-identified and assigned a unique identifier. Two separate investigators will code the data for order, organization, legibility, patient characteristics, and adverse events and then work collaboratively to develop a protocol to document the coding strategy. Coded data will be analyzed for structure and content, patterns of documentation, information transfer, and relevance.

Conclusion: Knowledge gathered from this study will offer insights into the content and structure of medical record data and offer recommendations for developing a shared communication structure/tool to facilitate transfer from ICU to hospital ward. This data will enhance other data collected from our larger ICU to hospital ward study.

Bed Occupancy Variations in Frail Seniors During Periods of Low and High Functioning

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Background: In older, frail individuals, bed transfers are a challenging activity of daily living, and often a determining factor in the capacity to live at home independently. Therefore, the quantification of selected bed transfer features, as well as bed occupancy characteristics of older adults, may provide valuable information to the health care team and/or caregivers. For example, clinical observation suggests that older adults spend more time in bed when they are not feeling well. We have developed and are testing a method for unobtrusive monitoring of bed transfers/occupancy based on continuous data collection from pressure-sensitive mats over extended time periods.

Objective: This study is aimed at testing the sensitivity of variables extracted from the pressure-sensitive mat to changes in the health status of community-dwelling older adults at risk of mobility decline.

Methods: Pressure sensitive mats manufactured by S4 Sensors Inc. were installed under the bed mattress in the

home of 22 volunteers. Each mat contained 72 equidistant fiber optic sensors placed in an 8 × 9 grid array, from which pressure data was recorded continuously at 20 Hz. A processing algorithm based on a percent pressure load feature was developed via MATLAB to quantify initial variables of interest related to bed occupancy. We determined total and daily average time spent in bed, total and daily number of bed exits, and average time in bed per bed entry. Data were compared between periods of high and low functioning that were determined through clinical assessments of mobility and reports of critical events (e.g., falls).

Results: Based on preliminary analysis of data from 6 participants, trends were identified with periods of low function more frequently associated with a higher number of bed exits, longer daily average time in bed and shorter average time in bed per bed entry, in line with the assumption that older adults spend more time in bed when not doing well.

Conclusion: Selected bed occupancy features appear to change with periods of high versus low functioning in community-dwelling seniors at risk of mobility decline. If such sensitivity to changing health/mobility status is further confirmed, the pressure-sensitive mat technology could then be integrated into a smart monitoring system that would inform healthcare providers or caregivers of significant changes in function in targeted individuals, which could allow early interventions to prevent adverse events.

Removing Level of Care Forms to Improve Care for Long Term Care Residents

J. Oliver and P. Chidwick. William Osler Health System, Toronto, ON, Canada.

Abstract: William Osler Health System (Osler) is engaged in ongoing ethics-based quality work that addresses transfers from long term care settings (LTC) to hospitals that happen because of errors related to consent, capacity, and substitute decision making. Such errors include: not taking direction from a capable resident; taking direction from someone who is not the correct substitute decision maker; allowing others to do advance care planning in place of a resident; allowing family members to pose treatment plans, and; failing to consider a resident's prior expressed capable wish related to treatment. These errors can have a number of detrimental effects. Error-based transfers, specifically, can lead to some LTC residents not receiving care that they want and can benefit from, others receiving care that they do not want and cannot benefit from, and overall can have a negative impact on health system efficiency. Our poster presentation will provide an overview of our past and current work in

the Central West LHIN that focuses on these errors, the transfers related to them, and their system impact. Following an assessment in 2012, and a pilot project in 2012-2013, we discovered that a “Level of Care” form used in many CWLHIN LTC homes (and throughout Ontario) drives error-based hospital transfers; in 2013-2014 we introduced a new decision making process and documentation tool in some LTC homes, with good effect. One of our indicators is the number of LTC residents who died in one of Osler’s hospitals and had a previous transfer in the two months prior to death. In 2013-2014 this indicator decreased by almost 18% over 2013-2012 data. By minimizing consent-related errors, the work of this project will help to ensure that LTC residents, many of whom are elderly and living with multiple comorbidities, are not made to undergo treatment that is not in line with their wishes, and from which they will not benefit, especially at end of life. Our intentions now are to develop strategies for spread by using the IDEAS Advance Learning Program approach; by spreading this change we hope to positively affect the quality of care for even more LTC residents in the CWLHIN, and maybe even elsewhere in the province too.

Dementia: from the Village to the W.H.O.

L. Booi. Simon Fraser University, BC, Canada.

Abstract: Aside from passing my comprehensive exams, defending my dissertation proposal and starting data collection, I have also spent the past year completing my External Placement and two Academic Products for the TVN Training Program. My external placement was completed on the very remote island of Bella Bella. This village is located on the east coast of Campbell Island in the Central Coast region of British Columbia. It is home to 1,400 people, predominantly from the Heiltsuk Nation. Here I worked in the Elders Building and observed the impact of dementia in a very remote and rural setting. This experience allowed me to have a tiny glimpse into what dementia care in remote communities may look like and how dementia impacts the whole village. We know very little about the prevalence and incidence of dementia in Aboriginal communities in Canada but we know that, as with the Canadian population, dementia is an emerging health concern and that to best support these communities’ responsive policies, programs and care need to be geared specifically to First Nations. For my first academic product, I have spent the last year working with the UK Science and Innovation Network, Alzheimer’s Disease International and a group of inspiring young professionals to establish the World Young Leaders in Dementia (WYLD). Based on my involvement with WYLD I was invited to participate as the Canadian Youth Dementia Representative at the World Health Organization’s First

Ministerial Conference on Dementia this spring in Geneva, Switzerland. At this event ministers and experts in research, clinical, NGO communities and advocates from over eighty countries came together to discuss the global problems posed by dementia. For my second academic product, I have been working with a group of committed community members in Qualicum Beach on Vancouver Island. These individuals have decided that they want to make Qualicum Beach the most Dementia Friendly town in all of Canada. They are inspired by the work of Bruge in becoming one of the world’s most Dementia Friendly cities. The unique thing about Qualicum Beach is that it is home to the oldest population in all of Canada (their average age is 64). It is inspiring to see around the world that alongside the global search for dementia solution, on the local, grassroots level, engaged citizens are taking dementia in their own hands and raising the goal to become dementia friendly communities.

CANADIAN FRAILTY NETWORK ABSTRACTS FROM THE MEETING HELD IN TORONTO, APRIL 23-24, 2017

Tissue Characterization with Magnetic Resonance Imaging

T. Magyar, M. Martin, J. Hyun Ko

Background: Alzheimer’s and Parkinson’s disease are the two most common neurological disorders. In 2012, an estimated 740 000 Canadians were living with Alzheimer’s disease and other forms of dementia. That number is growing rapidly. An estimated 45% of people living in residential care facilities in Canada have dementia. More than 67 000 people in Canada have Parkinson’s disease, and one third live in residential care facilities. As a result of Alzheimer’s disease, memory, communication and language, ability to focus and pay attention, reasoning and judgment, and visual perception can be impaired. There is no cure for Alzheimer’s disease. Parkinson’s disease is a chronic, progressive disorder with an unknown cause. Symptoms of Parkinson’s include tremors, slower and more rigid muscle movements, and impaired reflexes contributing to a loss of balance. Similar to Alzheimer’s, there is currently no cure for Parkinson’s, only treatments to manage its symptoms. Our research aims to diagnose these diseases sooner, so treatments can begin promptly after diagnosis to delay the need for residential facilities. This study also aims to understand the effects of treatments on the anatomy and function of the living brain, so that treatments can be designed to minimize side effects while maximizing disease protection. We do this through analysis of magnetic resonance (MR) images. Magnetic resonance imaging (MRI) is useful for diagnosing brain disorders. Yet,

the correlation between quantitative MRI metrics and tissue pathology is not yet fully developed. Images from different types of quantitative MR methods are distorted in different ways and image contrast can be different, which makes voxel-by-voxel quantitative comparisons difficult. For example, multimodality images, which position emission tomography (PET) images and MR images, are collected with different resolutions, and the contrast within the images varies due to different tissue properties. The images the Martin Lab works with are obtained at the Magnetic Resonance Microscopy Centre in Winnipeg. The centre now has the capability to perform simultaneous PET and MR imaging. Direct comparisons between cerebral blood flow maps and PET measurements can be done when the images are correctly registered. Direct comparison between MR image findings and histology are best done when the two types of images are co-registered.

Methods: The role of this study in the Martin Lab was strengthening image alignment and analysis techniques and making them more user-friendly. The study also worked towards registration and comparison of PET-MR images.

Results: This study will show some examples of techniques and how they can be used to diagnose and understand disease. For instance, it will show a decrease in blood flow in a region of a brain with a lesion due to a model of Parkinson's disease.

Discussion: With a better understanding of the pathology causing changes in MRI and PET, and a better means of quantifying these changes, we can begin to understand the effects of treatments for central nervous system disorders. We can also begin to diagnose Alzheimer's and Parkinson's disease sooner so treatments can begin quickly after diagnosis.

Conclusion: In conclusion, progress was made towards understanding the effects of treatments for central nervous system disorders.

Subtle Degrees of Frailty Result in Adverse Cardiac Surgery Outcomes

J. Shannon, E. Wilson-Pease, R. Gainer, G. Hirsch, G. Kephart

Background: In North America, octogenarians are the fastest growing demographic. Chronological age of a patient is not always the same as their biological age, and their biological status can vary from robust to frail. Frail patients are predisposed to falls, institutionalization, hospitalization, and mortality. In the realm of cardiac surgery, there is little research examining frailty as a risk factor for cardiac surgical intervention. The objective of this current study is

to explore the relationship between more subtle degrees of frailty and cardiac surgical outcomes in more detail.

Methods: This non-interventional study subjects all consented participants fitting the inclusion criteria to the same questionnaires. The assessment is comprised of the Frailty Assessment for Care-Planning Tool (FACT) for both patient and their collateral, and the EQ-5D-3L. A similar interview process is repeated 5-7 months after surgery, with the addition of a qualitative interview.

Results: Pilot study results (n=57) show that 52% of the participants were positive for at least one category of frailty at a level of 4/7 (vulnerable). Results also demonstrated that 3.8% of participants who scored zero deficits on the FACT were discharged to an institution for follow up care compared to 19.3% of participants with one or more deficits.

Discussion: Implications: This study will assist in educating future heart surgery patients about their possible risks. It is hoped that patients who possess more knowledge about their personal risks will be able to make more informed decisions about their surgery. Strategies to address and reduce frailty by increasing mobility and cognitive function and reducing nutritional deficiencies could use this information to inform future work.

Conclusion: Overall, participants were much more frail than expected, with over half being considered vulnerable or worse on the FACT scale. This signifies an increase in frailty in the elderly population, which supplies rationale for the current study. This study will analyze a larger sample of elderly cardiac surgery patients in the Atlantic provinces to more thoroughly investigate this relationship.

Physical and Psychosocial Resilience in Older Adults Participating in a Community-Based Slow-Stream Rehabilitation Program

N. Babin, M. Bui, H. Malik, M. Maximos, S. Seng, A. Te, G. Vandenberg, O. Virag, V. Dal Bello-Haas

Background: Older adults who are discharged from hospital are very vulnerable. Although there is no one agreed upon definition of resilience, the concept of resilience has been proposed as important and is typically examined in terms of psychological and physical components (Tusaie & Dyer 2004). Physical and mental health status have been found to positively correlate with resilience (Wells 2009), and exercise and social support play important roles in regulating psychological well-being (McHugh & Lawton 2011). The purpose of this study was to examine: 1) the 'extent' of resilience in older adults who have been recently discharged

from hospital; and, 2) how physical and psychological resilience components changed over time with participation in a community-based, slow-stream rehabilitation program.

Methods: Data was examined from 64 older adults participating in the Enhancing Optimal Aging: An Examination of a Unique Adult Day Service Model for Older Adults study, which focused on the evaluation of the Goldies2Home (G2H) program (Shalom Village, Hamilton) as a model of care. Physical [Short Performance Physical Battery (SPPB), Rapid Assessment of Physical Activity (RAPA), 6-minute walk test (6MW)], psychological [Geriatric Anxiety Inventory (GAI), Geriatric Depression Scale (GDS), Satisfaction with Life Scale (SWLS)], and social [Functional Social Support Questionnaire (FSSQ)] measures were collected at two time points: admission to G2H (baseline) and discharge from G2H. Descriptive, parametric and nonparametric statistics were used to analyze the data.

Results: The sample was comprised of 62.5% females and had a mean age of 78.5 years (SD = 9.7). Mean days in the G2H program were 21.2 days (SD = 3.6). Mean baseline and discharge GAI and GDS scores indicated absence of clinically significant anxiety and depression. Mean baseline and discharge FSSQ scores indicated perceived social support was 'almost as much as I would like'. SWLS scores significantly increased from baseline to discharge, from satisfied to highly satisfied ($p = .004$), as did SPPB summary scores ($\bar{x} B = 4.0$ to $\bar{x} D = 5.0$, $p = .000$), and 6MW distance ($\bar{x} B = 136.1$ m to $\bar{x} D = 175.6$ m, $p = .000$). At discharge from G2H, significantly more participants engaged in physical activities as indicated by changes in the RAPA ($p = .001$).

Discussion: Our sample of G2H program participants presented with elements of psychological resilience post-hospital discharge as demonstrated by GAI, GDS, FSSQ and SWLS scores. SPPB scores were low and 6MW distances were limited at baseline and discharge from G2H. SPPB scores are indicative of lower extremity and physical function and have been found to predict disability and institutionalization (Guralnik *et al.* 2000), while the 6MW test measures endurance and functional performance. Participating in a shorter-term community-based, slow-stream rehabilitation program resulted in statistically and clinically significant changes in SPPB scores (MCID = 0.54-1.34 points, Perera *et al.* 2006), 6MW distance (MCID = 14 to 30 m, Bohannon & Crouch 2016), and increased physical activity. However, there is room for further improvement to enhance physical resilience.

Conclusion: Participants completing a community-based, slow-stream rehabilitation program post-hospital discharge demonstrated improved satisfaction with life and participation in physical activity. They also experienced an

increase in physical function and functional performance. The extent to which physical measures need to change to enhance physical resilience in older adults transitioning from hospital to home has yet to be determined.

Goals of Care in Chronically Ill Patients in the Final Year of Life

A. Lagrotteria, K. Sullivan, A. Mihaylova, C. Lu, J. Koh, Dr. C. Hamielec

Background: Considerable evidence suggests that an increasing number of chronically ill patients are expected to live for months or years in a state of fragile health with an unrecognizable terminal phase prior to death. This emphasizes the need to elicit patient values and preferences consistent with a care plan earlier during illness, especially for patients with chronic disease admitted to acute care hospitals. More clarity and effective implementation regarding advance care planning and goals of care discussions would prevent both inappropriate resource expenditure and unnecessary patient frailty and suffering. There is thus an increasing interest in the study of the role of timely goals of care (GOC) discussions with chronically ill patients and their families. We hypothesize that eliciting goals of care earlier during illness will reduce medical investigations, interventions, consultations, post admission comorbidities, and time in hospital in a patient's final year of life.

Methods: The Medical Records Department at our hospital provided a list of 219 non-surgical patients who died in 2015. From this, we abstracted patients who are 55 and older with one of the following chronic conditions: chronic obstructive pulmonary disease, congestive heart failure, liver cirrhosis, and/or end-stage renal disease. Exclusion criteria included patients who died from suicide, trauma, cancer or neurodegenerative disease. Data collected from all hospital admissions within the final year of life included the amount of 1) investigations; 2) interventions; 3) consultations; 4) post-admission comorbidities, as well as the amount, date, and outcome of 5) GOC discussions. Of the 219 patients, 75 patient records have been reviewed, and 45 have qualified for the retrospective cohort study thus far. All procedures were preapproved by the Hamilton Integrated Research Ethics Board.

Results: Significantly more GOC discussions occurred during each admission in the last 3 months prior to death in comparison to the amount of GOC discussions during each admission from 3-6, 6-9, and 9-12 months prior to death. Patients spent an average of 33 days in hospital in their final year of life. An average of 24 investigations, 1 intervention,

8 consultations, 1 post-admission comorbidity, and 2 GOC discussions occurred in a patient's final year of life.

Conclusion: Results reveal that goals of care discussions with the patient and/or family are not occurring well in advance to death despite being admitted to hospital throughout the final year. Upon further data collection, we will be able to extend our analysis to investigate correlations between earlier GOC discussions and medical investigations, interventions, consultations, post-admission comorbidities, and time in hospital in a patient's final year of life.

The Impact of a Web-Based Peer-Led Support Group on Persons with Diabetic Foot Ulcers

M. Steer, C. Jimenez, K. Woo

Background: The purpose of this study was to see the impact of implementing a peer led online support group (foot club) for persons with diabetic foot ulcers

Methods: The targeted population was home care clients with diabetic foot ulcers. A pragmatic randomized controlled trial design was used, and participants were given access onto the password protected web portal. The portal was populated with up-to-date diabetes research, and participants were given access to diabetes resources, expert clinician advice via email and a general discussion board.

Results: There are 4 registered users on the web portal using the web portal and discussion board actively. Participants are being recruited out of Kingston General Hospital, Hotel Dieu Hospital and Quarry Medical Centre as well as Maple Diabetes Centre.

Discussion: The highlighted centres have been given resources to give information about the study for patients, and the team is actively recruiting through at the described centres by research staff to increase sample size.

Conclusion: The research team is piloting the project currently and working with IT personnel to improve the platform and increase participants.

Managing Behavioural and Psychological Symptoms of Dementia in Emergency Departments: Effects of an Educational Intervention

P. Julian, L. Schindel Martin, V. McLelland, D. Ryan, J. Lee, D. Cowan, L. Wilding

Background: Increasing numbers of older adults diagnosed with dementia are entering emergency departments (EDs), with the behavioural and psychological symptoms of dementia (BPSD) as a chief complaint. The hectic nature of EDs can further exacerbate or trigger BPSD. ED staff report difficulties in responding to BPSD, which can lead to restraint use, emotional distress and injury. Gentle Persuasive Approaches™ (GPA) eLearning, an online educational curriculum on person-centred dementia care, offers a possible solution. GPA eLearning has led to positive impacts in general medicine and long-term care settings by improving staff-self-efficacy in dementia care. However, the clinical relevance of GPA to EDs is unknown. The purpose of this study was to investigate the acceptability and relevance of GPA with ED staff.

Methods: This sequential, mixed methods study included two phases. In the first phase, a sample of ED staff (n=55) enrolled in the GPA eLearning program. Demographic information and quantitative measures of staff knowledge of dementia care, self-perceived self-efficacy in behavioural management, and sense of competence in responding to BPSD were collected immediately before and after the intervention. Paired t-tests were conducted on 15 complete cases to analyze results. In the second phase, a subgroup of participants (n=4) were interviewed via telephone to gather information regarding GPA's acceptability and relevance in EDs, its impact on staff and patient outcomes, and adaptations to tailor GPA to ED staff. Interviews were transcribed and analyzed for themes.

Results: Quantitative results demonstrated that participants showed significant improvements in self-efficacy in ($p=.001$), sense of competence for ($p=.002$), and knowledge of ($p=.021$) dementia care after completing the intervention. Qualitative results from open-ended questions embedded in the online measures and phone interviews revealed the following themes that described the course's impact: Bridging a gap in knowledge, better patient outcomes, and improved jobs satisfaction. Themes describing adaptations to tailor the course to ED staff's needs also emerged and included the following: Incorporating emergency department specific examples, condensing course length, and including an in-person component.

Discussion: Quantitative findings suggest that GPA is relevant and effective for GPA staff, as it increases their knowledge and capacity to provide person-centred care. Given that only 15 participants completed all measures, additional research is required to confirm these results with a larger sample. Qualitative findings provide further insight on the clinical relevance of GPA. Participants reveal that ED staff are not consistently trained to care for clients with dementia. Participants report that some ED staff may take a task-oriented approach that is ineffective in caring for this population.

Participants believe GPA can bridge this knowledge gap, leading to improved patient outcomes and job satisfaction. Given the fast pace of the ED, participants suggest decreasing the course length, adding ED-specific examples and including an in-person component to the course.

Conclusion: Findings suggest that GPA is relevant and effective for ED staff, warranting its adaptation and dissemination to this clinical setting.

Locations of Falls Among Older Adults in Long-Term Care and its Association with Resident Locations

C. E. Chang, K. S van Schooten, F. Wong, S. N Robinovitch

Background: Falls in older adults are a major health and economic burden, especially in the high-risk long-term care (LTC) setting. An improved understanding of the locations of falls in LTC may guide improved interventions. In the current study, we examined the spatial distribution of falls in a LTC facility, along with the spatial distributions of residents in those locations. We hypothesized that the spatial distribution of falls would be associated with the spatial distribution of locations where residents spend their time. We also hypothesized that specific high-risk locations would exist, where (due to environmental hazards or the high-risk nature of activities) the density of falls would exceed what would be expected based only on resident density.

Methods: We used a network of cameras to capture video footage of 808 falls experienced by 182 individuals (mean age 81) in common areas of eight units of a LTC facility in Delta, BC. We calibrated the video pixel locations to the floor plans, and mapped the location of each fall. We identified high-risk locations using nearest neighbor hierarchical clustering and estimated fall density using a Gaussian kernel density estimate. We repeated the same procedures for the location of resident in view of the camera at time of each fall, to explore how resident density associated with fall density.

Results: Our results show that fall density was 3.7 times higher in dining rooms and lounges than in hallways. We identified five high-risk clusters in dining and lounge areas, where falls were more frequent than in other locations, and were more often due to transferring. The spatial variation in fall density was strongly associated with resident density ($R^2 = 0.91$).

Discussion: We found that the spatial distribution of falls in common areas of long-term care was explained largely by where residents spend their time. However, we also

observed high-risk regions where falls often occurred during transferring.

Conclusion: Our results have implications for human resource allocation and environmental interventions, such as compliant flooring, to prevent falls and fall-related injuries.

An Interprofessional Delirium Knowledge Assessment Tool for Healthcare Professionals and Trainees Working in the Emergency Department

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Background: Multiple studies since the 1990's demonstrates that emergency department (ED) staff fail to identify delirium in up to 75% of older patients. Those patients who are discharged have a 3-fold increased mortality. We developed a tool to assess current knowledge and comfort with detecting delirium among healthcare professionals and trainees working in the ED. Information gathered would be vital to informing future educational interventions for improving delirium detection and older patient health outcomes.

Methods: This study iteratively developed a 14-item interprofessional tool with 4 clinical vignettes to assess comfort, knowledge and ability to identify delirium among medical students, emergency medicine residents, staff physicians and nurses. We conducted a prospective single center observational study using modified Dillman survey methodology. Surveys were sent on paper to residents and nurses and online to medical students and staff physicians.

