

INNOVATIONS IN MEDICAL EDUCATION



Effects of a Focused Patient-Centered Care Curriculum on the Experiences of Internal Medicine Residents and their Patients

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BACKGROUND: Traditional residency training may not promote competencies in patient-centered care.

AIM: To improve residents' competencies in delivering patient-centered care.

SETTING/PARTICIPANTS: Internal medicine residents at a university-based teaching hospital in Baltimore, Maryland.

PROGRAM DESCRIPTION: One inpatient team admitted half the usual census and was exposed to a multi-modal patient-centered care curriculum to promote knowledge of patients as individuals, improve patient transitions of care, and reduce barriers to medication adherence.

PROGRAM EVALUATION: Annual resident surveys (N=40) revealed that the intervention was judged as professionally valuable (90%) and important to their training (90%) and offered experiences not available during other rotations (88%). Compared to standard inpatient rotation evaluations (n=163), intervention rotation evaluations (n=51) showed no differences in ratings for traditional medical learning, but higher ratings for improving how housestaff address patient medication adherence, communicate with patients about post-hospital transition of care, and know their patients as people (all $p < 0.01$). On post-discharge surveys, patients from the intervention team (N=177, score 90.4, percentile ranking 97%) reported greater satisfaction with physicians than patients on standard teams (N=924, score 86.1, percentile ranking 47%) $p < 0.01$.

DISCUSSION: A patient-centered inpatient curriculum was associated with higher satisfaction ratings in patient-centered domains by internal medicine residents and with higher satisfaction ratings of their physicians by patients. Future research will explore the intervention's impact on clinical outcomes.

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INTRODUCTION

Patient-centered care is one of six key performance measures for improving the quality of US health care.¹ Post-graduate medical training programs are required to teach competencies reflecting dimensions of patient-centered care, such as sustaining therapeutic relationships with patients, using effective interpersonal and communication skills, and teaming with patients, their families, and colleagues.² However, heavy patient volume and rapid patient turnover typically limit opportunities to learn and deliver truly patient-centered care.

We implemented the Alike Initiative to teach housestaff to know every patient as a person and apply this knowledge to improve care, particularly during the transition from the hospital setting.³ Specifically, we aimed to promote knowledge of patients as individuals, improve patient transitions of care, and reduce barriers to medication adherence. We have previously reported that this intervention was associated with reduced readmission for congestive heart failure.⁴ In this study, we evaluated the intervention's impact on the experiences of housestaff and their patients.

SETTING AND PARTICIPANTS

The internal medicine residency program at Johns Hopkins Bayview Medical Center (a 335-bed hospital) consists of 26 categorical, 19 primary care, and 5 preliminary residents. Annually, four housestaff teams and a non-teaching hospitalist service admit 8700 medical patients – 20% uninsured. Housestaff teams consist of one resident, two interns, two medical students, a faculty attending, and a nurse case manager. Traditionally, housestaff teams admit up to four patients during one morning every four days ("short-call"). Two

days later, teams admit up to ten patients (morning until midnight) and remain overnight ("long-call").

PROGRAM DESCRIPTION

Beginning October 2007, one housestaff team was randomly selected as an intervention team, admitting half the usual patients during short- and long-call. As intended, the intervention team's census is approximately half of a standard housestaff team's census. Attendings use this "gift of time" to promote residents' knowing patients as individuals, improving patient transitions of care, and reducing barriers to medication adherence (Appendix 1 available online). Attendings observe and give feedback to residents in required activities: post-discharge telephone calls to all patients, home visits to selected patients, telephone calls with outpatient providers, and structured interviews about medications at the bedside and during home visits.³

Initially, the curriculum team (including program directors) assigned the intervention team attending from the four scheduled attendings during each block, choosing a faculty member they deemed most likely to teach and model the target competencies. Housestaff and patient evaluations were not considered. Beginning July 2008, the implementation team invited all attendings to participate in twice-yearly faculty development to perform and teach the competencies in order to attend on the team.

Curricular materials provide session objectives, narrative reflection exercises, evidence-based articles, patient education handouts, and instruments for formative and summative evaluation of patient-centered skills. Finally, intervention housestaff teach other residents and students during monthly conferences, sharing illustrative home visit videos.

The intervention rotation occurs at least once for interns and at least once for categorical and primary care residents during