Results: Our response rate was 68% (38/56) for residents, 80% (16/20) for nurses; but only 37%(13/35) for staff physicians and 13% (139/1036) for medical students. Comfort with identifying delirium increased with level of medical training; 38/139 (27%) 1st-4th year medical students (MS1-MS4); 25/38 (66%) 1st-5th year residents (R1-R5); and 12/13 (92%) staff physicians reported being comfortable ($p < .001$). MS1-MS2 were the least comfortable, with only 5/82 (6%) reporting comfort, increasing to 33/57(58%) among MS3-MS4 ($p < .001$). A greater proportion of R4-R5 who completed a geriatric emergency medicine (Geri-EM) curriculum reported comfort, 11/12(92%) compared to 14/26(54%) of R1-R3 ($p < .05$). Only 5/16 (31%) nurses reported being comfortable with identifying delirium. Ability to identify all 4 clinical vignettes correctly was higher among MS3-MS4 than MS1-MS2 (32/57 (56%) vs. 30/82 (37%), $p < .05$). There was no difference between respondents from different levels of medical training (62/139 (45%) MS1-MS4, 21/38 (55%) R1-R5 and 6/13 (46%) staff physicians, $p = .52$). There was no effect of Geri-EM

completion on perfect vignette scores (6/12 (50%) R4-R5 vs. 15/26 (58%) R1-R3, $p=.66$). There was a trend towards a lower proportion of nurses who identified all 4 clinical vignettes correctly compared to physicians (4/16 (25%) vs. 27/51 (53%), $p=.051$).

Discussion: Although there was increased comfort with identifying delirium, there was no significant improvement in identification among respondents with increased medical training. These results must be interpreted in the context of low response rates, as our sample may be biased towards medical students with more comfort and knowledge of delirium than their peers. Nurses reported lower levels of comfort with identifying delirium with a trend towards less identification of delirium than staff physicians. This may suggest a need for further training opportunities. Whether there is a similar trend between healthcare professionals in other hospitals remains to be assessed.

Conclusion: Our tool may be useful for assessing comfort and knowledge of delirium among ED physicians and nurses. Future work comparing our findings to previous literature, and replication of our results will be essential to further development of our tool. Completion of the Geri-EM curriculum was associated with increased comfort with detecting delirium but not knowledge. Future studies should assess current ED delirium comfort and knowledge at different levels of training; between professions and examine differences nationwide.

The Antisaccade Task in Long Term Care and Retirement Settings

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Background: The World Health Organization has identified dementia as a public health priority. As such, there is a growing demand for research focused on preserving executive function (i.e., frontal lobe function) in older adults. In particular, exercise-training programs have shown promise; however more research is needed to identify the specific (i.e., aerobic or mind-motor exercise) exercise intervention that optimizes improved executive function. The square-stepping exercise (SSE) program is a novel exercise intervention that combines aerobic and cognitive activity (i.e., a 60 minute group-based class where a participant must memorize and complete stepping patterns of increasing difficulty on a gridded mat and foot placement can be in a forward, lateral or diagonal direction) and has shown some promise in improving executive function. For example, our group has shown that reaction time (RT) for the executive-based antisaccade (i.e., saccade mirror-symmetrical to a stimulus) is improved following completion of a 6-month

SSE program, and remains improved during a 6-month non-intervention period (Heath *et al.*, 2016: J Alzheimers Dis; Shellington *et al.*, in press: J Alzheimers Dis). This finding demonstrated improved activity and arousal executive-based frontoparietal networks. The above findings were observed in healthy, community-dwelling, independent older adults with either cognitive complaints or early evidence of mild cognitive impairment. However, work to date has not examined similar intervention and task performance in frail, older adults in long-term care and retirement home settings.

Methods: In the present work, participants completed a SSE program twice a week for 12-weeks, which was led by a Schlegel Villages Kinesiologist. The current study details the baseline results of a six-month SSE program in long-term care and retirement home settings wherein pre-intervention executive control was measured via the antisaccade task. Participants ($n=10$, aged 85.9 years, 80% female and 13.8 years of education) performed 80 trials (i.e., 40 prosaccades and 40 antisaccades) to assess executive control, pre-intervention. Notably, prosaccades (i.e., saccade directly to a target) were examined because such actions are mediated to midbrain structures that are not influenced by exercise-based brain changes. Prosaccades therefore served as a natural control to the executive-based antisaccade task.

Results: As expected, pre-intervention prosaccade RTs (241.6ms, SD = 43.8) were reliably shorter than antisaccades (364.5ms, SD = 35.9).

Discussion: Thus, results demonstrate that the antisaccades used here provided a cognitively challenging task to examine executive control.

Conclusion: Importantly, the 6-month exercise intervention has recently completed for this population and post-intervention data will provide a metric to determine if such an intervention improved executive control in the group of interest.

Using the Bergman-Paris Question to Screen Seniors in the Emergency Department

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Background: In the fast pace of the Emergency Department (ED), clinicians are in need of tailored screening tools to detect seniors who are at risk of adverse outcomes. Seniors need more attention from ED health professionals, especially those who are frail. Frailty is characterized by a multi-systemic dysfunction associated with abnormal aging. It is linked with increased risk of adverse outcomes and can be associated with

cognitive impairment, which may affect patients' ability to perform daily activities. ED-friendly tools must be developed to better fit the fast-paced ED environment. The Bergman-Paris Question (BPQ) is a one-question screening test developed by Dr Howard Bergman. It involves asking a patient's close relative if they would feel comfortable leaving the patient home alone for three months if other members of the family were also away. The objective of this study was to assess the BPQ as a screening tool for three geriatric syndromes in independent or semi-independent seniors in the ED. Specifically, we sought to explore the predictive capacities of the BPQ with cognitive and functional impairments, as well as with frailty.

Methods: This multi-center prospective study included independent or semi-independent seniors (≥ 65 years old) admitted to hospital after an ED stay ≥ 8 hours and who were not delirious. Patients were assessed using validated screening tests for 3 geriatric syndromes: cognitive impairment, functional impairment and frailty. The Telephone Interview for Cognitive Status-modified (TICS-m) was used to assess patients' cognitive status, functional status was evaluated using the Older Americans Resources and Services scale (OARS) and Frailty was evaluated using the Clinical Frailty Scale (CFS). The BPQ was asked upon availability of a relative at enrolment. BPQ's sensitivity and specificity analyses were used to ascertain outcomes.

Results: A response to the BPQ was available for 171 patients, 75.4% were positive (suggesting impairment), and 24.6% were negative. To detect one of the three geriatric syndromes, the BPQ had a sensitivity of 85.4% (95% CI [76.3, 92.0]) and a specificity of 35.4% (95% CI [25.1, 46.7]). Similar results were obtained for each separate outcome. For those seniors with a positive BPQ, an elevated odds ratio increased the risk of suffering from a geriatric syndrome.

Discussion: The BPQ had a good sensitivity but a low specificity to detect four geriatric syndromes in our prospective cohort. Despite its low specificity, its good sensitivity for geriatric syndromes may make the BPQ a good rapid first-line screening tool for ED professionals.

Conclusion: The Bergman-Paris Question could be an ED screening tool for possible geriatric syndrome. A positive BPQ should prompt the need of further investigations and a negative BPQ possibly warrants no further action. More research is needed to validate the usefulness of the BPQ for day-to-day geriatric screening by ED professionals or geriatricians.

'Til Death Do Us Part: Residents' Length of Stay in Western Canadian Nursing Homes (2008-2015)

V. Bergstrom, M. Hoben, C. Estabrooks

Background: With the baby boomers currently being between the ages of 53 and 71, we are about to see our elderly population grow substantially. In the United States alone, 10 000 individuals turn 65 each day. Thus, now is a critical time to optimize our healthcare system for the elderly and frail. However, in order to optimize the system, we first need to understand how nursing homes (NHs) are currently being utilized. The popular belief is that residents' length of stay (LoS) in NHs is decreasing. Although this is the general consensus, there is a paucity of empirical research to support this claim. Especially studies assessing LoS over time are lacking. Our study aimed to determine whether LoS has been decreasing in residents admitted between 2008 and 2015 to a representative sample of 107 Western Canadian NHs. Furthermore, we aimed to assess changes in resident characteristics that may drive changes in LoS.

Methods: We used Resident Assessment Instrument—Minimum Data Set (RAI-MDS) 2.0 data, which is collected from residents on admission and subsequent quarterly intervals. Our sample included 16,984 residents from three health regions: Edmonton Zone, Calgary Zone, and Winnipeg Region. Applying a retrospective cohort study design, we conducted Kaplan-Meier survival analyses stratified by admission year and health region to assess median LoS and related 95% confidence intervals (CIs).

Results: Median length of stay (95% CI) significantly decreased in the Edmonton Zone from a high of 823 days (700; 987) in 2009 to a low of 583 days (488; 655) in 2014. LoS also decreased in the Calgary Zone from a high of 1023 days [888; 1221] in 2008 to a low of 758 days [695; 855] in 2014. At the same time, LoS remained relatively stable in the Winnipeg Region, fluctuating between a low of 820 days (680; 952) in 2009 and a high of 939 days (787; 1096) in 2010. Residents' age at admission did not increase and residents' cognitive function did not decrease over time in any of the health regions, suggesting that these factors are not explaining the LoS decrease in the Edmonton and Calgary Zones. However, residents are entering NHs with a decreasing ability to perform self-care tasks, and worsening health and end-stage disease conditions in the Edmonton Zone, while these variables have remained stable over time in the Winnipeg Region.

Discussion: Different policies, namely a stronger emphasis on assisted living in the two Alberta Zones than in the Winnipeg Region, may explain these different patterns in resident characteristics and LoS. Importantly, our findings demonstrate that LoS is decreasing in some but not all health regions.

Conclusion: Due to our findings, we argue that in order to optimize resident care, research on dementia, self-care,

and end-stage disease must remain forefront concerns. Improvement strategies need to be tailored to the specific context in different health regions. To be able to compare LOS patterns across the nation, we encourage future studies to replicate our study in other provinces and territories.

Using the Delphi Process to Examine Quality Indicator Measurements to Improve Older Persons' Transitions in Care

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Background: The objective of this study is to examine established quality indicators to evaluate the quality of care provided to older persons during care transitions, and to summarize the perspectives of experts on the feasibility of implementing quality indicators across care transitions. During care transitions, long-term care residents often experience fragmented care that may not be evidence-based. Quality indicators provide benchmarks for decision-making on quality improvement in healthcare systems. There is a need for quality indicators (QIs) to aid health care personnel in all sectors of the healthcare transition to improve care.

Methods: Using a systematic review, we catalogued established QIs to evaluate the quality of care provided to older persons during transitions to and from emergency departments (ED). Our search included articles examining development and testing of quality of care measures for older persons' transitions across the following settings: residential seniors' facilities, homes, emergency transport services, emergency departments (EDs), and hospitals. Two reviewers independently screened abstracts and full text articles for indicators using predetermined inclusion and exclusion criteria. Extracted indicators were coded according to care setting, the Donabedian framework domain, and the Institute of Medicine (IOM) Domains of Quality in preparation for the Delphi Process.

Results: Of the 10,487 unique records screened, 41 records met inclusion criteria. We digitally searched organization websites for grey literature that generated reports of quality indicators, yielding an additional 12 reports. Overall, 326 QIs (n= 266 established and n= 60 developing) were identified, including 35 (11%) structure, 212 (65%) process, and 79 (25%) outcome indicators. This included indicators categorized into Timeliness (25%), Effectiveness (n=24%), Safety (21%), Patient-centeredness (19%), Efficiency (10%) and Equity (<1%). Identified indicators will be evaluated in two rounds of electronic surveys for relevance, feasibility, and scientific soundness using a Delphi process. This will allow expert panellists from diverse care settings

and professions to categorize indicators into "maintain", "borderline" or "discard" groups.

Discussion: Majority of candidate indicators examine processes around delivery of care in the ED during the care transition. Current indicators examine primarily timeliness, effectiveness, and safety of transitional care. Through a rigorously implemented Delphi process comprised of a diverse expert panel, the final indicator set will provide quality of care measures for multiple settings and health care personnel, to ultimately improve transitions at numerous points of care

Conclusion: QIs provide a set of validated and reliable measures for monitoring and decision-making quality improvement efforts across the care continuum. By identifying indicators and knowledge gaps that exist in quality measurement, policy makers; knowledge-users; and researchers can collaborate to improve care for vulnerable older persons across settings.

Low-Cost, Non-Pharmacological Interventions for Responsive Behaviours Among Residents with Dementia Living in Residential Long-Term Care Facilities

B. Zhao, J. Baumbusch, C. Reid

Background: Responsive behaviours (also referred to as aggression) are considered to be a psychological and behavioural symptom of dementia. Responsive behaviours can be verbal and physical, and may be exhibited by residents living in residential long-term care (RLTC) facilities. Previous research indicates that over half of all residents with dementia exhibit some type of responsive behaviour, and that it usually manifests during the provision of personal care. Healthcare aides (HCA) (also known as unregulated healthcare workers) provide up to 80% of care in RLTC facilities. Therefore, they are most likely to experience responsive behaviours from residents, and many report experiencing such behaviours on a daily basis. Being constantly exposed to violence—both physical and verbal—leads to its normalization as an inevitable part of employment. However, previous research has indicated that responsive behaviours are often situational-reactive, and are linked to individual and organizational variables and, therefore, are potentially modifiable. To date, the majority of research about responsive behaviours has focused on i) prevalence, ii) triggers and iii) pharmacological interventions. Yet, there is a central role for low-cost, non-pharmacological interventions that can be used by HCA to address responsive behaviours among residents during their day-to-day care. The purpose of this project was to conduct an integrative review of the existing research literature

to identify low-cost, non-pharmacological interventions that could be effectively implemented by HCA to address responsive behaviours among residents with dementia living in RLTC.

Methods: A systematic literature search was undertaken using CINAHL and MEDLINE databases. Inclusion criteria were published studies: i) reporting non-pharmacological interventions with HCA to address responsive behaviours among residents in RLTC, ii) in the last 10 years, iii) in English. A keyword search followed by a MeSH (for MEDLINE)/ Medical Heading (for CINAHL) search was conducted. After removal of duplications, 1788 articles were identified. Then, the title and abstracts were reviewed to identify studies that met the inclusion criteria. Following this step, 204 articles remained. Next, full-text evaluations of the 204 articles were conducted by two reviewers independently, a process that generated a final group of 12 studies.

Results: Four of the 12 studies involved HCAs playing music for residents. The music included well-known songs, preferred songs, and “natural” background. Four studies utilized other interpersonal interventions (e.g. doll therapy, life history, positive-emotion eliciting imagery, psychosocial activities). Four studies utilized staff education, such as watching an educational video about symptoms of dementia.

Discussion: This review demonstrates that low-cost, non-pharmacological interventions to address responsive behaviours by residents can be utilized by HCAs in their daily work in RLTC. These interventions require minimal training or investment to initiate. Given that HCAs provide up to 80% of care and are at greatest risk of experiencing violence when working in RLTC, it is important to equip them with strategies to minimize responsive behaviours among residents.

Conclusion: Healthcare organizations could benefit by integrating low-cost, non-pharmacological interventions for responsive behaviours into the care plans of residents who potentially exhibit these behaviours. Further research is needed to examine the sustainability and spread of these interventions.

Frailty Assessments for Community-Dwelling, Older Adults in Adult Day Programs: a Literature Review

C. Busson, R. Kohr, J. Donovan

Background: Recognition of frailty has become increasingly important in Canadian healthcare, as the percentage of community-dwelling, elderly individuals is on the rise. To keep our frail elderly living at home as long as possible, the provision of sufficient home and

community-based services is crucial. To optimize care and ensure the delivery of adequate services to this population, we propose the implementation of an ongoing frailty assessment into the Adult Day Program (ADP) at York Care Centre in Fredericton, New Brunswick. Through examination of frailty assessment tools in the literature, our goal is to determine how frailty is being measured, if frailty assessments are used within ADPs, and the impact of implementing a frailty assessment into ADP at York Care Centre. We intend to improve care planning by improving communication and collaboration between care providers, clients, families, and caregivers, in hopes to optimize overall care at home for this population.

Methods: Articles were extracted from the CINAHL, PubMed, and PsycINFO databases. Observation of ADP was completed to determine need for integration of a frailty assessment tool. An interview was also conducted with Social Development (SD), to clarify the admission and funding process to ADP and to determine frailty assessment use at upon admission to ADP.

Results: A total of 20 articles were retrieved based on the initial research question, and additional articles were retrieved to determine validity and reliability of assessment tools. From the initial search, 19 frailty screening tools were identified, 12 of which were shown to be valid measures of frailty. The SHARE Frailty Instrument, EASY-Care Two-Step Older Persons Screening tool, Tilburg Frailty Indicator, Frailty Index, Comprehensive Frailty Assessment Instrument, Fried Frailty Index, Reported Edmonton Frail Scale, Clinical Frailty Scale, FRAIL scale, Study of Osteoporotic Fractures Scale, Frailty Risk Index, and the Groningen Frailty Indicator were all shown to be valid frailty assessment tools in the literature. Numerous factors were recorded based on observation of clients at ADP, many of which align with frailty factors noted in the literature. The interview with SD revealed that major in-home assessments are completed to determine eligibility for ADP, but this data is not shared with ADP. Review of the SD Adult Day Centre standards also uncovered some significant programming challenges.

Conclusion: We are proposing the integration of a valid, holistic frailty assessment tool into ADP, administered by a Registered Nurse or Nurse Practitioner, based on the tools and frailty factors outlined in this research. Increased communication and partnership between ADP and SD would allow for shared frailty assessment data, reinforcing the implementation of appropriate interventions, programs, and services for this population. Through the assessment of frailty, we can provide better supports to the elderly population to ensure increased likelihood for individuals to stay in their homes as long as possible, and to prevent alternate level of care (ALC) arrangements.

Seniors Improving Senior Care: a Forum on Primary Health Care

K. Philpott, J. Kingston, T. Rickards

Background: After organizing an outreach program to serve seniors living in subsidized apartment units in Fredericton, it became evident that the seniors faced many challenges when they attempted to access health care services. Staff from the Fredericton Downtown Community Health Centre (FDCHC) studied the care the seniors received when accessing primary health care in Fredericton. This was accomplished through qualitative interviews, and a plan to organize a forum for seniors to share their experiences and suggestions with health care providers in Fredericton to ultimately improve care.

Methods: Education sessions were held at Risteen's Landing and Evelyn Grove and participants were asked to rank the available topics in order of importance to them. Topics included chronic pain management, home care services, and mental health services. Seniors living in these buildings were then invited to participate in story-telling interviews with one other senior and two nursing students from the University of New Brunswick. The interviews invited seniors to share their experiences with the health care system and voice their concerns. Five interviews were conducted, with a total of 10 participants. Additional literature was extracted from CINAHL and PubMed to compare the results of the study.

Results: The main concerns shared by participants were: difficulty accessing primary health care, polypharmacy, and a lack of accessible transportation. Participants expressed frustration with long wait times at the emergency department, as well as with making appointments with their primary care provider (PCP). Many stated that their PCP frequently dismissed their concerns related to pain, memory loss, and cardiac and respiratory complications. They felt as if their opinion did not matter when it came to their health care. Others stated that the transportation available within the city was not financially accessible, which prevented them from attending appointments.

Discussion: The interviews showed similar concerns voiced by seniors in similar studies conducted across Canada and the United States. Polypharmacy has been identified as a major concern with seniors, and many participants were unsure of the reasons for why their medication was needed. A major cause of frustration was long wait times in the emergency department, even when participants had a valid reason for seeking care, such as a fall with a head injury or difficulty breathing. Participants

stated that they felt as if they were bothering staff by advocating for themselves and their loved ones when seeking primary care. The majority of participants shared that their PCP did not listen to their concerns regarding changes in their health, and they were unsure of what they could do to improve the care they received.

Conclusion: The data showed that seniors are interested in being more involved in their health care, and are recognizing that they are experiencing poor treatment at various points in the healthcare system. Health care providers should be attentive to concerns voiced by their patients and involve them in their care. The lack of accessible transportation available to low-income seniors in Fredericton should be addressed, as this was identified as a significant barrier by several of the participants.

Developing a Unique Fall Arrest Capacity Measurement Protocol for an Injury Risk Reduction Clinical Trial

C. Weiler, J. Lanovaz, C. Arnold

Background: Falls are a leading cause of injury hospitalization for seniors. Consequences of fall related injuries for frail and pre-frail elderly are particularly life changing, often leading to loss of independence and long term hospitalization. Addressing modifiable factors that could reduce injury risk due to falls is a key strategy to maintain function in older adults. Exercise programs designed to improve balance and strength can reduce fall risk, but it is not known if specific exercises targeted to upper body strength and agility can improve chances for safe landing when a fall is inevitable. A specialized community-based strength training intervention has been developed to try to help reduce fall related injuries. This program, known as fall arrest strategy training (FAST), has been successfully piloted and now is being implemented in clinical trials. In order to provide evidence of success, objective measures of the physical capacity of older adults to reduce fall injury risk are needed. The objectives of the CFN funded summer student work was to help develop and pilot a series of novel neuromuscular capacity measures for the FAST study.

Methods: Since forward falls i.e. Falling On the Outstretched Hands (FOOSH) occur most frequently, this research focused on developing and piloting three dynamic strength measures functionally similar to demands seen during a FOOSH event. The first was a standing push-off test (POT) with the participant standing with arms down at their side and slightly behind performing a maximal push down on a table. The applied force is measured using an inverted hand grip dynamometer and assesses elbow

extensor and shoulder muscle strength. The second tool was a cable-based arm press controlled by an isokinetic dynamometer allowing testing of concentric and eccentric “push-up” movements from a seated position. The multi-joint aspect of this movement reflects some of the demands seen during a FOOSH event or when trying to stop a fall from happening. The final assessment tool was a simulated FOOSH in a controlled environment. Our group has previously developed a custom apparatus on which participants perform movements that resemble the downward portion of a push-up. Both controlled and unexpected descents are tested with 3D kinematics of the arms and upper body, reaction forces under each hand and muscle activity recorded.

Results: A total of nine older women (ages 56-65) and seven young adults (ages 20-27) participated in the development and pilot trials. Since the arm press movement was completely novel, the protocols were initially developed and tested using the young adult population. Once the testing procedures were established, feasibility was tested using the older adults. The POT protocols were developed using the older adults along with FOOSH simulation protocol refinements.

Discussion: All of tests proved feasible for use as outcome measures for functional strength related to FOOSH-type movements in older adults. Future work will involve further investigation of test-retest reliability and examining correlations between strength measures and simulated FOOSH outcomes.

Conclusion: All three novel neuromuscular capacity measures were successfully piloted over the summer and are currently being used in the FAST intervention study.

A Rehabilitation Goal-Setting Mobile Application (OnMyFeet) in Older Adults: Usability and Acceptability

K. Chiu, A. Cuperfain, K. Zhu, X. Zhao, S. Zhao, A. Iaboni

Background: Patient-directed goal-setting is an important practice in physical rehabilitation and it has been shown to enhance patient motivation, participation, and functional outcomes. To facilitate patient-directed goal-setting, we have developed a mobile application called OnMyFeet. OnMyFeet is based on principles of Enhanced Medical Rehabilitation and it delivers a guided goals interview that assists clients in setting, prioritizing, and personalizing goals. The objectives of this pilot usability study were: 1) assess the usability and acceptability of OnMyFeet in older adults and 2) assess the effectiveness of OnMyFeet on enhancing client-centredness of goals-setting.

Methods: Participants (mean age 70.3 ± 10.6 years) were two healthy older adults and four inpatients on a MSK rehabilitation unit. The cognitive walkthrough approach was used as the usability evaluation method and task scenarios were moderated using concurrent think-aloud. Qualitative and quantitative measures were collected through usability testing, interviews, and surveys.

Results: OnMyFeet scored 65 ± 28 on the System Usability Scale. Users recommended adding clear and visible prompts for advance buttons, keeping a consistent direction in scrolling through lists, and more written instructions. In addition, users enjoyed maintaining a diary of their progress and having a larger role in decision-making. On the Client-Centredness of Goal-Setting survey, the mobile application received scores over 90% in all subscales, which were indicators of high client-centeredness.

Discussion: During the interviews, many older adults expressed anxiety and difficulty understanding the purpose of physical and occupational therapy activities. These findings suggest therapists have a large role in connecting therapy activities to patients’ personal goals. Therefore, the implementation of OnMyFeet in clinical practice may facilitate patient-therapist interactions and increase client-centredness.

Conclusion: This study demonstrates that OnMyFeet enhances client-centredness of goal-setting in therapy. The next prototype of the mobile application will aim to improve usability by addressing the identified usability issues specific to older adults.

Futile or Fertile? Lessons Learned from a Novel Geriatric Rehabilitation Curriculum

A. Perrella, V. Chau

Background: Older adults with functional impairment are cared for by physiatrists in rehabilitation, but their training in geriatric-related competencies remains suboptimal. To develop a geriatric rehabilitation curriculum, a needs assessment of stakeholders was conducted to understand resident comfort levels and learning needs.

Methods: We used a mixed-methods design for the geriatric medicine (GM) needs assessment. Physical medicine and rehabilitation (PMR) residents, physiatrists and key informants completed a questionnaire ($n=16$; $n=38$; $n=6$) and participated in semi-structured interviews ($n=9$; $n=4$; $n=6$) to explore: the experiences of trainees in GM, enablers and barriers to learning GM, and educational needs. Data was analyzed using constructivist grounded theory.

Results: The questionnaire revealed education gaps in drug metabolism, delirium assessment, malnutrition and medication management. Interviews highlighted 5 critical GM topics—gait assessment, cognitive impairment, falls, polypharmacy and frailty—and discussions on disposition planning, driving assessment, frailty, and end-of-life care, as areas needing further curriculum support. “Geriatric rehabilitation” was understood as a targeted, triaged, continuity of care to optimize the function of older adults. Overall, comfort levels in GM increased with exposure, but a high service to education ratio and ageist mindsets remain prominent barriers.

Discussion: At a systems level, there is a need for increased involvement of PMR residents in the acute care of geriatric patients. The current rehabilitation curriculum exposes PMR residents to inpatient medicine, but gaps exist in the education of “geriatric giants” and outpatient/home care. Overall, participants identified numerous amenable barriers that impede learning and practice.

Conclusion: Overall, psychiatrists are uniquely positioned to assume leadership roles within multidisciplinary teams. Our targeted needs assessment identified learners’ needs—in the form of knowledge, skills, attitudes and interests—to ensure the applicability of a planned curriculum.

Polypharmacy and High Risk Medication Use Among Frail Elderly in Primary Care

C. Dong Hu, M. Farooqi, S. Patel, J. Bauer, L. Lee, C. Schill, T. Patel

Background: Polypharmacy and certain high-risk medications are significant contributors to medication-related resource utilization among the community-dwelling elderly. Although there is a paucity of research addressing medication related problems (MRPs) in the frail elderly, they also have an increased risk of medication-related adverse outcomes. Medication reviews conducted by pharmacists have the potential to address MRPs among the frail elderly. Therefore, a pharmacist intervention designed to address polypharmacy and use of high-risk medications among the frail elderly was implemented in a primary care Family Health Team in Kitchener, Ontario. Seniors 75 years of age and older have been systematically screened for frailty since 2013; those determined to be frail were offered a medication review with a pharmacist. The objective of this study was to compare the mean number of medications and proportions of patients on high-risk medications and polypharmacy between the frail elderly patients who underwent and those who declined a medication review with pharmacists.

Methods: The study was a retrospective medical records review. Frail elderly patients who accepted a medication review with a pharmacist (cases) were matched, by age and gender, in a 1:1 ratio to a population of frail elderly who were offered but declined a medication review with pharmacists (controls) during the time period of April 2013 – August 2015. Data pertaining to patient demographics, medical history, medication history as well as activities performed and recommendations made by pharmacists were abstracted.

Results: A total of 880 patients 75 years of age and older were screened for frailty between April 2013 and August 2015. Of those determined to be frail, 53 underwent a medication review, and 49 patients (18 males and 31 females, mean age 85 years [range: 75-98]) had at least one follow-up visit; 38 of these patients were matched to a control (15 males and 23 females, mean age 85 years [range: 76 – 94]). The mean number of total medications was not significantly different between the cases and controls at the initial visit (10.5 vs. 8.8, $p = .122$) or at end of the study period (9.6 vs. 8.6, $p = .363$). High-risk medication use was highly prevalent amongst both populations (cases: 89%, controls: 84%) at baseline and end of study period (84% in both populations); similarly, 82% of cases and 74% of controls were on polypharmacy ($p = .583$) at the initial visit and 89% of cases and 71% of controls ($p = .082$) at the end of the study. Among the 41 cases of data that were available and analyzed, a total of 218 MRPs were identified, including polypharmacy, over-dosage, and untreated conditions, among others. Pharmacists made a total of 222 recommendations for these 41 cases, a mean of 5.41 recommendations per patient; however, only 70 (a mean of 1.71 recommendations per patient) were implemented at follow-up.

Conclusion: Polypharmacy, high-risk medication use and medication related problems are readily identifiable in the frail elderly; however, additional research is required to investigate optimization of implementation of recommendations as well as strategies for successful deprescribing of medications.

Men’s and Women’s Experiences of Advance Care Planning Workshops

L. Mroz, J. Kryworuchko, R. Carter, L. Spencer, D. Barwich, R. Sawatzky

Background: Advance care planning (ACP) involves reflection and communication to help inform a person’s future health care decisions. This includes discussions with family and healthcare providers about the person’s beliefs, attitudes and wishes for future health care. Despite

the expected benefits, many people have not engaged in doing their own ACP. To increase public ACP uptake, various interventions have been developed to help users understand and engage in ACP. Volunteer facilitated ACP workshops have been developed in British Columbia and used successfully in various communities to encourage people to begin conversations about ACP. The BC Centre for Palliative Care has led a provincial ACP initiative that has supported hospice societies around the province to present ACP workshops in their communities. Despite the success of this initiative in engaging diverse communities, the majority of workshop volunteers and participants have been women. Gender-based research shows that men and women typically have different understandings of, and experiences with, many aspects of their health care. For example, men are less likely than women to engage in health promotion or some aspects of ACP. Currently there is little research on how gender might help shape men's and women's experiences of and subsequent engagement in ACP.

Research Aims: We report on early outcomes of a small pilot study, which asks: How do men and women differ in their engagement with ACP and their understanding and interpretations of ACP interventions?

Methods: Using interpretive descriptive qualitative methods and in-depth interviewing, the project explores individuals' experiences with ACP workshops and their engagement with ACP using a gender lens and analysis. Seventeen participants interviewed included couples, men diagnosed with prostate cancer and their female partners, who enrolled in volunteer facilitated ACP workshops developed for a provincial ACP initiative.

Results: Preliminary themes explore how couples understood and approached ACP. Participants described how men tended to be more interested in 'technical' aspects of ACP, while women were more interested in emotional aspects.

Discussion: The meaning of ACP was different between and within couples, but many participants equated ACP with estate planning. Some participants described how men and women 'should' think about ACP or end-of-life care, yet positioned themselves as differing from 'typical' couples. Despite this, most men and women were similarly hesitant to think about ACP or their end-of-life.

Conclusion: Findings offer insights into how to engage men and women in ACP and inform ACP intervention research and the development of gender sensitive ACP tools. This will ensure that both men and women have improved ACP experiences and outcomes.

Moving Out or Staying Put: an Environmental Scan of Decision Guides for Frail Older Adults

N. Roy, C. Després, A. Freitas, F. Légaré

Background: Most older adults wish to stay at home during their late life years. However, physical disabilities may force them to reconsider their housing arrangements. In response to this complex decision, the CRC in Shared Decision Making and Knowledge Translation in Quebec developed a paper-based decision guide to support older adults facing housing decisions. It suggests choosing on the basis of the autonomy profile of older adults, help available from their immediate social network, their capacity to pay for care services and their general housing preferences. However, a systematic literature review (Roy, 2017) has identified older adults' relationship with their built environment and their social and emotional needs as also being factors influencing these decisions. Consequently, we sought to identify and evaluate existing decision guides worldwide for older adults facing housing decision to enhance the existing decision guide used in Quebec.

Methods: An environmental scan on AgeLine, CINAHL, PubMed and Google in May 2016, using the keywords "decision-making" & "decision guide" & "older adults" & "relocation" was performed. Eligible studies discussed decision guides (tools structuring an informed decision-making process) about housing decisions targeting adults over 65 years old without cognitive disabilities. Primary studies in peer-reviewed journals, book chapters, doctoral theses, government and organizational documents, pamphlets, workbooks and web pages in English, French or Spanish were eligible. Documents presenting only descriptive information and not responding to the decision guides definition were excluded. Main document characteristics, intended users' characteristics, housing options presented and any determinants of housing decisions identified in the guides were extracted. A thematic analysis was conducted using an analytical grid based on 98 factors identified through a systematic literature review as having an influence on the housing decisions of older adults and regrouped into eight categories: medical/socioeconomic, economic, social, built environment, psychological/psychosocial, spatiotemporal, decisional and external conditions.

Results: The search resulted in 644 titles from which 22 articles presenting housing decision guides have been analyzed to date. Preliminary results, based on analysis of the first 16 decision guides, highlighted an increase in guides being developed by social and health researchers since 2000 (n=10), developers' use of validated and recognized scientific methods (n=10), as well as an absence of built environment experts involved in their development (n=0). Fourteen guides addressed fewer than 30 of the 98 factors

influencing housing decisions. The most common factors considered were related to medical status, social support and decision context. The least common factors considered were psychological (e.g. anxiety, personal identity), spatiotemporal (e.g. residential experiences, transportation) and factors related to the built environment (physical characteristics of dwelling and neighbourhood). Thirty new factors were also identified in all eight categories.

Discussion: Once completed, our results will contribute to a new enriched decision guide that reflects the complexity of housing decisions for older adults, and the richness of their multi-dimensional relationship with their home and neighbourhood, through integrating scientific and experience-based information.

Conclusion: This will lead to improved decision support and informed housing decisions that better matches the values and preferences of frail older adults.

Risks Associated with Paramedic Response to Community Dwelling Older Adults that Experience Non-Injurious Falls

M. Leyenaar, B. McLeod, J. Poss, A. Costa, J. Blums

Background: Falls among community dwelling older adults receive a great deal of attention, particularly with respect to functional decline following hospital admission and increased risk of readmission. Addressing risk factors associated with hospital admission following an injurious fall is important for developing fall prevention strategies and interventions. Challenges have been identified with respect to environmental risk factors for falls, as well as reconciliation between reports of injurious and non-injurious falls. This study integrated data from various sources to investigate risk factors associated with community-dwelling older adults that experience a non-injurious fall. The objective was to assess whether community dwelling older adults that call 9-1-1 for paramedic lift assist (without transport) prior to a subsequent injurious fall requiring ambulance transport to the emergency department are more likely to be admitted to hospital or experience other adverse outcomes compared to those similarly transported by ambulance who did not have a lift assist in the 90 days preceding the fall event?

Methods: This study used regularly collected administrative data from paramedic services, home care, and acute care in a retrospective cohort design.

Results: Over a 6-month period, 1367 individuals transported to hospital by Hamilton Paramedic Service were classified as having suffered an injurious fall. 756

of these individuals were subsequently discharged home. The remaining individuals experienced adverse outcomes including admission, transferred care, or death. Within the cohort, a total of 42 individuals had called paramedic services for a lift assist within the 90 days preceding their injurious fall. When controlling for age, sex, and acuity of injury, these individuals had nearly twice the odds of adverse outcome than the control group (OR 1.93 [95% CI 1.02-3.64]).

Discussion: Literature has shown that one of the predominant risk factors for admission to hospital following an injurious fall is previous admission for the same. Uncertainty surrounds the implication for risk of admission following non-injurious falls. This is in part because of reliance on self-report of these occurrences. This study utilizes paramedic service data (that is not usually shared with other agencies when transport does not occur) to investigate outcomes associated with non-injurious falls.

Conclusion: Hamilton Paramedic Services (HPS) has a pre-existing referral process (CREMS) for notifying Hamilton Niagara Haldimand Brant Community Care Access Center (HNHB CCAC) of patients who may benefit from services. These findings indicate an opportunity for further collaboration between HPS and HNHB CCAC in fall prevention strategies beyond referral.

Indicators of Paramedic Service Use by Frail Community Dwelling Older Adults

M. Leyenaar, A. Costa

Background: Paramedic services are expanding traditional service delivery to provide specialized care to vulnerable patient groups including frail community dwelling older adults. Opportunity exists to investigate the use of paramedic services by home care clients who are often frail. The Detection of Indicators and Vulnerabilities for Emergency Room Trips (DIVERT) tool was recently validated to identify levels of risk for use of emergency services among this population. This study investigates whether frail home care clients that were identified as being at higher risk based on their DIVERT scores were more likely to use paramedic services within 90 days of assessment when compared to clients that had lower DIVERT scores.

Methods: A retrospective cohort study was conducted using regularly collected administrative data. Home care assessment data were supplemented with data on emergency department (ED) visits. Arrival by ambulance was modelled while controlling for DIVERT scores, as well as a number of social and demographic variables.

Results: Within the cohort, approximately 40% of individuals visited an ED within 90 days of a home care assessment and almost half of all individuals visited an ED more than once within a year. About two-thirds of clients that visited an ED in the 90 days following assessment used an ambulance for transportation. DIVERT scores were predictive of this use with highest scores indicating 4.15 times higher odds of paramedic service use (95% CI 3.60-4.78). Although social and demographic indicators were tested, they did not improve the information available through DIVERT scores.

Discussion: DIVERT was not developed to consider means of transportation to the ED. These results indicate that it can be used to identify frail community dwelling older adults that are likely to use paramedic services to take them to the ED. Analysis of social and demographic factors, including interactions between these terms, did not improve model performance beyond the most modest levels. Further investigation of these factors and consideration of aspects of social isolation and carer resiliency are warranted. Future work should consider time of use as well as factors associated with ED discharge. The prevalence of ambulance use amongst this population suggests that continued collaboration between care providers may provide opportunities to prevent unnecessary ED visits by these individuals.

Conclusion: Frail community dwelling older adults represent a population that frequently use paramedic services for transport to hospital emergency departments. Home care providers can identify levels of risk for clients likely to call 9-1-1. This information may be valuable for other providers of care for these clients in order to develop care plans that address this risk.

The Where, When, How and What of Exercise Prescription in a Community-Based Slow-Stream Rehabilitation Program

M. Maximos, V. Dal Bello-Haas

Background: Older adults often have several comorbidities and are at risk of falls, injuries, and emergency room and hospital visits with extended stays. Community-dwelling older adults make up 20% of emergency hospital visits and 40% of acute, complex, continuing care and hospital-based rehabilitation stays (Statistics Canada, 2014). Typically, it is thought that older adults with multiple morbidities are not able to participate in traditional, higher intensity rehabilitation programs and are often referred to slow-stream rehabilitation (SSR) programs. SSR programs are also focused on increasing independence and function

for older adults, but are comprised of less intense and vigorous rehabilitation sessions. To date, published research has focused on inpatient SSR rehabilitation programs, while the benefits and parameters of exercise prescription in community-based SSR programs have yet to be examined. Our objectives were to; 1) describe SSR exercise prescription in a community-based program; 2) determine whether exercise prescription met American College of Sport Medicine (ACSM) guidelines for older adults; 3) investigate whether older adults who exercised at ACSM levels were more likely to have positive physical function and endurance outcomes.

Methods: A mixed-method, prospective cohort study of 46 older adults ($X=77.19$, $SD=9.19$) attending Goldies2Home (G2H, Hamilton) was conducted. G2H is a community-based SSR program aimed at transitioning older adults from hospital to home. Short Performance Physical Battery (SPPB), and 6-minute walk test (6MW) were administered at admission and discharge (week 4). Exercise duration, frequency and mode were collected from the health record, and Rate of Perceived Exertion (RPE) was used to capture intensity. Analyses included descriptive statistics and paired *t*-tests.

Results: Participants were prescribed 15 minutes of seated cardiovascular exercise (NuStep), 20 repetitions of arm and leg resistance exercise, 3 to 4 days/week and gait training/ balance exercises were prescribed between 0 to 3 days/week. Mean exercise RPE (SD) was as follows: Cardiovascular=4.25(1.67); upper body=4.00(1.93); lower body=8.69(5.29). Cardiovascular exercise guidelines were met, although at the lower range for duration and intensity. ACSM guidelines were not met for upper body resistance exercise intensity but were met for lower body exercise intensity. ACSM guidelines for balance and gait work was not met, which was reflected with the not met SPPB scores. 6MW scores significantly increased, statistically and clinically, $t(16) = 2.8$, $p = .006$; SPPB increases were statistically, but not clinically, significant ($1.15(1.67)$, $t(13) = 2.48$, $p = .014$).

Discussion: Cardiovascular exercise in accordance with ACSM guidelines resulted in endurance benefits for older adults participating in G2H. Even though ACSM recommended guidelines were partially met, a statistically significant improvement was seen at discharge in the 6MW test and SPPB, suggesting older adults transitioning from hospital to home do improve and have potential to live independently in the community.

Conclusion: To what extent physical improvements are sufficient and can be sustained to maintain safe independent living has yet to be determined.

Enhancing Engagement in Self-Care Management of Diabetes-Related Ulcer Through an Empowerment Education Model

I. Geraldina Costa, D. Tregunno

Background: There is currently an increasing awareness moving across Canada and around the globe, which acknowledges that individuals with chronic conditions achieve better health outcomes when they are actively engaged in their own health care. However, despite this recognition and uptake in the literature, populations suffering with chronic disease such as diabetes have not experienced a marked improvement in health outcomes. Reports document that diabetes has too often resulted in foot ulceration and preventable limb amputation causing a significant impact on individuals' lives, and the health care system. It can be hypothesized that the reason for this undesirable outcomes of diabetes is that self-care management (SCM) models remain rooted in a traditional model of care (also called paternalistic or bio-medical model). In this model, individuals are passive subjects in their own healthcare and hence are not engaged as partners and participants in everyday management decisions. Empirical evidence has suggested that an empowerment-based model has great potential to shift the traditional paradigm, achieve engagement in SCM, and improve healthcare outcomes for elderly living with diabetes-related ulcers. This study proposes an analysis of the use of an empowerment-based model over a traditional model of care to enhance patients' engagement in SCM of DFU and inform practice and policy

Methods: A literature search of reviews of patient engagement in self-care management of DFU and empowerment education model (EEM) compared with traditional model was conducted. Included reviews were peer-reviewed papers written in English.

Results: It was found that EEM helps patients' to engage in their own health, make healthier choices, and set positive changes. However, neither of them targeted patients with chronic wounds such as DFU, which represents a current gap on the literature. Important aspects to highlight from the EEM are: 1) Patients are the experts about their lives, and professionals are the experts about disease 2) healthcare providers' (HCP) role is to contribute with information after the group raises its own themes for mutual reflection; 3) Patients and HCPs work in partnership; 4) Patients set goals and HCPs help them to make informed decisions and 5) HCPs teach problem-solving skills and provide support.

Discussion: When comparing both approaches to SCM of DFU my defence of EEM as the preferred method is based upon more than ten years' experience with daily evidence showing that the traditional SCM model simply does not fit

the reality of complex conditions that involve multiple daily self-care decisions. Thus, a predetermined plan of care and instructions by HCPs are generally not sufficient to address the complexity of the journey of a person living with this chronic wound. In contrast, the EEM attempts to improve patients' ability to influence their own behaviour by helping them to learn how to make informed choices and take control of their everyday care. In addition to empowering patients to take charge of their own health care, this approach is also important to help patients in gaining or increasing their self-confidence.

Conclusion: The EEM SCM model is based on a critical emancipatory approach that has been acknowledged in the literature as a successful way to engage patients in SCM in a wide range of chronic diseases. This critical approach represents a new way to operationalize SCM of DFU with a strong focus on patient-provider partnership, informed decision making, problem-solving skills, and accomplishments of patient goals.

Optimizing Prescribing of Antipsychotics in Long-Term Care (OPAL)

J. Kirkham, D. Seitz

Background: Increasing numbers of older adults are affected by dementia, and many will eventually reside in long-term care (LTC). Inappropriate antipsychotic use in this setting is common and associated with serious adverse effects that are of particular concern in frail elderly populations. Antipsychotic use is a key quality indicator by which clinical outcomes can be monitored and improved in LTC, but limited evidence exists on the most effective strategies for reducing inappropriate prescribing.

Methods: The objective of the study was to evaluate a multicomponent approach including an educational program to reduce inappropriate antipsychotic prescribing in LTC facilities. A prospective, stepped wedge, controlled study design was used to evaluate the effect of the intervention in 10 LTC facilities in Ontario and Saskatchewan. The primary outcome was the proportion of residents receiving an antipsychotic without a diagnosis of psychosis.

Results: At baseline, the overall antipsychotic prescribing rate was 28.6% (Standard Deviation (SD) 4.3%). Data collection is ongoing; results at three months following implementation showed a relative reduction in the mean rate of inappropriate antipsychotic prescribing of 5.2% (SD 7.8%). The change was not statistically significant ($p=.06$). There were no significant changes in related quality indicators including falls, restraint use, and behavioural worsening.

Discussion: Preliminary study results show a trend towards lower rates of inappropriate antipsychotic prescribing. Previous studies have observed larger reductions; however, comparisons across studies are difficult owing to highly variable study designs. Few high quality Canadian studies exist.

Conclusion: Preliminary results are promising; if effective in the complete evaluation, the intervention offers a sustainable and practical means by which to improve the care of older adults in LTC.

Surgery, Anesthesia and Development Of Dementia

C. Velkers, D. Seitz

Background: As the Canadian population continues to increase in age, this presents new challenges to our healthcare system and the care it provides. Along with medical comorbidities and chronic conditions arising amongst this older adult population, cognitive decline leading to dementia and its associated diseases becomes an issue of greater concern. The incidence of dementia progressively increases with age, where the risk for development doubles every five years after the age of 65. Alzheimer's disease (AD) is the most common cause of dementia, and accounts for approximately 60% of all cases. Worldwide, over 47 million people are living with AD and dementia. Recently, there are concerns that undergoing surgical procedures, and the type of anesthesia used for surgery, may be associated with an increased risk of AD and dementia. For many surgical procedures, both general anesthesia (GA) or regional anesthesia (RA) can be used and the decision rests with the anesthesiologist, after considering important patient factors. In various studies, RA has been shown to be associated with a lower risk of mortality and specific postoperative complications. In addition to the potential benefits of RA on non-cognitive outcomes, there is additional evidence supporting an association between GA and increased AD pathology. Commonly utilized inhalation anesthetic gases (used in GA) have been shown to be associated with increased development of amyloid-beta deposition and plaques, while also increasing the development of tau-related neurofibrillary tangles. Both processes have been shown to be associated with AD and are key mechanisms when considering the underlying pathological changes that occur.

Methods: Using population-based databases accessed through the Institute for Clinical Evaluative Sciences (ICES), a retrospective cohort study will be completed to evaluate older adults undergoing various surgical procedures of different complexities, and with different types of anesthesia (GA vs. RA) to determine whether

anesthesia type imposes different risks for the development of dementia. Although this thesis will only focus on older adults, there may be certain subgroups of this population that are at an even further risk for the development of dementia following exposure to anesthesia.

Results: It is hypothesized that GA will lead to a greater risk for the development of dementia over RA. This is expected since GA poses a greater effect on an individual's neurocognitive system, while RA's effects are more isolated.

Discussion: The findings of this research project have the potential to impact older persons who undergo surgery late in life and can highlight the impact anesthesia may have on future development of dementia amongst these individuals. Furthermore, this is even more applicable to frail individuals and their caregivers, since they will have more considerations to include when deciding on the type of anesthesia to be used throughout a surgical procedure.

Conclusion: To date, there have been mixed conclusions regarding the association between surgery, anesthesia choice, and the development of dementia. This study seeks to address these knowledge gaps through closer investigation into whether the choice of anesthesia impacts risk for development of dementia following surgery.

Using the Quality of Life Practice Support System in Hospital Palliative Care Consults

M. Krawczyk, E. Garland, R. Sawatzky

Background: The Quality of Life Assessment and Practice Support System (QPSS) is an innovative user-designed computerized (tablet based) assessment system that provides a means for patients and family caregivers to self-report quality of life and experiences of care using validated patient-reported outcome (PROMs) and experience measures (PREMs).

Aim: To better understand the experiences and perspectives of hospital-based palliative clinicians and their elder patients regarding the desirable features of the QPSS, and its use in routine clinical practice within a large urban acute care hospital in Western Canada.

Methods: Our knowledge-to-action research project involved two nurse specialists within a larger Palliative Outreach Consult Team (POCT), and consenting older adult patients (55+) and family caregivers who were receiving palliative consult services in a large tertiary acute care hospital in Western Canada. User-centered design of the QPSS was informed by three focus groups with the entire POCT team, and implementation was evaluated by direct

observation as well as interviews with the POCT nurses and three patients. Inductive thematic analysis was used as a methodological approach to transcribed verbatim interviews and field notes, and was informed by theoretical perspectives from medical anthropology and social studies of science and technology.

Results: Over nine weeks, clinicians used the QPSS at least once with 20 patients and one family caregiver. Patients reported that the QPSS was easy to use, and that both the process and outcome of using the QPSS was beneficial to themselves, their relationship with clinicians, and to the hospital more broadly. Clinicians express positive values associated with the tablet modality, both for themselves, and for patients. Clinicians referenced three primary benefits of jointly using the QPSS with patients and family caregivers: 1) to generate conversation about quality of life and experiences of care, 2) to facilitate the creation of an emergent affective space for therapeutic relationship building, and 3) to enable rapid production of new and at times unexpected knowledge. Clinicians used QPSS data to inform the larger POCT team, report results in patients' charts, and share results on the spot with other members of the patient's care team. Clinicians expressed that a significant benefit of using the QPSS was its ability to help them prioritize areas of relevance to patients' quality of life and their experiences of care within an institutional space that conventionally has limited capacity to focus on these issues. Patient acuity, the structure of hospital consultations, and lack of privacy were identified as challenges.

Discussion: This is the first study to examine hospital palliative consult clinicians' use of a tablet-based system for routine collection of PROMs and PREMs. Future studies focused on successful integration of electronic PROMs and PREMs into routine palliative care may benefit by further exploring how joint use may positively shape clinicians' perceptions of use value. We also recommend further research on family caregiver quality of life and care experiences.

Conclusion: The QPSS was jointly used and valued by clinicians and patients as a relational tool that facilitated: 1) the co-creation of new affective spaces that strengthened the therapeutic processes of care, and 2) the co-creation of knowledge regarding quality of life and experiences of care.

Pilot Study of the Use of Frailty Index in Long-Term Care Facilities

M. Michaud, S. Pakzad, P. E. Bourque

Background: Aging is associated with multiple declines (Mitnitski *et al.*, 2011) and frailty is commonly understood

as a highly age-associated, nonspecific state of increased risk, which reflects multisystem physiological change (Fulop *et al.*, 2010). However, the prevalence and significance of frailty are seldom studied in long-term care facilities (Banerjee *et al.*, 2007). Nevertheless, the elderly who live in these facilities are more vulnerable than those who live on their own. Although the clinical utility of frailty measures has been demonstrated, the clinical implications and opportunities of detecting frailty in more vulnerable older adults requires further investigation (Hogan *et al.*, 2012, Lucicesare *et al.*, 2010). The difficulty in translating the clinical profile of frail elderly people into a quantifiable assessment tool is due to the complexities and heterogeneous nature of their health problems (Kamaruzzaman *et al.*, 2010). Therefore, the objective of the present study is to assess the utility of the frailty index in a long-term care facility.

Methods: Participants in this study (n = 32) were recruited from the York Care Centre, which is a long-term care facility with 214 beds. The intake measures include socio demographic, health, cognitive and psychological variables. The same battery of measures was administered at follow-up six months later. A frailty index was adapted by combining variables judged adequate to determine the level of frailty of the elderly residing in long-term care facilities.

Results: The results show that the frailty index is associated with gender only. In addition, significant differences were found on the Montreal Cognitive Assessment (MoCA) score and the Geriatric Depression Scale (GDS) score for baseline and second assessment, but not for the frailty index.

Discussion: This study is limited by the small sample of participants and the short period of time between baseline and the second assessments, which could explain the absence of significant results. Since data collection is still underway, another frailty index will be assessed twelve months after baseline, and it will include a larger sample.

Conclusion: Nevertheless, these preliminary results have given us a clearer understanding of the utility of using a frailty index in long-term care facilities.

Surgical Frailty Assessment: a Missed Opportunity

G. Eamer, J. A Gibson, C. Gillis, A. T Hsu, M. Krawczyk, E. MacDonald, R. Whitlock, R. G Khadaroo

Background: Preoperative frailty predicts adverse postoperative outcomes. Despite the advantages of incorporating frailty assessment into surgical settings, there is limited research on surgical health care professionals' use of frailty assessment for perioperative care.

Methods: Healthcare professionals caring for patients enrolled in the EASE study (NCT02233153) were surveyed to assess perceptions of frailty, and attitudes towards and practices for frail patients. The survey used open-ended and 5-point Likert scale questions. Responses were compared across professions using independent sample t-tests and correlations between survey items were analyzed.

Results: Nurses and allied health professionals were more likely than surgeons to think frailty should play a role in planning a patient's care (nurses vs. surgeons $p=.008$, allied health vs. surgeons $p=.014$). Very few respondents (17.5%) reported that they 'always used' a frailty assessment tool. Results from qualitative data analysis identified four main barriers to frailty assessment: institutional, health care system, professional knowledge, and patient/family barriers.

Discussion: Across all disciplines, the lack of knowledge about frailty issues was a prominent barrier to the use of frailty assessments in practice, despite clinicians understanding that frailty affects their patients' outcomes. Confidence in frailty assessment tool use through education and addressing barriers to implementation may increase use and improve patient care.

Conclusion: Healthcare professionals agree that frailty assessments should play a role in perioperative care. However, few perform them in practice. Lack of knowledge about frailty is a key barrier in the use of frailty assessments and the majority of respondents agreed that they would benefit from further training.

Unscheduled General Surgery Has Higher Costs in the Elderly When Compared to Elective Surgery

G. Eamer, R. Brisebois, F. Clement, R. G Khadaroo

Background: Aging is associated with increased postoperative complications resulting in increased disability, healthcare cost and mortality. As the baby-boom generation ages, the cost of caring for them will rise. It is currently unclear how surgery contributes to these costs. Understanding the costs of surgical care for the elderly is crucial for healthcare services planning. We hypothesize that increasing age predicts increasing admission costs.

Methods: This study used a retrospective analysis of general surgical inpatient costs over two fiscal years at four hospitals, representing 84% of all admissions in the region. In addition to the cost and number of procedures, the patient's age, type of procedure, hospital, cost category and surgical urgency were included in the analysis. Cost differences of 10% or greater over the two year period were

considered to be significant. Ethical approval was obtained (Pro00068273).

Results: Total surgical inpatient costs for 12,070 procedures were examined. The average cost was \$4,351 for scheduled admissions and \$4,054 for unscheduled admissions. Only unscheduled admissions were significantly more costly (greater than 10% difference) in older age groups (65-79 and 80+); cost increases are attributed to postoperative care. Costs more than doubled for the unscheduled over 80-year-old low and moderate risk groups.

Discussion: We hypothesized that increasing age would predict increasing operative case costs, mainly due to prolonged length of stay. However, operative costs only increased for unscheduled procedures and did not increase for scheduled procedures. This suggests that surgical expertise is being used to select who would be a good candidate for surgical intervention in scheduled surgical cases. Elderly patients who would not tolerate surgery are being steered towards medical management of their presenting complaints, or are being optimized for surgery before intervention. Patients presenting with surgical disease through the emergency department, however, are not able to undergo medical optimization or the presenting condition necessitates surgical management, despite the increased risk of morbidity and mortality.

Conclusion: Costs increased with age in emergency but not elective surgery; this may suggest screening elective surgical candidates is effective and that medical optimization may decrease admission costs. Low, moderate and high risk unscheduled surgery all result in higher cost in the elderly. Innovative programs to reduce complications in the elderly for emergency surgery should be developed.

Raising Awareness: Frailty, Nutrition, and Dementia

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Background: The goal of this project was to increase public awareness regarding the importance of nutrition care for frail older adults, including those with dementia, and promote existing useful tools and resources that may aid older adults, their families, and care partners. This was undertaken as part of the Canadian Frailty Networks 2016 Interdisciplinary Training Fellowship.

Methods: The target audience for our awareness campaign was the general public. There were three main components of our campaign: (1) A Twitter Account, (2) A blog, and (3) An Infographic. Through targeted literature and web searches,

our team drafted many tweets with the aim of sharing existing evidence and resources to assist in educating and supporting our audience. We regularly updated our twitter “@CFN_fellows2016” with new content using the pre-programmable Hootsuite application. We also retweeted and followed relevant organizations and individuals to grow our social impact. We used the blog “Frailty and Nutrition” to provide more in-depth information on frailty, nutrition, and various resources for families and care partners. Topics included a definition of frailty, frailty prevention, nutritional advice, malnutrition prevention, a caregiver’s perspective, and a helpful resource list. Material was drafted and reviewed by the group and group mentors before publication. The infographic was designed to be a useful resource about frailty and malnutrition. The infographic information was drafted by the group and then underwent an iterative review process by the group and group mentors until a final version was agreed upon. It was then shared via the twitter and blog and various other social networks.

Results: By the end of the campaign, we had 150 Twitter followers, 430 published Tweets, and 150 followers. Our most successful tweet had 19 responses (retweets, likes, etc.). Our blog was accessed 1192 times in the two months between the launch date and project end. Most accesses were from Canada, with some from the United States and United Kingdom, as well as from Brazil, Germany, Spain, Ireland, and France. Our most visited pages were “Frailty” and “Helpful resources” pages. The infographic was shared on both the Twitter account and the blog, as well as through personal and professional social networks.

Discussion: The strength of the project was in the diversity of group member expertise and networks, which increased the success of the knowledge translation strategies we employed. Raising awareness is an ambitious project and there is still much that can be done in this area. We hope that this project benefits future work aimed at knowledge translation and supporting frail older adults, families, and care partners.

Conclusion: Overall, the campaign exceeded our expectations. We accomplished the goals identified at the outset of our awareness raising campaign regarding nutrition, frailty, and dementia by highlighting helpful evidence-based resources and tools for older adults, families, and care partners.

Examining the Clinical Contexts Where Patients with Heart Failure Access End-of-Life Care: the HF-EOL Study

J. A. Gibson, P. (Paddy) Rodney, C. Varcoe, K. Stajduhar, B. Jiwani

Background: Heart failure (HF) is a progressive, chronic illness affecting approximately 20% of adults older than 80. Life expectancy is only 2 years following a HF-related hospitalization; when complicated by frailty and comorbidities, prognosis deteriorates considerably. At end of life (EOL), HF patients receive more acute care, aggressive medical treatments, and have less access to specialist palliative care compared to patients with malignancies. Consequently, experiences of HF-EOL can be poor and include prolonged dying, inadequately managed symptoms (e.g. pain, dyspnea), and worsened suffering for patients/families. HF-EOL experiences have been described in relation to known contextual features of acute care including clinical resources (e.g. treatment options, provider expertise), medical technologies, and dominant “cure” cultures. The purpose of this study was to uncover additional features and explicate the interrelationships and influences of acute care practice contexts and HF-EOL.

Methods: Ethnographic inquiry was used to guide data collection and the production of contextual descriptions and interpretations about acute care and HF-EOL. Invited study participants were a sample of interdisciplinary healthcare professionals (HCPs) from acute care areas where patients with HF access EOL care. Data was collected at two sites: a large tertiary teaching hospital and a smaller community hospital. Three data collection methods were used: observations of patients/families and HCPs and fieldwork; semi-structured interviews; and document analysis. Twenty-two participants joined the study and approximately 250 hours of fieldwork was conducted. Data analysis evolved over three phases: formation of preliminary impressions; application of generic codes to organize interpretations; and analysis of individual themes and cases in relation to the whole data set.

Results: Preliminary analysis produced several findings. For example, the notion of “need-to-know” was identified. In practice, need-to-know functions as a necessary benchmark because it defines clinical standards and competencies; however, more complex theory and concepts including frailty, advanced illness knowledge, and EOL considerations are not necessarily included within the need-to-know benchmark. Another finding described widespread definitional discrepancies and varied understandings of terminology (e.g. palliative care, palliative approach, comfort care, advance care planning); instances of confusion and misdirection in late-life situations were reported. Language also impacted communication with patients/families. For example, “sad” language was avoided to protect others’ feelings; diminished communication clarity was described.

Discussion: The findings from the HF-EOL Study are important to the care of the seriously ill, frail elderly and their caregivers because they highlight the need to better

define expectations for building HCPs and patients'/caregivers' knowledge and competencies. For example, "need-to-know" influenced clinical knowledge expectations and HCPs in acute care did not easily identify their own role in supporting patients through advanced/final illness stages. Thus, competency considerations for all must include advanced illness needs (e.g. preparations for death, care during active dying), as well as communication skills. Findings also underscore the importance of establishing definitional consensus for frequently used terms and ensuring patients/families receive communication that promotes shared understandings of clinical care directions for all involved.

Conclusion: The HF-EOL Study findings add new knowledge to better understanding how features within acute care clinical contexts shape how EOL is provided to patients/families with HF.

Employing Prehabilitation To Improve Patient Outcomes After Colorectal Surgery

C. Gillis, T. Fenton, L. Gramlich

Background: Enhanced Recovery After Surgery (ERAS) pathways employ evidence-based standardized clinical interventions that reduce complications and shorten length of hospital stay after colorectal surgery. Little available evidence, however, indicates that ERAS facilitates earlier recovery of strength and function, which are important patient-centered outcomes. It has been suggested that identification and treatment of preoperative patient-related factors, such as poor physical fitness, before surgery may improve both clinical and patient-centered measures of recovery. Prehabilitation is an intervention designed to use the waiting period before surgery to optimize the patient's physical condition and might thus be a complementary addition to the ERAS pathway. The primary study objective is to investigate the effects of implementing a trimodal prehabilitation program, consisting of preoperative nutrition, exercise, and anxiety reduction strategies, on functional and clinical surgical outcomes. The secondary objective is to target priority patient groups so that health care resources can be used efficiently.

Methods: An interdisciplinary, multicenter RCT will be conducted at two hospitals in Alberta Canada employing ERAS care. Colorectal surgery patients awaiting elective surgery for localized cancer will be eligible and invited to participate. Enrolled, consented patients will be randomized to a prehabilitation group or a control group. The control group will not receive any other intervention outside the standard ERAS program. The prehabilitation intervention

will consist of personalized instructions for a home-based program of exercise, nutrition, and anxiety-reduction strategies, which will begin four weeks before surgery and continue for eight weeks after surgery. The primary outcome measure will be the return to pre-surgery functional walking capacity, as assessed by the validated six-minute walk test eight weeks after surgery. Traditional clinical outcome measures, including length of hospital stay, complications and 30-d readmission will also be evaluated. Furthermore, all patients will be assessed at baseline for risk factors that negatively impact surgical outcome, such as frailty (using the Modified Frailty Index), poor functional walking capacity (<400m in six minutes) and malnutrition (Malnutrition Screening Tool >2), for the purpose of evaluating how these patient sub-group respond to prehabilitation. Regression analysis will determine which colorectal patient subgroups benefit most from prehabilitation.

Results: We anticipate that patients following prehabilitation will recover their functional walking capacity earlier than control patients. We also anticipate that high risk patients will attain a greater benefit from prehabilitation, including an even greater functional recovery and an improved overall surgical experience.

Discussion: Despite advances in surgical and anesthetic technology colorectal resection is considered one of the general surgeries with the highest proportion of adverse events. Even in the absence of surgical complications, abdominal surgeries are associated with a 20 to 40% reduction in functional capacity that, particularly in the elderly with comorbidities, may not return to preoperative values for several months, if at all. It is thus evident that care for colorectal surgery patients is in need of quality improvement.

Conclusion: Our results will provide insight into the most appropriate preoperative interventions for patients awaiting elective colorectal surgery, so that that the surgical care provided is effective and efficient.

Frailty Affects Treatment Decisions and Outcomes for Patients with Chronic Kidney Disease

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Background: Frailty is common in patients with Chronic Kidney Disease (CKD) and leads to accelerated aging. While there have been several studies examining frailty in patients with earlier stages of CKD and those on dialysis, little is known about the prevalence and impact of frailty on outcomes in patients with advanced CKD (Stages G4-G5). We sought to determine the agreement between 3 different

frailty measures and the association of these measures with dialysis modality decisions and mortality.

Methods: We studied 508 patients with advanced CKD who were enrolled in CKD clinics at 4 centres. We collected demographics, comorbid conditions, and laboratory results in addition to objective [Modified Fried Frailty Criteria (Fried) and Short Physical Performance Battery (SPPB)], and subjective measures (physician and nurse impression) of frailty. Our primary outcomes were choice of dialysis modality and all-cause mortality.

Results: Our cohort had a median age of 68 (interquartile range: 58, 77) and was 42.9% female. Estimates of frailty prevalence varied as 49.9% of the cohort were considered frail according to SPPB, 29.9% according to Fried, 33.4% according to physician impression, and 28.7% according to nursing impression. Agreement between objective frailty assessments was poor ($\kappa = 0.26$) and agreement between subjective frailty assessments was moderate ($\kappa = 0.46$). The objective frailty measures were not associated with choice of dialysis modality. In contrast, the subjective physician impression of frailty was associated with choosing hemodialysis (OR 3.60 [95% CI: 1.10-11.82]). The subjective frailty measures were not associated with choice of dialysis modality. However, even after adjusting for age, sex and comorbid conditions, frailty measured objectively using Fried was associated with mortality (OR 2.88 [95% CI: 1.39-5.94]).

Discussion: To our knowledge, this is the first study to examine the agreement between subjective and objective frailty measurements and their association with clinical outcomes in patients with advanced CKD. We found that different frailty assessment tools did not identify the same individuals as frail, and our analysis suggests that patients who were perceived as frail by physicians were less likely to choose home dialysis modalities. The strengths of this study include its prospective, multicenter design, and the collection of a broad range of clinical, demographic, laboratory and frailty assessment variables. The limitations are the inclusion of only a baseline frailty assessment, the small number of outcomes, and the potential lack of external validation.

Conclusion: In summary, we have demonstrated that the definition of frailty is important, as there is limited agreement between frailty construct and important differences in the relationship of each construct with clinical outcomes. Patients diagnosed as frail by Fried were more likely to die, and patients considered frail by physicians were more likely to choose in-center hemodialysis. Further research to understand the longitudinal trajectory of frailty and its impact on therapeutic choices, morbidity, mortality, and quality of life after initiation of dialysis is needed.

Maximizing the Impact of Community Outreach Programs Through Integration of Research and Interprofessional Approaches to Care

E. MacDonald, R. McCloskey, L. Keeping-Burke, C. Donovan

Background: Family members of persons living with dementia often provide long-term care within their home. Such care requires substantial educational, physical, and emotional resources. Given that these family members often neglect their own health as they adopt the role of informal caregiver for their loved one, health promotion for family caregivers requires urgent attention. Previous research on caregivers of individuals with dementia has focused primarily on burden, stress, and the avoidance of admission to nursing homes; while health promotion and wellbeing of family caregivers has received little attention. The purpose of this research is to identify the perceived health needs of family caregivers of individuals living with dementia and explore ways in which community outreach programs can address caregiver needs in conjunction with those of clients accessing their services.

Methods: A mixed-methods approach was adopted to investigate the complex area under study. Participants from Alzheimer's support groups and Senior Outreach Programs throughout the province of New Brunswick were invited to participate. Data was collected through focus groups, individual interviews, and demographic profiles.

Results: Preliminary analysis revealed the complex processes involved in providing care for a loved one with dementia at home. Participants' preoccupation with meeting the needs of their loved one precluded them from directing any attention towards their own health needs. Participant's perceived needs extended beyond physical health to include educational information, social support networks, and relief from caregiving responsibilities.

Discussion: Findings from this study have the potential to influence future development and evaluation of community outreach models in Canada.

Conclusion: Results from this investigation will help to ensure the health care system is responsive to the complex needs of frail older adults and their family caregivers.

Patient Characteristics, Resource Utilization, and Outcomes Associated with General Medicine Hospital Care

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Background: Aging and increased multimorbidity has resulted in more hospital patients whose care falls outside of clearly delineated subspecialty areas. Thus, more patients are cared for by a general medicine service in hospital. Yet little is known about general medicine hospital patients or the quality of care that they receive in hospital. The purpose of this study was to characterize the general medicine inpatient population with respect to demographics, comorbidities, health outcomes, and resource utilization.

Methods: The General Medicine Inpatient Cohort Study (GEMINI) is a retrospective cohort study involving 7 hospital sites in the Greater Toronto Area. The GEMINI cohort included all patients who were admitted to or discharged from the general medicine service between April 1, 2010 and March 31, 2015. Data collection for GEMINI was based on linking standardized administrative health data with clinical data that was extracted from hospital information systems. Discharge diagnoses were identified using 3-character ICD-10-CA categories. Costs of hospitalization were calculated using the resource intensity weight as calculated for the Canadian Institute for Health Information using the 2015 grouping methodology and the average cost-per-weighted case at each hospital. Final data cleaning is underway.

Results: There were 139,151 general medicine hospitalizations in the study period and the annual number of hospitalizations increased by 30.8% over five years from 24,185 in 2010-2011 to 31,627 in 2014-2015. General medicine hospitalizations accounted for 42.4% of all emergency room admissions, 19.9% of all hospital admissions, and 26.2% of all hospital bed-days. The population was generally of older age (median 73 years, IQR 28) and high comorbidity (median 5 comorbidities, IQR 6). The median length-of-stay was 4.8 days (IQR 7.3) and cost was \$5727 per hospitalization. At hospital discharge, 70.2% of patients returned home whereas 18.8% required long-term care or rehabilitation, and 6.8% died in hospital. The most common discharge diagnoses were heart failure (4.8%), pneumonia (4.5%), chronic obstructive pulmonary disease (COPD, 4.2%), urinary tract infection (3.9%), and stroke (3.7%). The ten most common diagnoses accounted for only 29.4% of all hospitalizations, whereas the remaining 70% of admissions were comprised of nearly 1,000 diagnoses. The average age was greatest for hospitalizations with delirium (83, IQR 13), aspiration pneumonitis (83, IQR 16), and heart failure (82, IQR 14). The most costly hospitalizations were for sepsis (\$10,087, IQR \$12,856), delirium (\$10,439, IQR \$6141), and aspiration pneumonitis (\$8046, IQR 6934). Patients received at least one x-ray in 82.9% of hospitalizations, CT scan in 52.0%, ultrasonography in 28.5%, MRI in 11.4%, blood transfusion in 12.4%, and endoscopy in 10.3%.

Discussion: GEMINI is the largest study of general medicine hospital care conducted in Canada. Our study demonstrates that general medicine patients are a large, growing, heterogeneous, and resource-intensive population. Delirium and aspiration pneumonitis are conditions associated with frail and older adults and were among the most common and costly reasons for hospitalization.

Conclusion: Characterizing the general medicine inpatient population highlights the need to better understand the marked variability in patient characteristics, resource utilization, and outcomes in general medicine in order to promote sustainable and high quality care.

Implementing a Model of Care Coordination in Primary Care for Frail Older Adults

J. Elliott, P. Stolee, G. Heckman

Background: Primary health care (PHC) could play a central, coordinating role in assessing and managing frail older adults with chronic illness and complex health problems, but at present lacks specific strategies to fulfill this role. Priorities for enhanced care coordination in PHC include: 1) consistent processes to identify and assess older persons and create individual care plans aligned with risk levels; 2) improved care coordination and system navigation; 3) improved access to appropriate services; and 4) improved patient and caregiver engagement. This study aimed to understand how a model of care coordination for older adults can be developed and implemented in primary care. Information was gathered to provide an in-depth understanding of: (1) the local context (2) what referral pathways can link older patients to services appropriate for their level of risk, and (3) provider, patient and caregiver experience to understand how the model could be modified and what factors are important for implementation in future primary care sites.

Methods: This study used mixed methods, within a developmental evaluation approach. Ongoing focus group (n=6) and key informant interviews were conducted with patients (n=15), families (n=4), and care providers in community and primary care (n=15) in three locations (rural and urban) in Ontario, Canada. Data were coded using a line by line, emergent approach. Service referrals and utilization were also collected and analyzed at the study sites.

Results: A model of care coordination was developed through engagement of patients, families, and health care providers. Components of the model include: a) consistent referral processes (using technology); b) coordination of care through individualized care plans; and c) patient and caregiver engagement in decision-making.

Discussion: Implementation of a model of care coordination resulted in patient and provider awareness of resources for self-management, stronger linkages between PHC teams and community resources, and improved patient and caregiver experiences and engagement in decision-making. Health care providers acknowledged that meaningful engagement and care coordination is time-consuming in a busy primary care practice.

Conclusion: A model of care coordination was developed and implemented in primary care through an ongoing, iterative process involving older adults, caregivers, and health care providers. This process resulted in key principles necessary for improving care coordination in primary care for frail older adults and their caregivers.

Frailty and Malnutrition: Overlap and Evidence Gaps in Diagnosis and Treatment

C. Laur, T. McNicholl, R. Valaitis, H. Keller

Background: There is a detrimental health impact of frailty and a high prevalence of malnutrition among older adults. Experts in these two arenas are beginning to become cognizant of the overlap in constructs, diagnosis and treatment of frailty and malnutrition.

Methods: A literature search was conducted to identify key texts, reports, and journal articles relevant to malnutrition and/or frailty, their associated assessment tools, and oral nutritional supplement (ONS) interventions.

Results: There is no consensus regarding the definition of malnutrition or how it should be assessed. While there is consensus on the definition of frailty, there has been no agreement on how it should be measured. Screening and assessment tools exist separately for both conditions, and although there is intersection between concepts and measures, no tool currently measures both conditions. Since frailty and malnutrition have been shown to result in similar negative health outcomes, it is not surprising that they have common treatment strategies, including ONS. Previous research has highlighted the potential benefits of ONS on weight status, frailty indicators, nutritional status and mortality. While many of the outcomes of treatment relate to both concepts of frailty and malnutrition, research questions have typically focused on the frailty concept, leading to possible gaps or missed opportunities in understanding the effect of complementary interventions on malnutrition.

Discussion: This narrative review highlights some of the intersections within malnutrition and frailty screening/assessment tools including: weight loss/decreased body

mass, functional capacity, and weakness (handgrip strength). The review proposes the potential for identification of a minimal set of objective measures to identify or consider risk for both conditions. Overlap in treatment options, particularly with respect to ONS is also discussed.

Conclusion: A better understanding of frailty and malnutrition overlap may improve treatment strategies for frail, malnourished, older adults.

Using Technology to Create Quality Care for Seniors

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Background: Over the next decade, the aging population in Alberta and Canada will have increased exponentially. Care for seniors can be costly as it often involves extended hospital stays and emergency visits. In an effort to reduce these costs and optimize senior's care, the present study aimed to implement an integrated technology package. Specifically, we sought to pilot remote monitoring devices at a senior's care facility to determine whether integrated e-technology can enhance the quality and safety of seniors' care.

Methods: The study involved a multi-phase design. We first conducted a readiness assessment to determine the facility's "readiness" for change. Survey responses and interviews indicated that the facility was ready to implement the technology. We consulted with healthcare staff on what functions to monitor and agreed on blood pressure, oxygen saturation, weight, and hydration as the most meaningful options. Through consultations with healthcare staff and industry partners, we evaluated suitable measurement devices based on several criteria such as affordability and compatibility of the device, and ease and comfort of use. Before implementing the remote monitoring technology, we trained healthcare staff to use it. Staff conducted weekly measurements on 30 residents over the course of four months. We also piloted a fall detection device on one resident who was at a high risk for falling. Finally, we developed an alert software and reporting system to visualize changes in participants' health status and quickly detect values outside the normal threshold.

Results: An examination of data trends and medical charts, as well as a follow-up interviews with healthcare staff, seniors, and their family members suggests there is value in monitoring subtle changes in health status. Staff are able to be more proactive in seniors' care management. Weekly measurements allow staff to monitor any changes in health status and take quick action by following defined care pathways. This could help reduce emergency room visits, thus

reducing hospitalization costs. Another advantage of frequent monitoring is the reassurance and security residents perceive when they have a healthcare provider following up on them once a week. Residents liked the consistency of having someone check in on them once a week. The weekly monitoring also reduced workload for other healthcare providers since they could obtain the monitoring information from the data hub rather than re-take the measurements themselves.

Discussion: Although staff and residents perceived the integrated e-technology to be useful, the short timeframe of the study made it difficult to fully integrate the process (i.e., link the monitoring data and alerts with the facility's electronic medication administration system). The timeframe was also too short to draw firm conclusions on resident impact. We discuss this and other challenges encountered, mitigation strategies implemented, and implications for sustainability and feasibility.

Conclusion: This study introduced a technological intervention in a private care facility. Engaging staff and residents was integral to the usefulness and success of the technology. Challenges related to procuring suitable devices, setting up the software, and recruiting residents limited the data collection period. Future studies should propose longer timelines and allocate more time to implementation.

Evaluation of a Decision Aid Supporting Patients' Decisions About Cardiopulmonary Resuscitation and Invasive Mechanical Ventilation

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Background: Clinical practice guidelines recommend shared decision making (SDM) to facilitate discussions about goals of care. We previously adapted existing decision aids (DA) to the local context, culture and patient needs in a single ICU (Lévis, Quebec). The new DA is freely available in French and English at www.wikidecision.org. The main objectives were to develop and deliver a training program to teach clinicians how to use the DA. The secondary objectives were to: 1) adapt and validate two Multidimensional Measures of Informed Choice (MMIC) questionnaires about cardiopulmonary resuscitation (CPR) and invasive mechanical ventilation (IMV); and 2) evaluate the effect of the training program and our DA on elderly patients' values-based decision making and physicians' adoption of SDM.

Methods: To develop our training program, we consulted experts in bioethics (n=1), critical care (n=1) and palliative care (n=1) to identify an existing training programs that we

could adapt. We then developed the content of the training program that was further improved with 9 other experts in SDM, critical care and palliative care. We planned to evaluate the impact of our training program on the adoption of SDM using the OPTION-12 scale and on the quality of values-based decision making using the MMIC questionnaires. This will be done by observing 30 elderly-professional dyads discussing goals of care in the ICU before and after implementing our training program.

Results: We developed the curriculum of our training program and are currently working with experts in educational technology to create an online version. We adapted and validated two MMIC questionnaires to measure patient's knowledge about and attitude towards CPR and IMV. We verified content validity with 9 experts and face validity with 5 ICU patients aged 65 and over. We then tested and retested our questionnaires (one week interval) with 32 individuals aged 65 years and over at a retirement home. The internal validity of our attitude items were high (.94 for CPR and .95 for IMV). The knowledge items revealed that responses were stable over time except for 2 items. After pilot testing our questionnaires with 5 frail elderly ICU patients, we still found the questionnaires to be too long and complicated for use with this population.

Discussion: Many barriers still exist about how to: 1) use OPTION-12 pre and post implementation to measure physicians adoption of SDM; and 2) to further adapt, simplify and shorten the two MMIC questionnaires. We have yet to deliver our training program and evaluate its impact on values-based decision making and on the adoption of SDM by ICU physicians.

Conclusion: We are developing an online training program to teach physicians about SDM in the context of goals of care decision making in the ICU. More research needs to be conducted to simplify the tools we want to use to measure the impact of our training program.

A Formalized Shared Decision Making Process Improves Comprehension and Decisional Quality Among Frail, Elderly Cardiac Surgery Patients

E. Wilson-Pease, R. Gainer, J. Begum, G. Hirsch

Background: Comprehension of risks, benefits, and alternative treatment options is poor among patients referred for cardiac interventions. We have demonstrated that an increasing proportion of frail and elderly patients are undergoing complex cardiac surgical procedures with increased risk of both mortality and prolonged institutional care. The objective of the current study is to explore the

impact of a formalized shared decision making on patient comprehension and decisional quality.

Methods: A formalized shared decision making process was established by creating and utilizing a paper-based decision aid for cardiac surgery patients. This decision aid was developed and evaluated within the context of a pre-post study design. Surgeons were trained in shared decision making through a web based program. Research team members acted as decisional coaches, going through the decision aids with the patients and their families, and remaining available for consultation. Patients (65 and over) undergoing isolated valve, coronary artery bypass graft (CABG) or CABG & valve surgery were eligible. Participants in the pre-intervention phase (n=95) underwent usual informed consent discussion. Participants in the interventional group (n=95) were presented with a decision aid following the decision to refer for surgery populated with individualized risk assessment, personal profile, and co-morbidity status. Surgeon training in shared decision making occurred just prior to instituting the post intervention phase. Decisional coaching only applied to the post intervention phase. Both groups were assessed pre-operatively on comprehension (Maritime Heart Center Comprehension Scale), decisional conflict (Decisional Conflict Scale), decisional quality (SDM-Q-9), anxiety and depression (Hospital Anxiety and Depression Scale), Primary outcomes were comprehension and decisional quality scores.

Results: Patients who went through a formalized shared decision making process including a paper-based decision aid scored higher in comprehension (median: 15.0; IQR: 12.0-18.0) compared to those who did not (median: 9.0; IQR: 7.0-12.0) ($p < .001$). Decisional quality was greater in the interventional group (median: 82.2; IQR: 73.0-91.0) compared to those in the pre-intervention group (median: 75.6; IQR: 62.0-82.0) ($p < .05$). Anxiety and depression scores showed no significant difference between pre-intervention (median: 9.0; IQR: 4.0-12.0) and post-intervention groups (median: 7.0; IQR: 5.0-11.0) ($p < .28$).

Discussion: It has been well documented in the literature that although current consent practices meet legal requirements, these are not sufficient to be able to demonstrate truly informed consent. In this study, we have initiated a formalized, SDM process for vulnerable patients referred for cardiac surgery. Multiple studies have called for earlier engagement of patients in the development of research questions to better inform the interventions that concern them. Through patient and provider focus groups in our previous work, which sought to determine key components to effective informed consent discussions, we identified relevant outcomes for patients and through our work in outcomes research we developed validated prediction models that take frailty into account for these outcomes.

Conclusion: Institution of a formalized shared decision making process including Individualized decision aids improve comprehension of risks, benefits and alternatives to cardiac surgery, decisional quality, and did not result in increased levels of anxiety.

Integrated Approach to Palliative Care in Acute Care: Emerging Lessons from a Participatory Research Project

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Background: Despite evidence that most people prefer to die at home, acute care functions as the major provider of end of-life care. Research suggests that up to 35% of all hospital inpatients have palliative care needs, but these needs are not always addressed in acute care, with reports of patients receiving poor quality care. We require improvements to care that promote the best outcomes for patients, families, and the healthcare system. For decision-makers this impending challenge is here, but will grow much larger, as these patients fill emergency rooms and are admitted to acute care with less than optimally planned care. While specialist palliative care services are available in acute care, this model alone cannot meet current and future demands. It is recognized that traditional models of specialized palliative care in acute care are not effective in achieving significant population and system-level improvements. The Integrated Approach to Palliative Care in Acute Care (iPAC-AC) project is a Fraser Health sponsored quality improvement and research project aimed at integrating a palliative approach into the care of patients on acute care medical units.

Methods: The research arm of the initiative, funded by a one-year catalyst grant from the Canadian Frailty Network, uses participatory action research (PAR) processes to engage Fraser Health staff on one medical unit to integrate a palliative approach into their care.

Results: In this poster, we will describe the PAR process and how the “action team” is working to integrate a palliative approach into care on their medical unit. We will include an outline of the research, steps taken to engage staff in a change process toward improvements in care delivery, and reflect on lessons learned to date.

Discussion: Integrating a palliative approach into the care of patients on acute care medical units is a new concept in health care.

Conclusion: The results of this PAR could help inform other health authorities to improve the care of patients and families on other medical units.

TELEPROM-G: a Study Evaluating Access and Care Delivery of Telehealth Services Among Community-Based Seniors

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Background: The Canadian population aged 65 years or older is expected to grow from 14% in 2010 to 27% by 2050. Recent literature suggests mobile technology offers an opportunity to meet the health care needs of the elderly in the community. Depression is prevalent and strongly associated with poor health outcomes in the elderly and research addressing the use of technology in the elderly with depressive symptoms is scarce. This one year pilot study (TELEPROM-G) evaluated a mobile web-based Telemedicine and Patient-Reported Outcome Measurement platform designed to enhance the delivery of health services among community-based older adults. The purpose was to examine the feasibility of implementing an electronic Collaborative Health Record (CHR) in the elderly and to determine how features of the CHR could be further modified.

Methods: Thirty elderly clients with depressive symptoms living in the community were recruited from the caseload of eight interdisciplinary mental health care providers (HCPs). Depressive symptoms were measured using the short version of the Geriatric Depression Scale. Clients with significant cognitive deficits (as determined by the Mini Mental State Examination) were excluded from participation. Clients received tablet devices to facilitate using an eHealth mobile software platform (InputHealth's CHR). This record has the ability to track patient-reported health outcomes and facilitate clinical evaluation. For the pilot study, a video-conferencing functionality was developed to enable real-time clinical interactions with clients in their own home. HCPs received training in how to use the technology; sending questionnaires and conducting virtual visits. This enabled them to monitor changes in health and functional well-being between appointments and allowed for earlier intervention if necessary. A mixed-methods (quantitative and qualitative) design was used to assess the feasibility of implementing the CHR in the elderly. Data was collected from individual client interviews and focus groups and focus groups with HCPs.

Results: Clients reported an improved level of communication with their HCP by completing on-line questionnaires and participating in virtual visits. They reported ease of using the technology for the CHR and convenience of using the tablet's applications for other purposes. HCPs reported that

the CHR led to greater awareness of their client's' current mental health status and improved their communication with clients. HCPs reported client's' openness to using new technology and transferability of skills. Some clients reported challenges with the implementation of the CHR including; difficulty interpreting and answering questions on questionnaires, preferring to use their own computer, and experiencing a lack of consistent usage/infrequency of usage due to insufficient materials sent from HCP. HCPs expressed concerns with organizational and time constraints, difficulty of using the touch-screen for some of their clients, and challenges with their own use of technology.

Discussion: Preliminary findings have identified benefits and challenges associated with the implementation of the electronic CHR. This pilot study has highlighted the potential benefits and constraints of implementing a collaborative health record for healthcare delivery in the elderly population with symptoms of depression.

Conclusion: Information from this pilot study will be used to enhance the technology further prior to larger cohort studies across multiple sites.

Supporting Resident Comfort at End-of Life in LTC: the Role of Staff and Families' Communication

E. Lee, T. Sussman, S. Kaasalainen

Background: Quality end-of-life care is critical for dying patients and their family caregivers whose experiences with 'good' end-of life resident care can contribute to positive bereavement. While strategies and best practices to support resident comfort at end of life in long-term care (LTC) are beginning to emerge, research rarely considers those factors associated with family/friends' perceptions of a 'good' resident death. To address this gap in the literature and inform practice within LTC, this study explores service factors associated with caregivers' perceptions of resident comfort at end-of-life care.

Methods: This study used a cross-sectional survey design. 78 participants whose relative or friend died in one of five LTC homes in Canada within a one year period completed self-administered questionnaires on their experiences with end-of-life care in LTC: the Comfort Assessment in Dying with Dementia Scale (FPCS), and the Family Perceptions of End of Life Care (CAD-EOLD) scale. Participants also completed a series of demographic questions and responded to some open-ended questions. Descriptive and bivariate analyses were generated to identify common areas of concern for caregivers and to examine service factors associated with resident comfort at end-of-life.

Results: The majority of caregivers were female (73%), adult children (70%) between 55-64 years of age (46%) and supporting relatives in LTC for over 2 years and less than 3 years. Caregivers' perceptions of resident comfort at end-of-life were generally positive with most caregivers reporting good attention to resident care needs (M=61.3, Range: 11-77) support to family/friends (M=30.6, Range: 6-42) strong communication (M=34.8, Range: 6-42) and access to private and comforting physical spaces (M=11.9, Range: 2-14). Importantly, bivariate analyses revealed that staff-family communication ($r=-.403$) and resident care ($r=-.282$) were critical in supporting positive perceptions of resident comfort at end-of-life. Open-ended comments affirmed that family and friends most valued when staff in LTC treated family members with dignity, involved them in the planning of care, and informed them when death was near.

Discussion: The findings of the study identify the critical role staff in LTC may play in supporting family and friends' experiences with resident end-of-life care.

Conclusion: More specifically, by keeping families informed and paying attention to their emotional needs and providing good resident care, staff in LTC can enhance family members' perceptions of a calm and peaceful resident death and potentially reduce the risk of complicated bereavement.

Development of a Robust Measure of Frailty for Use with Elderly Receiving Hospital Care

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Background: The consensus on frailty is that it is "a multidimensional syndrome characterized by decreased reserve and diminished resistance to stressors" and that frailty and disability are two distinct constructs. The current measurement framework applied to frailty is that it is formed by factors that are related to co-morbidity, physical and cognitive capacity, low energy, lack of engagement, and weight loss, among others. Frailty is considered to be present based on the number of these negative factors that are present. A formative measurement model can be used to classify people and to predict future events but is not valid for evaluation. To date, a modern measurement approach has not been applied to frailty in order to identify if frailty fits a latent trait model, indicating that frailty is something that can be measured, rather than only classified. Strong measurement theory needs to be applied and evidence presented to indicate that frailty fits an evaluative measurement model, something that is needed if frailty is to be considered as something that can be modified. The main aim of the study was to estimate the extent to which frailty

indicators form a unidimensional measure with linearized units that would define a frailty latent construct.

Methods: Rasch Analysis was applied to data collected prospectively on seniors with or at risk for age related disability or receiving in- or out-patient care at the McGill University Health Center to estimate the extent to which the frailty indicators fit the Rasch Model. The iterative steps of Rasch analysis, using the partial credit model, were carried out using the RUMM2030 software.

Results: A total of 234 seniors (age range 57 to 97 years) contributed 348 valid measurements. From an initial pool of 68 items, 29 items unique items fit the Rasch model ($p=.255205$) with 54 different thresholds. The prototype version of the Frailty Ladder represented the domains of physical impairment, cognition, and activity limitation. The items covered the full range of the theoretical construct from frailty to robustness (± 5 standard deviations).

Discussion: The items that fit the Rasch model indicate that these domains are necessary for the measurement of frailty but further research is needed to indicate if these are sufficient. The domains of mood, fatigue, perceived health, weight, and engagement in life's roles did not fit and indicate these are not necessary for frailty. In other words, there are many seniors who are thin, experience fatigue or low mood, or perceive their health as poor, but are not frail. This finding provides evidence that frailty can be considered as something that can be measured.

Conclusion: The current version of the Frailty Ladder needs further testing before use. However, this research makes an important contribution to the field of frailty, as the steps on the ladder can be used not only to measure frailty, but also to set goals for treatment.

Reducing Post-Discharge Potentially Inappropriate Medications Amongst Older Adults: a Multi-Centre Electronic Deprescribing Intervention

M. Wilson, E. McDonald, T. Lee

Background: Potentially inappropriate medications (PIMs) can lead to adverse drug events (ADEs) among older adults, with the frail being particularly vulnerable. ADEs are responsible for nearly 27,000 hospital admissions in Canada annually. Within 30 days of discharge, medications contribute to two-thirds of adverse events, with nearly 60% being preventable or ameliorable. The objectives of this trial were two-fold. First, to further develop an existing electronic application that guides physicians through the process of deprescribing. An advanced research version of

the application was developed containing recent evidence-based PIMs, with the added ability to cross-reference patient comorbidities, generating a tailored deprescribing care plan. Second, was to carry out a feasibility study in order to evaluate if a deprescribing care plan implemented upon hospitalization could lead to a reduction in the absolute number of PIMs prescribed at discharge compared to usual care alone.

Methods: This before-after study took place on four clinical teaching units (CTUs) at three centers across Canada (the McGill University Health Centre, The Ottawa and Toronto General Hospitals) between August 2016 and March 2017. At each site, a trained research assistant identified eligible patients for entry into the study. To be included in the study, patients had to be 65 years of age or older and taking five or more medications. Baseline data was collected for at least 60 patients per site. Home medications (based on the pharmacist's best possible medication history), along with comorbidities abstracted from the internal medicine admission document, and an estimate of frailty, were entered into the application. Following a baseline period of observation, each site entered into the intervention phase. The intervention consisted of a deprescribing plan for each eligible patient presented to the CTU team with rationale for suggested medication changes and strategies for safe and successful deprescription. In conjunction with the patient or proxy, the CTU team then decided on which aspects of the deprescribing care plan to implement. Patients were consented for a structured 30-day follow-up phone interview in order to determine if an ADE occurred within 30 days post-discharge. Sleep and quality of life questionnaires were also administered.

Results: The online application was successfully developed along with a module for recording telephone interviews and for ADE adjudication. Toronto and Ottawa will still be enrolling patients at the time of presentation. Data on the numbers and types of PIMs along with the effect of the study intervention at the McGill sites will also be presented.

Discussion: For the conference we will showcase the software development process along with examples of deprescribing care plans, as well as preliminary data on the feasibility of the implementation of the deprescribing care plan for patients from one of the Centres (McGill).

Conclusion: Based on preliminary data, we believe that this intervention represents a feasible in-hospital intervention for deprescription.

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Background: Advance care planning (ACP) can improve satisfaction with end-of-life care and reduce unwanted treatments. The longstanding patient-provider relationship makes primary care an ideal setting for starting ACP conversations. However, physicians cite barriers such as lack of time and resources to do ACP; hence, self-completed ACP tools are a way to initiate ACP in patients who seek primary care. *Speak Up* offers Pan-Canadian ACP tools that are publicly available in both official languages, as well as paper- and web-based formats. The objective of this study was to evaluate the efficacy of the *Speak Up* tool to improve ACP engagement in adult primary care patients across three provinces in Canada (Alberta, British Columbia and Ontario). Two paper workbooks (Ontario and National workbooks) and two websites (National and British Columbia website) were tested from the *Speak Up* suite of ACP tools.

Methods: This multi-center, prospective study used a 55-item version of a validated ACP engagement survey (ACP-55) (with 5-point scales reflecting behaviour change domains) pre- and post-intervention, to evaluate changes in ACP engagement of *Speak Up* tool users. Consecutive eligible primary care patients, age 50 years and older, English-speaking and cognitively able, completed an ACP-55 survey before and 6 weeks after completing one of the *Speak Up* tools. Changes in "ACP Engagement" were analyzed by paired *t*-test.

Results: 179 patients were enrolled and 149 (83%) completed the study (national workbook-22, national website-31, Ontario workbook-42, British Columbia website-54). Participants were 68 years of age and 67% women. Patient ACP engagement significantly increased ($p < .05$) between baseline and follow-up on all behaviour change process measures. Patient readiness to choose a substitute decision-maker (SDM), talk to their doctor about their choice of SDM, sign official papers naming an SDM, and talk to their SDM about their values, all increased on average after engaging with the tool.

Discussion: Tools, like *Speak Up*, designed for public engagement in ACP may be helpful for primary care settings to empower patients to begin ACP. These tools may facilitate the ACP process thus helping primary care physicians to implement ACP more effectively with their patients.

Conclusion: Our findings demonstrate that the *Speak Up* workbooks and websites are effective tools to improve ACP engagement among patients in primary care (knowledge, contemplation, self-efficacy, readiness).

Efficacy of the Speak Up Tool to Improve Patient Engagement in Advance Care Planning

The eDosette Study—Optimizing Medication Use and Safety in Community Dwelling Seniors

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Background: As the population ages, the likelihood of having multiple comorbidities also increases, and consequently, older patients are required to self-manage complex medication regimens. One concern with managing complex medical regimens is patient non-adherence. Consequences of non-adherence include reduced medication efficacy, falls, and worsening function and cognition. Physicians are poor at predicting a senior patient's medication adherence; currently, there is no routine system to track and report to family physicians how a senior takes their medications (e.g. medication administration record (MAR)).

Methods: This poster will present work showing the effectiveness of an electronic medication administering tracking device, the eDosette, which is supported by a CFN grant. In this pre-post intervention cohort study, community dwelling seniors taking 5 or more medications are being actively enrolled from four family practices. Participants store their medication dosette or blister pack inside of the eDosette for four weeks. During this time, the eDosette tracks when the participants administer doses of medication and when doses are missed. Pharmacists receive weekly MAR reports and if needed, make recommendations to decrease the patient's medication regimen complexity. Furthermore, pharmacists will assess the complexity of medication regime at 4 weeks and 3 months using the medication regimen complexity index (MRCI). Participant frailty and health literacy are assessed on enrollment, while patient self-rated medication adherence, empowerment, and satisfaction with the eDosette will be collected at multiple time points throughout the study.

Results: We are currently in the process of active recruitment and data analysis. To date, 19 participants have been recruited. The majority (n=13) are not frail, while the remaining participants are mild to moderately frail (n=6). Emerging trends from participants with complete MAR data (n=13) indicate that the majority of participants have had no change in adherence with their medication regime when comparing the number of missed doses at 4 weeks to baseline (n=6). Four participants showed a decrease in their medication adherence, while three showed an increase in their adherence at 4 weeks. Furthermore, emerging trends also indicate that the majority of patient medication errors are late doses, rather than missed doses. To date, 10 participants have had their MRCI recorded at baseline and at 4 weeks. Four participants have shown a decrease in their MRCI

score, 2 have shown an increase, and 4 patient scores have remained unchanged. Additional participant demographic and descriptive information will be graphically displayed in the poster.

Discussion: Once data collection is complete, analyses will be conducted to determine if statistically significant associations exist between emerging trends of the pre-post data. Furthermore, patient chart analyses will provide contextual insight into potential issues around medication regimen complexity, as well as the impact on the amount of primary care engagement and patient empowerment.

Conclusion: Recommendations for clinical practice and further research will be made based on results.

An Ounce of Prevention: the Use of an Innovative Resistance Training Program to Improve Physical Function in Pre-Frail Older Adults: a Randomized Controlled Trial

C. Nowak, H. Fang, J. Richardson, S. Phillips, C. Gordon, F. Xie, J. Adachi, A. Tang

Background: Frailty syndrome is a common geriatric condition that has been linked to a multitude of adverse outcomes including falls, institutionalization and mortality, which also have implications on healthcare economics. Preventing older adults from transitioning into frailty should be a public health priority, and has the potential to reduce healthcare expenditure. Frailty is often marked by physical characteristics such as muscle weakness and low physical activity. Resistance training (RT) has the potential to prevent transitions into frailty. In this study, persons exhibiting signs of pre-frailty, an intermediate risk state where persons show initial signs of the frailty phenotype, were recruited. This study examined 1) the safety and feasibility of high-intensity RT (HI-RT) in persons with pre-frailty, and 2) compared the effects of HI-RT to low-intensity RT (LO-RT) on functional outcomes.

Methods: Thirty-six pre-frail individuals (mean \pm SD, age 74.6 \pm 7.4 years) were randomized to receive either 12 weeks of twice-weekly HI-RT (n=18, 3 sets \times 3–5 repetitions, intensity 6-8/10) or LO-RT exercise (n=18, 3 sets \times 10–15 repetitions, intensity 4-5/10). Participants were considered pre-frail if they presented with 1 or 2 of the following attributes: weakness, slowness, unintentional weight loss, self-reported exhaustion, low physical activity according to the Physical Phenotype of Frailty. Six-Minute Walk Test, Mini-Balance Evaluation Systems Test (Mini-BEST), Berg Balance Scale (BBS), Short Physical Performance Battery (SPPB), Timed Up and Go (TUG) and Activity-Specific

Balance Confidence (ABC) Scale were assessed by a blinded assessor before and after the exercise program.

Results: There were no adverse events related to the study interventions. Fifteen (83%) HI-RT and 16 (89%) LO-RT participants completed the intervention. Withdrawals were unrelated to the interventions. There were no between-group differences in any of the outcomes measured ($p=.30-0.85$). Both groups demonstrated improvements in 6 minute-walk distance (351.0 ± 137.2 to 285.9 ± 106.5 meters, $F(1,60) = 5.43$; $p=.02$), BBS score (50.4 ± 4.2 to 52.4 ± 3.1 , $F(1,62) = 5.08$; $p=.02$), and TUG (10.2 ± 2.6 to 8.9 ± 1.8 seconds, $F(1,64) = 5.27$; $p=.02$). There was a trend towards improvement in ABC Scale scores in both groups (132.6 ± 22.4 to 141.7 ± 18.0 , $F(1,64) = 3.56$; $p=.06$). No time effects were seen for Mini-BEST ($F(1,63)$, $p=.38$) nor SPPB ($F(1,64)$, $p=.38$).

Discussion: Both groups showed improvements in physical outcomes demonstrating that progressive resistance training at low- and high-intensities generate improvements in walking endurance (6MWT), balance (BBS), and functional muscle strength (TUG). As LO-RT and HI-RT were progressive resistance programs, the principle of progressive overload may be an important characteristic of any RT program prescribed for older adults exhibiting signs of pre-frailty.

Conclusion: This is the first studies to evaluate HI-RT in pre-frail older adults. HI-RT is safe and feasible in pre-frail individuals. Future research is warranted to establish ideal parameters for RT in pre-frail persons.

Engaging Patient Advisors in a Multi-Hospital Research Program on End-of-Life Communication and Decision-Making

M. Swinton, M. Winhall, B. Clark, T. Sinuff, J. Abelson, J. You

Background: Patient engagement occurs when patients collaborate with researchers, contributing to the research design, implementation, and the interpretation of research findings. It is a relatively new component of clinical research, one that many funding agencies increasingly require. Patient engagement holds the promise of adding value to clinical research by ensuring that the research conducted reflects patients' concerns, perspectives and values. It also creates new challenges for researchers because of: (i) sensitivities to the process of working with patient advisors, and (ii) the need to ensure that the experience is meaningful to the patient advisors and their contributions are of value to the research project.

Methods: We will share our experience in a research program at 3 Canadian hospitals working with patient advisors in different capacities:(i) as members of local Steering Committees at each research site,(ii) as members of a working group to develop our processes for working with patient advisors,(iii) as consultants on the selection, content, format and implementation of the communication and decision making tools we are testing with frail, seriously ill hospitalized patients in our research program, and(iv) as co-applicants on two large grant proposals

Results: We will also share our experiences partnering with national and local organizations that have assisted us with recruiting patient advisors and have provided training materials for our patient advisors and our research team members.

Discussion: The discussion section will focus on lessons we have learned working with patient advisors.

Conclusion: We will share the rewards and challenges related to patient engagement, from the perspectives of both patient advisors and researchers involved in our research program.

Assessing Frailty in Critically Ill Patients of All Ages in the Intensive Care Unit

M. Shears, A. Takaoka, M. Tina, H. Amanda, T. Surenthar, G. Li, B. Rochweg, T. Woo, S. Bagshaw, J. Johnstone, D. Cook

Background: Frailty is a health state associated with the loss of functional reserve and resistance to stressors, creating vulnerability and increased risk of prolonged hospital stay and death. Frailty is thought to be common among elderly patients in the Intensive Care Unit (ICU). Though historically associated with aging, more recently frailty has been recognized and described in younger critically ill patients as well. The 9-point judgement-based Clinical Frailty Scale (CFS) is a validated clinical tool used to screen for frailty in the hospital setting, and more recently in the ICU. Our objective was to describe the prevalence of frailty amongst critically ill patients using the CFS, and examine any differences between those that are younger than 65 years and older than 65 years.

Methods: In a prospective cohort study, we enrolled 150 consecutive patients ≥ 18 years of age admitted to 2 ICUs in Hamilton, Canada. The research coordinators (RC) generated CFS scores using 3 steps: 1) chart review, 2) family interview (if possible), and 3) patient interview (if possible). Based on all accumulated data, the RC generated

an overall impression captured in a CFS, reported here. We considered a CFS of 1-3 to be fit, a score of 4 to be vulnerable, and a score of >5 to be frail (7-8 severely frail, 9 = terminally ill). We used the unpaired student t-test to evaluate differences in overall scores according to age and Chi-square to compare differences in the distribution of scores according to age.

Results: Of 336 patients screened, 150 patients were enrolled over 3 months. The mean (standard deviation) age of patients was 63.8 (15.3) years; range 22-93 years. Overall, 47% of patients were ≥ 65 years old. Mean acute physiology and chronic health evaluation (APACHE) II scores on admission were significantly higher in those ≥ 65 years old (22.9, SD 6.7), compared to those <65 years old (19.7, SD 6.7), $p=0.0087$. The mean CFS score was 4.7 (SD 1.5) among 130 patients who had a CFS score completed by the RC (for 20 patients, there was no SDM, no English speaking SDM or the patient died). There were no significant differences in CFS in the younger cohort (mean CFS 4.5, SD 1.6) compared with the older cohort (mean CFS score was 4.8 (SD 1.5), $p=.24$). In those patients <65 years old, 31% (n=20) were fit, 19% (n=12) were vulnerable, and 50% (n=32) were frail. In those ≥ 65 years old, 20% (n=13) were fit, 26% (n=17) were vulnerable, and 55% (n=36) were frail ($p=.279$).

Discussion: Prehospital vulnerability and frailty are common in patients admitted to the ICU. Although their acute illness may not be as severe, younger patients are just as likely as older patients to be frail prior to ICU admission.

Conclusion: As frailty screening is increasingly incorporated into practice, teaching and research, it should be considered as an admission characteristic for critically ill patients of all ages.

Making SENSE: a Knowledge Translation Intervention with Families of Frail Elderly Living in RLTC

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Background: Over 250,000 Canadians live in residential long-term care (RLTC). By 2038, families of residents will be contributing over 107 million hours of care each year in this sector. In general, the role of families and friends in this setting has been unclear. They have been thought of as visitors, mainly providing social and emotional support. Yet our research suggests their role is evolving and more nuanced. Family members and friends are becoming more involved in day-to-day and 'hands-on' care of their relative

and also have a valuable role in the lives of other residents and broader organizational routines. In our ongoing research, highly involved family members (i.e. those who are on-site at least once per week) have identified a desire for education, peer support and networking, while others who are not as frequently on-site have expressed an interest in having a better understanding the needs of all residents, particularly those with advanced dementia. To date, there have been few knowledge translation interventions conducted with families in RLTC.

Methods: The CFN-funded Support, Education, Networking & Sustained Engagement (SENSE): Knowledge-to-Action with Families of the Frail Elderly Living in Residential Long-term Care catalyst grant addresses this gap through: (1) Identifying key areas for education, peer support and networking for families. (2) Developing, implementing, and evaluating a series workshops that are co-created and delivered by family members and clinicians. (3) Assessing the impact of SENSE workshops on a) knowledge about issues in RLTC (e.g. dementia; aggression; end-of-life care) and b) sense of involvement in their relative's RLTC facility.

Results: The setting is a RLTC facility in Vancouver, BC. Key milestones in the project are: Month 2: Pre-Survey with families; Month 3-6: Co-creation and delivery of three workshops; Month 7: Post-Survey with families; Months 8-10: Analysis of data from surveys, focus groups, and observations; Month 10-12: Public event to share findings, draft manuscript, research report.

Discussion: As the study is currently underway, the proposed poster addresses the milestone from Month 2: feedback from the pre-survey with families. There are multiple sections to the survey. Section 1: Closed and open-ended questions about the priority topics for the SENSE Workshops, as well as day of the week and time of day preferences. Section 2: Socio-demographics about the individual completing the survey and their relative who lives in the facility. Section 3: Family Involvement and Importance of Family Involvement scale is a reliable instrument in which respondents rate their perceived involvement and importance of involvement on 20-items about the individualized care for their relative living in RLTC. At present date, 82 surveys were mailed out to primary contact family caregivers, and 38 completed surveys have been returned (46% response rate).

Conclusion: The findings from the pre-workshop survey highlight family members' interest in participating in a workshop series based on (a) the number of family members' planning to attend (N=31) and (b) the gap between items family members' actual involvement and their perceived importance of involvement in their relative's care.

Evaluating Chart Review-Based Clinical Frailty Scale Scores in the Intensive Care Unit

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Background: Frailty is a health state that describes the loss of functional reserve. Frailty is common among patients admitted to the Intensive Care Unit (ICU) and is associated with an increased risk of mortality or re-hospitalization following critical illness. The 9-point judgement-based Clinical Frailty Scale (CFS) is a validated clinical tool used to screen for frailty in critical care settings. The objective of this study was to evaluate whether Research Coordinators (RCs) extracting data exclusively by medical chart review would generate different CFS scores than scores augmented with information from family members and surviving critically ill patients themselves.

Methods: In a prospectively-enrolled cohort study, we included 150 consecutive patients ≥ 18 years of age admitted to two ICUs in Hamilton, Canada. The RC generated CFS scores using three steps: 1) hospital chart review, 2) family interview (if possible), and 3) patient interview (if possible). Each step was completed by the same RC in an effort to generate a score independent from previous scores. Subsequently, based on all accumulated data, the RC generated an overall impression captured in a final CFS score. Comparison of CFS scores between different steps and the final CFS score was calculated as mean difference (MD) using a paired t-test (significance was set at $p < 0.05$ for all comparisons).

Results: Of 150 patients enrolled, 40% were female, the mean (SD) age was 63.8 (15.4) years, and the mean (SD) APACHE II score was 21.1 (7.3). The CFS score generated by the RC chart review was similar to that incorporating data from the family interview (MD= -0.17, 95% CI: -0.37 to 0.04, $p=.11$), similar to that incorporating data from the patient interview (MD= -0.16, 95% CI: -0.44 to 0.12, $p=.26$), and also similar to the final CFS score (MD= -0.01, 95% CI: -0.12 to 0.09, $p=.81$). The proportion of scores that were identical between the RC chart review and the family interview, patient interview, and final scores were 33.1% (40/121), 43.2% (38/88), and 45.4% (59/130), respectively. Furthermore, the proportion of scores that were similar + 1 point between the RC chart review and the family interview, patient interview, and final scores were 81.0% (98/121), 71.6% (63/88), and 80.8% (105/130), respectively.

Discussion: Overall, we found no clinically important or statistically significant differences between values of the CFS scores determined by RC chart review and scores incorporating additional data from family or patient

interviews, or cumulative summary scores. The chart-based CFS score tended to be slightly lower than scores derived with additional data sources, suggesting that information from family members or patients may refine the impression of pre-morbid frailty status of critically ill patients.

Conclusion: Although hospital admission and progress notes may not always perfectly describe a patient's baseline function before critical illness, in this 2-center study, chart-based assessment of clinical frailty by RCs in the ICU yielded very similar scores to those derived by incorporating source information directly from families and patients.

Improving the Decision-Making Process with Caregivers of Elderly People About Housing Options: a Cluster Randomized Trial

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Background: When elderly people begin to lose autonomy, their caregivers are often involved in the difficult decision about whether to stay at home or relocate. We evaluated the impact of an interprofessional approach to shared decision making (SDM) on the proportion of caregivers who report being active in the decision-making process about staying home or moving.

Methods: We conducted a multicentre cluster randomized trial with interprofessional home-care teams in Quebec province with post-intervention measures. Units of randomization were community-based primary health care organizations. We enrolled 16 of these and asked each to provide one home-care inter-professional team involved with eligible caregivers in decision-making about planning care for their loved ones. Caregivers were eligible if: i) they were caring for an elderly person aged ≥ 65 who was receiving care from their inter-professional home-care team; ii) had faced a decision about relocating following implementation of the intervention; iii) were able to read, understand and write French or English; and iv) were able to give informed consent. The intervention arm received training in SDM and use of a decision guide. The control arm received no intervention. The primary outcome was the role assumed in decision-making as assessed by caregivers using a modified version of the Control Preferences Scale. Secondary outcomes were: match between preferred option and decision made, match between role preferred and assumed in decision-making, decisional conflict, decision regret, and burden of care of caregivers. Multilevel modelling took the hierarchical structure of the data into account.

Results: In total, 309 caregivers were recruited and 296 included for analysis. Median age was 60 years in the intervention arm and 63 years in the control arm. In the control group 68.4% of caregivers reported an active/collaborative role in decision-making, versus 79.6% in the intervention group (absolute difference 11.2%; RR: 1.18; 95% CI 0.97–1.43; $p=.966$). When subgroups were analyzed by region, absolute difference was 16.6% in favour of the intervention group in urban/semi-urban regions (RR: 1.20; 95% CI 1.00 - 1.43; $p=.0459$) and 9.6% in rural regions (RR: 1.14; 95% CI 0.87 - 1.50; $p=.3276$). The percentage of caregivers reporting a mismatch between their preferred and assumed role in decision making was 74.5% in the control group and 25.5% in the intervention group (absolute difference 49%; RR: 1.19; 95% CI 1.1 – 1.3; $p <.0001$). No differences were found between groups regarding match between preferred option and decision made, decisional conflict, decision regret or burden of care.

Discussion: The interprofessional SDM approach enhanced caregivers' participation in decision-making and led to a better match between preferred and actual role in decision-making. Better performance of the approach in urban/semi-urban regions than in rural regions could be explained by the availability of more housing options in urban/semi-urban settings.

Conclusion: Further research is needed to explain why an interprofessional SDM approach seems to perform better in urban/semi-urban regions. There is also the need to assess the effects of this approach on the decision-making process of the elderly and their caregivers as interdependent dyads, including its effects on potential conflicts between their respective values.

Identifying Patients for a Palliative Care Approach: Current Practice and the Acceptability of a Computerized Trigger Tool

G. Embuldeniya, J. Downar

Background: This study aims to understand the contexts in which physicians currently initiate a palliative care approach, and the factors that complicate their ability to do so. It also assesses physicians', patients', and family members' need for and the acceptability of a tool that aims to facilitate these processes. This computerized trigger tool sends automated emails to physicians asking them to consider a palliative approach for patients with a high one-year mortality risk based on administrative data available at the time of admission. The tool aims to avoid aggressive end of life treatment and trigger a palliative care approach including symptom control, discussions about goals of care, and

advanced care planning. The ongoing pre-implementation phase of this study focuses on understanding the current context and process of patient identification for a palliative care approach, and the need for and acceptability of the tool.

Methods: We conducted observation and semi-structured interviews at the medical and surgical units of two Toronto-based hospitals. This involved attending team meetings and rounds, and shadowing physicians, residents, and medical students during patient visits. Interviews with physicians and patients/ family members were conducted both in person and by telephone. Data collection is ongoing, and data are being transcribed, anonymized, and thematically coded.

Results: Preliminary content analysis revealed that a) physician's did not systematically consider the suitability of a palliative care approach for their patients, because of the onerous demands of their workload and the absence of a "reminder" to help them do so; b) decision-making about initiating a palliative approach was complicated by the lack of patient medical history and therefore uncertainty about prognosis and certain disease trajectories, and inexperience in the case (care?) of residents; and c) physicians were receptive to an automated email reminder to consider a palliative approach based on a computer-generated score, as were patients and family members who approached the tool through the lens of their current experience with their medical/ surgical teams.

Discussion: A palliative care approach was not routinely considered due to a range of factors, but most participants agreed a reminder would be beneficial. Physicians were largely receptive to the tool, but many wanted more information on how the score was derived, and how well validated it was, in order to develop confidence in its accuracy. Some suggested that an education component would be helpful to explain the data on which it was based and how it should be used.

Conclusion: The results of this study will be used to inform the content of the notification that will be sent to the attending physician, as well as the educational material associated with implementing it on a service or within a hospital. Future studies will look at the impact and effectiveness of this tool for influencing patient care, to ensure that patients are offered a palliative approach to care when appropriate.

This Is What I Prefer: an App to Support Values Clarification and Decision-Making in MCI

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Background: Known as a precursor of dementia, mild cognitive impairment (MCI) has an unclear prognosis that carries the risk of causing uncertainty and overtreatment of patients with MCI. Decision aids (DAs) can help provide information on treatment options, prognosis, and determinants of its future course; they also support a values-driven decision-making process with healthcare professionals. While advances in research have been made with DAs, and they have had growing exposure on the Internet, little is known about optimal design features and level of detail of DAs that promote understanding of options in the context of MCI and dementia. Thus, the aims of this project were to apply features that best support values clarification and adjust the level of detail of a computer-based DA for individuals with MCI to support shared decision making.

Methods: We conducted a rapid review of the evidence to identify options to maintain/improve cognitive functions in individuals with MCI. We structured the evidence according to IPDAS standards into a novel web application (app) mockup designed in collaboration with specialists in digital and web-based solutions. We used a qualitative and user-centered evaluation of the app to optimize user's knowledge, values clarification, and adoption of the app in routine clinical practice. Following the CeHRes guidelines, we invited primary care providers (n=15), patients with MCI (n=15) and their caregivers to evaluate the app in five consecutive rounds, with new participants in each round. We verified understanding of the information using a teach-back method, and recorded any usability issues. Results were analyzed and the app was modified to adjust its level of detail and to address issues with usability. Sessions were audio-recorded and transcribed verbatim. To modify the app, we conceptualized the level of detail as a collective measure of adequacy of the app comprising "knowledge" and "action". For patients/caregivers, we defined "action" as "clarifying one's values and making an informed choice" and for professionals, as "adopting the shared decision making app in routine practice". Two researchers conducted an inductive thematic analysis of the factors influencing "knowledge" or "action".

Results: The rapid review process required 19 weeks and involved three reviewers (one working full-time). We identified six options to maintain/improve cognitive function of patients with MCI, including watchful waiting. We designed a beta version of the app that allows tailoring of content for use by the patient alone, by the clinician alone, or by both together during the consultation. Informed by recent systematic reviews on values clarification and computer-based DA, and based on specialists' recommendations, we opted for an explicit method of values clarification based on rankings and included features allowing users to add their own concerns.

Discussion: Future findings from the evaluation will allow tailoring the app to better meet users' decisional needs.

Conclusion: This project will result in a promising web app for individuals with MCI that was developed following guidelines from IPDAS and CeHRes. Results will support future development and adaptation of DAs' level of detail to users' needs.

“It’s A Tough Journey”: Caregiving Continues When Frail Persons with Dementia Move into Residential Facilities

L. Cottrell, W. Duggleby, J. Paragg, J. Swindle

Background: Our research team has developed and is now evaluating an online toolkit (My Tools 4 Care) for caregivers of older community-living persons with dementia. We were approached by caregivers of older frail persons residing in long term care (LTC) to develop a similar online toolkit to assist them. Although caregivers in the community and those caring for family members (broadly defined to include friends) in LTC share some similar experiences, their transition experience may differ. Both caregiver groups experience negative physical and psychological well-being; however, evidence suggests that the caregiver's mental health may actually worsen after the institutionalization of a family member. The purpose of this project is to develop an online toolkit for caregivers of frail older persons with dementia residing in LTC facilities that will be easy to use, feasible, and acceptable. Most importantly, this toolkit will support caregivers through the significant transitions they experience after their relative or friend is admitted to LTC. This abstract reports the findings of the first phase of a three-phased study. The purpose of the first phase was to explore transitions experienced by caregivers of a person with dementia residing in a LTC facility and to obtain their suggestions to tailor My Tools 4 Care.

Methods: Nine participants were recruited through the Alzheimer Society of Alberta/NWT and by trained research assistants (RA's). RA's conducted two face-to-face audiotaped focus group interviews (5 participants in focus group one; 4 participants in focus group two). All qualitative data from the focus groups was transcribed verbatim by an experienced transcriptionist, entered into NVivo11 software and checked for accuracy. The data were analyzed using qualitative thematic analysis and textual discourse analysis. Transcripts were coded, grouped into themes supported by in vivo codes and cross-compared. Modes of speech and syntactical patterns were analyzed to expose underlying discourses related to dementia care and placement in LTC facilities.

Results: Focus group data revealed that caregivers were immersed in and had difficulty separating themselves from the caregiving role, and that the initial placement into LTC was a traumatic and passive process. Suggested revisions to the online toolkit included adding information on advocacy, negotiating care, and end of life decision making.

Discussion: Caregivers' adaptation difficulties were due to both external sources (the health and social care systems) and internal sources (isolation, stigma, loss, and guilt), which is supported by the literature. These data suggest that the caregiver transition process is exacerbated by the lack of control caregivers have in the placement decision, as well as by the enduring stigma that surrounds placing a family member with dementia into a LTC facility.

Conclusion: Incorporating the participants' suggestions to revise the My Tools 4 Care toolkit may address both the internal and external sources of transitional conflict, and may create a participant-centered intervention to support caregivers through this difficult transition and, ultimately, improve their health.

Development and Evaluation of a Training Curriculum for Peer-Facilitated Advance Care Planning Workshops

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Background: Advance care planning (ACP) is a process where adults and their family prepare to make decisions about their future health care. It involves understanding and sharing their values, beliefs and wishes regarding health care. This information is used by adults, or their substitute decision makers, during conversations with healthcare providers about the treatments they receive. ACP helps better align care with patient goals and preferences, improving and their quality of life (and dying). ACP education has commonly been restricted to health-care providers, however many key elements of this process can be shared by non-experts (peers). Community-based initiatives have been developed that utilise peers as facilitators to increase awareness, provide information about the process of ACP, and encourage readiness to engage in ACP.

Methods: The BC Centre for Palliative Care (BC CPC) partnered with two community organizations that have developed initiatives that utilize volunteers as peer (non-expert) facilitators to promote ACP in their communities. However, they lack the capacity to promote the spread of their initiatives. A training curriculum was co-designed by the BC CPC and volunteers from these two organizations. Workshop participants were surveyed before and after

the training to collect data on their, ACP knowledge, confidence to facilitate ACP workshops, and their satisfaction with the training. Qualitative information was also collected following the training and as the participants implemented their learnings by facilitating workshops in their communities.

Results: So far, two rounds of training have been provided; the first trained 54 volunteers from 17 organizations, and the second trained 24 volunteers from 9 organizations. A third round of training is planned for late-spring 2017. Feedback and evaluation from the earlier rounds has been used to refine the curriculum and improve the subsequently delivered training.

Discussion: We will describe the process of co-design and the resulting training curriculum. We will present our data evaluating the efficacy of the peer-facilitator ACP training. We will also discuss our learnings of how to improve the training and the necessary supports for the peer-facilitators in this role.

Conclusion: Partnering with community organizations to create a training curriculum is a feasible approach for facilitating the spread of locally developed initiatives. The developed ACP Workshop training was successful at preparing community organization volunteers to initiate peer-facilitated ACP workshops in their communities.

The Efficacy of Peer-Facilitated Advance Care Planning Workshops for the Public

A. Husband, R. Carter, J. Kryworucko, D. Barwich

Background: Advance care planning (ACP) is a process where adults and their family prepare to make decisions about their future health care. It involves understanding and sharing their values, beliefs and wishes regarding health care. This information is used by adults, or their substitute decision makers, during conversations with healthcare providers about the treatments they receive. ACP helps better align care with patient goals and preferences, improving and their quality of life (and dying). However, awareness of and engagement in ACP remains low despite these benefits. While most past ACP initiatives have been facilitated by health-care providers, many key elements of ACP could be facilitated by non-experts or peers. These include increasing awareness, provision of information about the process, and encouraging readiness. Community organizations, such as hospice societies, have developed initiatives that utilize trained volunteers as peer (non-expert) facilitators to promote ACP. However, these initiatives have had limited evaluation. Therefore, the BC Centre for

Palliative Care (BC CPC) partnered with hospice societies and other community organizations across BC to evaluate these volunteer-facilitated ACP workshops for the public.

Methods: Volunteers were selected from 8 community organizations around BC and provided with training for these workshops. From September 2016 to January 2017, 23 workshops, with a total of 266 participants, were held in BC and data collected. Workshop participants were surveyed at the end of the workshop about their previous ACP activities and their readiness to engage in ACP behaviours. They were also asked 4-6 weeks after the workshop about their actual engagement in ACP behaviours. We will present this data to demonstrate the efficacy of these community-based peer-facilitated ACP workshops.

Results: Workshops were well received by participants with high satisfaction (95%), and high proportion planning to engage in ACP activities (67-97%). Engagement in ACP activities after 4-6 weeks was observed in all areas expected by the workshop content.

Discussion: Peer-facilitated ACP workshops are accepted by the public and are effective at promoting engagement in ACP activities. Promoting ACP in the community has the potential to increase population ACP engagement and may have a positive effect on health-care resources.

Conclusion: This information will facilitate the spread and uptake of workshops, and improves the understanding of the impact of the workshops and the role of community organizations in ACP promotion.

Understanding What Matters Most: Exploring Older Adults' Priorities for Experiences with Inpatient Care

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Background: There is increasing interest in measuring patient-reported experiences of inpatient care. The Canadian Patient Experience Survey – Inpatient Care (CPES-IC) is a Patient-Reported Experience Measure (PREM) used by national and provincial policy-makers to monitor health system performance. The CPES-IC includes experiences of shared decision-making, such as communication with the healthcare provider and involvement for both the patient and family in treatment decisions. Routine data collection with the CPES-IC is used to indicate how well (or poorly) hospitals are performing, however it does not capture which experiences of care are prioritized most (and least) by patients. This study aims to: a) determine the most appropriate method to elicit priorities for experiences

of care described by the CPES-IC, b) derive preliminary priorities, and c) explore differences in priorities between frail and non-frail individuals.

Methods: Best-worst scaling (BWS) was used to ask adults with recent inpatient experiences to select what they view as most and least important among a set of experiences. A subset of 25 different experiences from the CPES-IC was selected. We developed a survey which asked participants to complete the CPES-IC, questions about their health and frailty status (PRISMA-7), and then 10 BWS tasks. We first explored the most appropriate mode of administration by conducting one-on-one interviews, which were designed to mimic phone, online, and in-person interviews. We then ran online surveys on a larger sample of individuals aged 60+ who reported being hospitalized within the last 5 years. Data was analyzed using simple count, conditional logit, and latent class conditional logit models by frailty subgroup.

Results: One-on-one interviews were conducted with 10 individuals aged 72 to 94 of which 7 were classified as 'frail'. Administration of the BWS survey using a phone interview was deemed too difficult in our interviews. While participants preferred in-person to online administration as it offered the opportunity to ask questions, it was considered too resource intensive to produce sufficient numbers of responses. Integrating feedback from the interviews, we implemented online surveys. Preliminary results suggest being involved as much as you want to be in decisions, and having doctors explain things in a way you can understand were the most important experiences, while having your room and bathroom kept clean and family and friends involved in decisions were least important. However, this varied depending on the individual's level of frailty.

Discussion: BWS appears to be a feasible approach for determining priorities in a heterogeneous population. Participants preferred in-person interviews, however, online administration was deemed adequate for providing fast and relatively inexpensive responses. We have been able to identify frail individuals using an online panel, however this has an important selection bias.

Conclusion: Preliminary results suggest involvement in decision-making is the biggest priority for patients; however, there are important differences in priorities by frailty status.

Barriers and Facilitators to Effective Intensive Care Unit to Hospital Ward Transfers: a Multi-Centre Qualitative Study

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Background: The objective of the present study was to explore the experiences of key stakeholders (ICU providers, ward providers, patients and family members) involved in the transfer of patient care from ICU to hospital ward, identify perceived barriers and facilitators to effective ICU to ward transfers, and solicit recommendations to improve transfers.

Methods: We conducted a mixed methods prospective multi-centre observational cohort study of 451 patients transferred from an ICU to a hospital ward in 10 Canadian hospitals to understand current transfer procedures and explore stakeholder perspectives. From the parent study cohort, we recruited four key stakeholders (ICU providers, ward providers, patients and family members) from each English speaking site (n=32 participants, eight hospitals). Semi-structured telephone interviews were conducted to capture individual experiences with transfer, barriers and facilitators to effective transfers and recommendations to improve ICU to hospital ward transfers. Thematic analysis was performed on transcribed interviews by two investigators to identify themes, sub themes and recommendations, which were iteratively refined with axial coding.

Results: All stakeholders described barriers and facilitators to quality transfers, which overlapped in three interrelated themes: Resource Availability, Communication, and Institutional Culture. Sub-themes differed between patients and families and provider groups. Patients and providers each described sub-themes under Resource Availability unique to their experiences. Providers described this as availability of physical and human resources (e.g., transfer tools), patients also described the availability of resources however, it was how it related to their own care (e.g., inter-professional collaboration). Providers describe subthemes of Communication as working around care team communication breakdowns (e.g., multi-modal communication) whereas patients described subthemes of receiving information that is timely and accurate (e.g., communication aids). Subthemes of Institutional Culture were described by providers largely as norms that influenced their work flow during ICU to hospital ward transfers (e.g., importance place on transfers by care teams). Patients and families described subthemes around attitudes that affected their interactions during transfers (e.g., humanization of patient provider interaction). Eight overarching recommendations to improve ICU to hospital ward transfers were suggested across four stakeholder groups and eight sites. The recommendation given at all sites and across all stakeholder groups was to implement standardized communication tools in order to improve communication between both provider-provider and provider-patient. The use of multimodal communication (e.g., verbal, electronic, written) and procedures to manage delays in transfer were

also recommended by stakeholders as ways to improve ICU to hospital ward transfers.

Discussion: We identified common barriers and facilitators to effective ICU to ward transfers. Patients and providers alike recommend standardized, multimodal communication and procedures to manage delays in patient transfer.

Conclusion: These barriers, facilitators and recommendations are essential pieces to inform the development of standardized protocols to improve the transfer of patients from the ICU to the hospital ward.

Potentially Inappropriate Medication Use in Long-Term Care: Preliminary Findings from a Qualitative Analysis

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Background: Long-term care (LTC) residents are especially vulnerable to potentially inappropriate medications (PIM) considering their age, multiple chronic conditions, polypharmacy, and high mortality rate. Though research accomplished by large international campaigns, such as Choosing Wisely which has looked into ensuring medication appropriateness, there is a substantial gap in research focusing on residents within LTC. This multi-method study is investigating the conditions associated with PIMs utilization within LTC. The study design includes interviews, chart reviews, and depiction of contextual factors to identify system, provider, resident and caregiver factors associated with PIM utilization among residents of LTC facilities. Purpose: To gain an in-depth understanding of the conditions and factors associated with PIM utilization in older adults in LTC facilities.

Methods: The qualitative portion of the study is employing an embedded single case design with cross case synthesis. LTC facilities across Ontario were recruited using maximum variation sampling based on facility size, median frailty level of residents and average rates of polypharmacy across residents using Ontario linked administrative data. Individuals from LTC facilities are being interviewed to gain a better understanding of their experiences associated with PIM use, specifically: antimicrobials, antipsychotics, cholinesterase inhibitors, and lipid lowering medications. Interviews and observation field notes from each facility were analyzed using an iterative direct content analysis.

Results: To date, data has been collected from 15 administrators and directors of care, 17 residents, 31 caregivers, and 64 healthcare providers from 7 LTCs. Although interviewees were questioned about their

experiences with the 4 PIMs, there was a substantially greater interest in addressing antipsychotics in particular. Antibiotics were discussed as a very distant second when they were mentioned primarily with respect to urinary tract infections (UTIs).

Discussion: Despite requiring medication appropriateness for all PIMs, a heightened awareness of antipsychotic use in LTC and a comprehensive list of strategies to improve their use emerged (e.g. audit and feedback, BSO, Montesorri, etc.). This may be due in part to media attention and a provincial focus in Ontario. In addition to antipsychotics, inappropriate antimicrobial use and the role of antimicrobial stewardship has also garnered media attention—yet it was infrequently discussed by staff, residents, and caregivers in the LTC included in the study to date. UTIs are some of the most commonly diagnosed and treated infections in LTC. LTC residents are up to four times more susceptible to UTIs caused by antibiotic-resistant bacteria than community residents. The prevalence of UTIs may explain the drive of respondents to specify them in response to questions regarding antimicrobials; however, other bacterial infections that have shown resistance, such as pneumonia, display comparatively high prevalence in LTC and are not as mentioned.

Conclusion: Further research should dive deeper into the current prescriptive practices of antimicrobials in LTC facilities.

Going Beyond Antimicrobial Stewardship to Identify Outliers in Drug Prescribing: a Protocol for a Cohort Study of Frail Older Adults

K. Quinn

Background: Identifying physicians who are high prescribers compared to their peers may be important for individualized academic detailing, given the risk for adverse drug events and associated healthcare costs. Frail elderly individuals and those who reside in long-term care (LTC) facilities may be particularly vulnerable to these harms. Our previous research has demonstrated that historical prescribing tendencies are highly correlated with current prescribing decisions among physicians prescribing antibiotic drug therapies, but the extent to which these physicians are also high prescribers across other drug classes has not been established.

Objective: To examine the correlation between high rates of antibiotic prescribing and high rates in selected drug classes within physicians, and to predict future high-rate prescribers based on these patterns and physician characteristics.

Hypothesis: A prescriber's current rate of antibiotic prescription predicts prescribing tendency for other selected drug classes in subsequent years.

Methods: We will conduct a retrospective cohort study of all physicians who specifically prescribe to individuals in the community and in LTC facilities in Ontario, Canada between 1992 and 2015. We will examine variability in antibiotic prescribing across physicians and its association with 3 measures of non-antibiotic drug prescribing for opioids, benzodiazepines, proton pump inhibitors, anticholinergics, sulfonyleureas and digoxin: mean rate of an individual drug class, all drug classes combined, and branded versus generic drugs. Funnel plots with control limits will be used to determine the extent of variation and characterize physicians as extreme low, low, average, high and extreme high prescribers for each tendency. Multivariable logistic regression will be used to assess whether a clinician's prescribing tendency in the previous year predicted current prescribing patterns, after accounting for an individual's demographics, comorbidity, functional status, and indwelling devices. The predictive ability of our results will be tested in the cohort using a derivation (two-thirds) and validation (one-third) set.

Discussion: Impact and Relevance: The audit and feedback, as well as other physician-level interventions to improve prescribing practice, have been shown to be effective tools to improve quality of care and health system efficiencies. Identification of potential prescribing outliers in a systematic way at the population-level would support targeting of these interventions. This may be especially important in frail older adults, particularly for drugs of questionable efficacy in each population or those with the potential for abuse.

End-of-Life Care Among Recently Immigrated Versus Long-Standing Residents of Ontario, Canada

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Background: Recent immigrants face unique health literacy, communication and system navigation challenges, and may have diverse preferences that influence end-of-life care. No large-scale database study has assessed end-of-life care provided to recent immigrants.

Methods: We conducted a retrospective population-based decedent cohort study in Ontario, Canada. Patients who died between April 1, 2004 and March 31, 2015 were grouped into recent immigrant (since 1985) and long-standing resident cohorts using validated linkages between health

and immigration databases. We analyzed location of death and intensity of care received in the last six months of life.

Results: We analyzed 967,013 decedent's. Recent immigrant decedents (47,514, 5%) were overall more likely to die in intensive care (16% vs. 10%, $p < .001$). In their last six months of life, recent immigrant decedents experienced more intensive care unit admission (25% vs. 19%, $p < .001$), hospital admission (72% vs. 68%, $p < .001$), mechanical ventilation (22% vs. 14%, $p < .001$), dialysis (6% vs. 3%, $p < .001$), percutaneous feeding tube placement (6% vs. 3%, $p < .001$) and tracheostomy (2% vs. 1%, $p < .001$). These differences persisted after adjustment for age, sex, socioeconomic position, causes of death, urban and rural residence and pre-existing comorbidities. The risk of dying in the intensive care unit varied substantially according to region of birth, with the lowest relative risk (0.84, 95% CI 0.74 to 0.95) among those originating in Northern and Western Europe, and the highest relative risk (1.96, 95% CI 1.89 to 2.05) among those originating in South Asia. Differences attenuated with increasing time in Canada (relative risk 1.82, 95% CI 1.71 to 1.94 among those arriving within 5 years of death; 1.47, 95% CI 1.42 to 1.51 among those arriving more than 15 years before death).

Discussion: Recently immigrated Canadians received more aggressive end-of-life care when compared to long-standing residents. These differences were greatly influenced by the patient's region of global origin rather than language, education or socioeconomic position, and attenuated with increasing time in Canada.

Conclusion: Appreciation of this association between recent immigrant status and end-of-life-care delivery may improve end-of-life care for recent immigrant patients and guide further inquiry into how geographic diversity relates to variations in health outcomes.

Cumulative Deficits Frailty Index for Transplant Candidates Predicts Candidacy for Solid Organ Transplantation

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Background: Frailty is a clinical state associated with decreased function and increased vulnerability to physiologic stressors, leading to adverse medical outcomes. The cumulative deficits model conceptualizes frailty according to the number of deficits (symptoms, signs, abnormal laboratory values, disease states, and disabilities) present in an individual. This model has characterized

frailty across the age spectrum and in many chronic health conditions. Our objectives were to create a frailty index (FI), using the cumulative deficits approach, to measure frailty in solid organ transplant candidates and to predict candidacy outcomes.

Methods: We performed a retrospective cohort analysis, collecting seventy-four clinical variables from transplant candidacy assessment data for 764 patients referred for organ transplantation (111 heart, 214 kidney, 195 liver, and 244 lung; 36.3% female; age range 18-74) at a single centre. We constructed a cumulative deficits FI using a standardized procedure. One-way ANOVA was used to compare frailty levels by transplant type and referral and listing outcomes.

Results: The FI consisted of 41 clinical variables. Liver transplant candidates were more frail than other organ groups (liver – mean FI 0.33 ± 0.09 , lung – 0.28 ± 0.09 , heart – 0.29 ± 0.11 , kidney – 0.27 ± 0.09). As frailty increases, fewer subjects were listed for transplant or received transplant. Subjects declined for listing ($n=140$, mean FI 0.33 ± 0.10) or who died ($n=48$, mean FI 0.34 ± 0.09) during assessment were more frail than subjects who were listed ($n=482$, mean FI 0.28 ± 0.09), $p < .0001$. Those who were transplanted ($n=350$, mean FI 0.28 ± 0.09) were less frail than those removed from the transplant waitlist for contraindications ($n=30$, mean FI 0.33 ± 0.09) or death ($n=51$, mean FI 0.32 ± 0.09), $p < .0001$.

Discussion: The cumulative deficits model defines frailty in many different populations; the creation of a cumulative deficits FI for solid organ transplant candidates is possible due to the comprehensive and rigorous assessment of transplant candidacy. The deficits encompass a number of diverse domains, providing a holistic perspective of frailty. The FI correlates with outcomes of the transplant evaluation and the transplant waitlist. Therefore, the FI potentially can assist in transplant candidacy decision-making and identify patients that may need extra support and resources during the transplantation process, possibly leading to better transplant outcomes.

Conclusion: An FI can be developed from transplant candidacy assessment data and is associated with acceptance for transplant listing and receiving a transplant across multiple organ groups.

Evaluating Changes in Expected Health Care Resource Utilization Among Frail Home Care Clients in Ontario

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Background: Supporting frail older Canadians with complex health needs at home is a growing priority. As the older population continues to increase, the capacity to provide needed home care services is threatened. The role of the co-residing caregiver and the presence of dementia are important factors guiding health care resource use. This study aims to identify changes in expected health care utilization over time by dementia and caregiver co-resides status among home care clients in Ontario.

Methods: This retrospective study focused on Ontario home care clients aged 65+ years and who completed at least two Resident Assessment Instrument—Home Care (RAI-HC) assessments from the CIHI database. Two existing RAI-HC measures (i.e., Resource Utilization Group version 3 for Home Care (RUG-III/HC); and Case Mix Index (CMI)) were used to identify changes in expected health care resource utilization. Linear mixed models were used to estimate changes in the CMI among individuals over time.

Results: The study sample (n=314,966) was predominantly 85+ years of age (62%) and female (65%) with over 9.5 years of follow-up time. At the time of first assessment, 23% had dementia, 56% co-resided with a caregiver and the mean CMI was 1.0. Findings were: 1) an increase (.09) in the rate of CMI after adjusting by age and sex ($p<.0001$); 2) dementia status increased the CMI rate by 0.04 ($p<.0001$) and 3) informal caregiver status decreased the CMI rate by 0.03 ($p<.0001$).

Discussion: Relative to baseline, we observed a 4% increase and a 3% decrease of expected resource utilization for the population when including dementia status and caregiver co-resides status in the model, respectively. These findings highlight implications for guiding care among home care clients.

Conclusion: Further exploration of covariates in the RAI-HC that affect changes in health care resource utilization is important in determining areas driving costs in home and community care.

Home Care Nurses' Perceptions of Using the Carer Support Needs Assessment Tool as an Intervention

N. Kaechele, K. Stajduhar, R. Sawatzky, E. Donald, S. Kaur

Background: Those who provide care for a dying family member at home often face tremendous burden. Attention to these family caregivers needs for support is therefore important in the home care practice, to help protect their health. However, home care nurses who are often pressed for time tend to focus on the patient, and consideration

of the family caregiver's needs is often informal and unrecorded. Family members are also reluctant to express their own needs. To address this gap, we have developed a brief intervention for assessing the support needs of family members providing care to dying persons at home.

Methods: An intervention involving use of the Carer Support Needs Assessment Tool (CSNAT) is currently being tested in a randomized control trial in home-based palliative care to evaluate its potential for improving the health and well-being of family caregivers. Home care nurses were trained to use the CSNAT with family caregivers in the intervention group. Quality of life and several secondary outcomes will be compared to those family caregivers whose home care nurse is not using the CSNAT. The research also involved seeking to understand how the CSNAT intervention could be incorporated into the everyday practice of home care nurses, including how to best scale up the CSNAT for use in home care. Intervention nurses participated in audio recordings following each use of the CSNAT with family caregivers, using a set of guiding questions. Drawing on these data, our aim was to identify specific processes that enable success when implementing the CSNAT into palliative home care. Audio recordings were thematically analyzed.

Results: Findings suggest that nurses perceived the CSNAT as being acceptable for the vast majority of family caregivers.

Discussion: Nurses reported that family caregivers were open to acknowledging their needs and were accepting of the intervention as long as the patient's needs were met first. The importance of consistent care and building a relationship with family were also important factors. Challenges identified by intervention nurses included not having enough time to meet both patients' and family caregivers needs' during the visit, and organizational factors that contributed to home care nursing workload issues that prevented fully incorporating the intervention into practice.

Conclusion: From the HCNs perspective the CSNAT was a source of reassurance to FCGs and has the potential to be incorporated into palliative home care practice. Time constraints on palliative home visits must be addressed before implementation can take place to maximize the usefulness of the tool for FCGs. Findings should help to inform policy decisions, as it relates to addressing FCG needs, for home care leadership.

Engaging Older Community and Primary Care Patients in Healthcare Decision-Making

P. Fernandes, K. Pauloff, J. Elliott, G. Heckman, V. Boscart, P. Stolee

Background: An important aspect of patient-centered care is meaningful engagement in healthcare decision-making. This involves gaining a comprehensive understanding of each patient's needs, wants, opinions and circumstances. Unfortunately, there is little consensus on best practices for achieving meaningful engagement in busy, resource-limited health care settings. The Choosing Healthcare Options by Involving Canada's Elderly (CHOICE) Framework was developed to synthesize current knowledge on engagement of patients, families and caregivers with their healthcare providers (Stolee *et al.*, 2015; Elliott *et al.*, 2016). This project aimed to build on this work by gaining insight into barriers and facilitators of engaging older clients in decision-making, in community and primary care settings.

Methods: In-depth semi-structured interviews were conducted with community and primary care patients (n=4), family caregivers (n=8), and health care providers (n=10) in Ontario. Interviews were audio-recorded and transcribed verbatim. Data were analyzed using i) emergent coding; and ii) directed coding guided by the CHOICE Framework (Elliott *et al.*, 2016).

Results: Interviews identified a number of barriers and facilitators to enhancing meaningful patient engagement in community and primary care settings. In general, many of the older adult participants indicated an interest in building meaningful relationships with their healthcare providers. Healthcare providers recognized the importance of trust, respect and communication in building relationships with patients. Challenges included: time constraints, role definitions and inconsistent care providers attending to the patient. Facilitators included: having time, feeling well informed about healthcare options, and having family caregivers involved in healthcare decision-making. Older adults and healthcare providers indicated that educational resources and materials would be helpful to promote knowledge on techniques to enhance meaningful engagement.

Discussion: This project identified both challenges and opportunities for more meaningful patient engagement in decision-making. The results of this study revealed that having consistent care providers with established roles and time to build connections with patients is necessary for developing a trusting relationship. Practical suggestions were offered for how meaningful patient engagement might be accomplished in resource-constrained community and primary care settings.

Conclusion: This study has helped to advance the development of resources and tools to support more meaningful engagement of older patients in decision-making; testing these will be the focus of future work.

Implementing the Assessment Urgency Algorithm in Team-Based Primary Care

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Background: The health care system is currently designed to deal with single, sudden and usually curable problems. Providing care to older frail persons is challenging due to comorbidities, multiple providers, multiple care settings, long wait times, inefficient referral processes, and insufficient transitional care across settings. As a result, many of these frail seniors have no other choice than to visit crowded hospital emergency departments. One way to respond to these pressures is to improve the ability of Canada's primary health care providers to deliver care to older frail people. Primary care could identify older adults with complex problems before complications arise and coordinate appropriate care plans. Recent efforts have been made to identify high-risk individuals using screening tools, but there is still no consensus on which approaches are most effective and efficient for use in time-constrained primary care practices. Tools should be able to identify persons at high risk, and also at lower risk who might benefit from supports for prevention and self-management. This project aimed to test a brief screening tool in primary care practices to identify levels of risk for older adult patients.

Methods: Using a developmental evaluation approach with the primary care teams, the interRAI Assessment Urgency Algorithm (AUA) was implemented into three primary care practices. Informal and formal feedback was collected from health care providers and administrators during the implementation process. Data were analyzed using appropriate qualitative and quantitative techniques. Health care providers also completed the Clinical Frailty Scale (CFS; Rockwood *et al.*, 1999), independently from the AUA, on a subset of patients (n=30).

Results: Older Adults aged 70+ (n=550) were screened using the AUA. 70% of individuals screened as low risk, 25% were screened as moderate risk, and 5% were screened as high risk. AUA scores correlated strongly with the Clinical Frailty Scale ($r=.64$), which is consistent with standards for criterion validation.

Discussion: The AUA tool was able to stratify older adults into three levels of risk to assist with care planning. Although the tool was short in length (1-2 minutes to complete), providers felt that it was time-consuming in a busy primary care practice. Informal feedback suggested that a tool embedded into the electronic medical record would be more efficient. This process was changed and the tool was re-implemented.

Conclusion: The AUA is a fast and easy to use screening tool that identifies at-risk frail older adults in three categories, low, moderate and high risk. When implemented into electronic medical records, the tool is acceptable to use in primary care.

The More-2-Eat Project: Associations Between Measures of Frailty and Risk of Malnutrition in Hospital Patients

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Background: There is increasing awareness of the detrimental health impact of frailty as well as malnutrition on older adults. The purpose of this analysis was to examine the relationship between measures of frailty and risk of malnutrition in a sample from the More-2-Eat project (M2E), which focuses on improving nutrition care in hospitals across Canada.

Methods: Data was collected in 5 hospitals, in four provinces. All data were collected by trained clinicians, seconded for the project. Measures of frailty included handgrip strength (HGS) and the five-meter timed walk (5m). Risk of malnutrition was determined using the Canadian Nutritional Screening Tool (CNST). These measures were collected over an 18-month period. A chi-square was used to test the associations between nutritional risk (at risk vs. not at risk) and 5m (>6 seconds) (n=420), and a Mann-Whitney U test was used to compare nutritional risk to continuous HGS (n=885) and 5 m values (n=420).

Results: The median HGS and 5m scores were 19.0 kg (SD=12.4) and 6.7 s (SD=6.2) respectively. The proportion of the sample (n=962) that was at risk of malnutrition was 25% (241/962). Of those who were at nutritional risk, 67.33% were also frail based on the criteria for 5m walk (>6 seconds) ($X^2=1.66, p=.1979$). However, HGS and 5m values did not differ significantly across nutritional risk categories (No risk=20.82 kg and 8.69 s vs. at risk= 19.32 kg and 9.26 s) ($p=.07, p=.14$).

Discussion: In this sample, a large proportion of those who were at risk of being malnourished were also identified as frail based on their 5m walk time.

Conclusion: Future work on HGS and 5m walk as measures to conduct frailty with nutritional screening and assessment should be done to describe potential frailty comorbidity with malnutrition.

Anticipatory Long-Term Care Electronic Resident Triage (ALERT) Tool for Canadian Long-Term Care Homes

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Background: Proactive identification of early warning signs of illness and transition to end-of-life enables modification of care plans before long-term care home (LTCH) residents are in a crisis. This results in reducing potentially avoidable hospitalizations (PAHs) which increase the risk of confusion, complications, and death compared to elders treated at home. In the United States, electronic Interventions to Reduce Acute Care Transfers (e-INTERACT) v4 embedded in Pointclickcare platform proactively identifies residents at risk of transfer to the Emergency Department (ED) and/or death, showing reductions in PAHs. However, there is no such tool validated in Canada, and e-INTERACT cannot yet predict when a resident will approach end-of-life. This project aims to develop a tool for Long Term Care Homes (LTCH) to proactively identify residents at risk of transfer to the ED and/or death in the Greater Toronto Area.

Methods: After adding Canadian laboratory values to the e-INTERACT v4 tool, simulation training exercises were conducted to ensure that frontline staff were able to safely utilize the tool. A multi-phase rollout and evaluation of the tool at three Sienna Senior Living LTCHs in Toronto are currently underway. With several processes, outcome and balancing measures, including the number of ED transfers, the proportion of deaths in LTCH versus hospital, PAH rates, and survey data from frontline staff and patients is to be collected.

Results: The simulation exercises allowed the research team to deem the modified tool safe for implementation on the live electronic health record system in a Canadian LTCH. Interim results of metrics being collected will be available in April 2017.

Discussion: The advantage of e-INTERACT created in the United States is that it is embedded in the electronic health record in a format that is familiar to frontline staff in a large proportion of LTCHs in Canada. While post-implementation results are still being collected, this tool is expected to reduce PAHs and improve the quality of care for residents in pilot LTCHs with the potential for it to spread across Canada.

Conclusion: Further use and testing of this tool post-pilot will provide an opportunity to reduce avoidable transfers to hospital.

A Consensus Process to Develop a Standardized, Evidence-Informed ICU Transfer Tool for Physicians and Nurse Practitioners

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Background: The objective of this study was to identify information elements (i.e., items of patient information or tasks requiring completion) essential for inclusion in an Intensive Care Unit (ICU) transfer summary tool. The tool is designed for providers (physicians, nurse practitioners and residents) to facilitate communication between ICU and hospital ward physician services during the transition of patient care out of the ICU.

Methods: A modified RAND/UCLA Appropriateness Method was used to identify the information elements essential for inclusion in an electronic ICU transfer summary tool. A panel of 13 clinicians (10 physicians, 2 nurse practitioners, 1 quality improvement specialist) representing ICU and hospital ward providers were nominated to review 141 unique information elements identified from 48 transfer tools collected from ICUs across Canada. Panel members rated the information elements iteratively using a validated 9 point scale (1-3 not essential, 4-6 uncertain, 7-9 essential) through two rounds of remote review using an electronic survey instrument. This was followed by a full day, in-person workshop, to review and finalize information elements for an ICU transfer summary. Consensus was defined as a median rating of 1 to 3 (not essential) or 7 to 9 (essential). Qualitative content analysis was conducted from audio recordings of the workshop day to characterize the decision-making process.

Results: After three rounds of review, 73 information elements were identified by panelists as essential for inclusion in an ICU transfer tool, 81 information elements did not achieve panel consensus and 16 information elements were identified as non-essential. Information elements rated as essential included basic demographics (e.g., goals of care designation), description of present illness (e.g., active problems), medications (e.g., medication reconciliation), drains, lines, tubes and technologies present at transfer (e.g., central venous catheter), review of key systems (e.g., precautions for infection control), team transferring (e.g., individual completing the transfer summary) and receiving (e.g., most responsible physician accepting care) the patient. Qualitative content analyses of panelist discussions during the workshop identified three themes related to how information elements should be considered when developing an ICU transfer summary tool: 1) Transferability, 2) Flexibility, and 3) Accountability. Transferability referred to functionality in an electronic medical record system to allow information to be stored and updated throughout a patient's stay. Flexibility was described as the need for the ICU transfer summary tool to be easy to use (e.g., auto population from the medical record) and allow the provider entering the information to customize the information to depict the patient's healthcare journey. Accountability was described as the need for mandatory fields to be completed before a transfer summary was disseminated (e.g., date/time stamp when patient leaves

ICU, name and contact information of most responsible sending and receiving physicians).

Discussion: We identified 73 distinct information elements essential for inclusion in an ICU transfer summary tool to facilitate communication between providers during the transition of patient care from the ICU to a hospital ward.

Conclusion: The approach described can be used to guide consensus building among diverse stakeholder groups when creating tools to facilitate health service delivery.

Using the Quality of Life Practice Support System in Hospital Palliative Care Consults

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Background: The Quality of Life Assessment and Practice Support System (QPSS) is an innovative user-designed computerized (tablet based) assessment system that provides a means for patients and family caregivers to self-report quality of life and experiences of care using validated patient-reported outcome (PROMs) and experience measures (PREMs).

Aim: To better understand the experiences and perspectives of hospital-based palliative clinicians and their older adult patients regarding the desirable features of the QPSS and its use in routine clinical practice within a large urban acute care hospital in Western Canada.

Methods: Our knowledge-to-action research project involved two nurse specialists within a larger Palliative Outreach Consult Team (POCT), and consenting older adult patients (55+) and family caregivers who were receiving palliative consult services in a large tertiary acute care hospital in Western Canada. User-centered design of the QPSS was informed by three focus groups with the entire POCT team, and implementation was evaluated by direct observation as well as interviews with the POCT nurses and three patients. Inductive thematic analysis was used as a methodological approach to transcribed verbatim interviews and field notes, and was informed by theoretical perspectives from medical anthropology and social studies of science and technology.

Results: Over nine weeks, clinicians used the QPSS at least once with 20 patients and one family caregiver. Patients reported that the QPSS was easy to use, and that both process and outcome of using the QPSS was beneficial to themselves, their relationship with clinicians, and to the hospital more broadly. Clinicians express positive values associated with the tablet modality, both for themselves, and for patients.

Clinicians referenced three primary benefits of jointly using the QPSS with patients and family caregivers: 1) to generate conversation about quality of life and experiences of care, 2) to facilitate the creation of an emergent affective space for therapeutic relationship building, and 3) to enable rapid production of new and at times unexpected knowledge. Clinicians used QPSS data to inform the larger POCT team, reported results in patients' charts, and shared results on the spot with other members of the patient's care team. Clinicians expressed that a significant benefit of using the QPSS was its ability to help them prioritize areas of relevance to patients' quality of life and their experiences of care within an institutional space that conventionally has limited capacity to focus on these issues. Patient acuity, the structure of hospital consultations, and lack of privacy were identified as challenges.

Discussions: Relevance and future directions: This is the first study to examine hospital palliative consult clinicians' use of a tablet-based system for routine collection of PROMs and PREMs. Future studies focused on successful integration of electronic PROMs and PREMs into routine palliative care may benefit by further exploring how joint use may positively shape clinicians' perceptions of use value. We also recommend further research on family caregiver quality of life and care experiences.

Conclusions: The QPSS was jointly used and valued by clinicians and patients as a relational tool that facilitated: 1) the co-creation of new affective spaces that strengthened the therapeutic processes of care, and 2) the co-creation of knowledge regarding quality of life and experiences of care.

Tissue Characterization with Magnetic Resonance Imaging

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Background: Alzheimer's disease and Parkinson's disease are the two most common neurological disorders. In 2012, an estimated 740 000 Canadians were living with Alzheimer's disease and other forms of dementia. That number is growing rapidly. An estimated 45% of people living in residential care facilities have dementia. More than 67 000 people in Canada have Parkinson's disease and one third live in residential care facilities. In Alzheimer's disease, memory, communication and language, ability to focus and pay attention, reasoning and judgment, and visual perception can be impaired. There is no cure for Alzheimer's disease. Parkinson's disease is a chronic, progressive disorder with an unknown cause. Symptoms of Parkinson's include tremors, slower and more rigid muscle movements, impaired reflexes contributing to a loss of balance and many more. There is currently no cure for

Parkinson's, only treatments to manage its symptoms. Our research aims to diagnose these diseases sooner so treatments can begin sooner delaying the need for residential facilities. We also aim to understand the effects of treatments on the anatomy and function of the living brain so that treatments can be designed to minimize side effects while maximizing disease protection. We do this through analysis of magnetic resonance (MR) images. Magnetic resonance imaging (MRI) is useful for diagnosing brain disorders. Yet, the correlation between quantitative MRI metrics and tissue pathology is not yet fully developed. Images from different types of quantitative MR methods are distorted in different ways and image contrast can be different which makes voxel-by-voxel quantitative comparisons difficult. Multimodality images, for instance, position emission tomography (PET) images and MR images are collected with different resolutions and the contrast within the images varies due to different tissue properties. The images the Martin Lab works with are obtained at the Magnetic Resonance Microscopy Centre in Winnipeg. The centre now has the capability to perform simultaneous PET and MR imaging. Direct comparisons between cerebral blood flow maps and PET measurements can be done when the images are correctly registered. Direct comparison between MR image findings and histology are best done when the two types of images are co-registered.

Methods: My role in the Martin Lab was strengthening image alignment and analysis techniques and making them more user-friendly. I also worked towards registration and comparison of PET-MR images.

Results: I will show some examples of my techniques and how they can be used to diagnose and understand disease. For instance, I will show a decrease in blood flow in a region of a brain with a lesion due to a model of Parkinson's disease.

Discussions: With a better understanding of the pathology causing changes in MRI and PET and a better means of quantifying these changes, we can begin to understand the effects of treatments for central nervous system disorders. We can also begin to diagnose diseases sooner so treatments can begin sooner.

Conclusions: In conclusion, progress was made towards understanding the effects of treatments for central nervous system disorders.

Using Sit-To-Stand Functional Test to Objectively Identify Frail Elders Following Acute Abdominal Surgery

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Background: In Canada, the number of seniors (≥ 65 years) is estimated to reach as high as 28% by 2063. More seniors, especially frail elders, are undergoing surgery. Frailty results in increased vulnerability and a decline in the body's ability to manage acute stressors. Frail elders have been shown to have increased postoperative complications, loss of independence, higher healthcare costs, and mortality. Hence, it is important to establish a quick screening tool to help identifying frail seniors following emergency abdominal surgery.

Purpose: To determine if a 30-second Sit-to-Stand test (STS) is a good indicator of frailty in older adults following acute abdominal surgery.

Methods: This was a prospective cohort study that consecutively recruited elderly patients (≥ 65 years) undergoing acute abdominal surgery. A single-item performance measure using a 30-second sit-to-stand (STS) test—used a functional strength test—was done on postoperative day 2 (POD2). The number of attempts recorded as 3 components: total, with and without arms.

Results: A total of 100 patients were enrolled. The mean age was 75 ± 8 ; 63% were females. Estimated frailty in the study population was 37%; 25 (68%) were female. The mean number of total STS was 7 ± 4 , 4 ± 4 ($p < .001$) performed by non-frail and frail patients, respectively. STS identifies frail patients postoperatively (AUC = 0.73; $p < .001$). After controlling for STS with arms, total STS was associated with frailty (OR: 0.86; 95% CI: 0.74 to 1; $p = .045$). The number of STS with and without arms, gender, and age were not significantly associated with frailty. Total STS > 11 ruled out frailty in the study population.

Discussions: A 30-second STS test can be used as an objective tool to identify frail elderly surgical patients.

Conclusions: Since frail patients have a higher risk of poor postoperative outcomes this knowledge can help in directing interventions in this vulnerable population following acute abdominal surgery.

Development of Smart Garments to Assess Activity and Health in the Frail Elderly

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Background: Different approaches to improving the quality of life of frail seniors in their homes includes the use of technologies to sense movement and monitor physiological parameters such as breathing rhythm and heart rate. For these important technologies to be readily used by the

frail elderly they must be easy to use, unobtrusive and comfortable. Data captured by the smart garments can then be transmitted to a computer program that could send messages via smart phones to family and health care providers on the health and physical activity levels of the person or whether the person has stopped moving and may have fallen or is ill. With E-textiles gaining popularity in recent years promising to integrate electronics into everyday life in a more natural and intimate manner, research to determine the feasibility of using a polymer-based strain gauge to provide real-time angle measurement of the human knee by embedding the sensor in a knee brace and real time breathing monitoring by embedding the sensor in a chest strip have been conducted.

Methods: The polymer-based strain gauge sensor is a thin, conductive and stretchable polymer filament that has a varying electrical resistance linearly proportional to the applied strain (the amount of extension/stretch). The sensor can be threaded into the woven fabric commonly found on knee braces or other garment, with the two ends secured by hammer on metal snap rings or by stainless conductive thread, to provide electrical connection. Leg flexions will cause the fabric around the knee joint to stretch, and chest expansion during breathing cause extension of the sensor; both actions hence increase the resistance of the sensor.

Results: Readings from the sensors are collected using a small textile-embeddable board, and the data collected is stored with its corresponding knee angle data and chest expansion data, which was collected with a motion capture system for body movement and with a microphone for recording breathing. The data collected, show a proportional increase of the electrical resistance in both sensors related to the knee angle increase and to the chest expansion.

Discussions: In the trials for leg extensions and flexions, the data collected by the sensor and by a motion tracking system showed correlations in the waveforms with lows of the angle waveform (flexion) matching the highs of the resistance waveform (caused by sensor stretch). In the trials for breathing, the data collected by the sensor and by the microphone for recording breathing showed correlation in the waveforms with the inhale matching with the positive slope and pick of the waveform, and the exhale matched with the negative slope and the ditch of the waveform.

Conclusions: We developed two systems for monitoring knee movement and breathing rhythm, and prepared a setup to collect data and validate the proposed system. The result shows an important correlation between the data collected and the monitored parameters. The same technique has potential in monitoring other body parts if the movement is associated with some stretch in the skin that can be closely mimicked by a stretch garment.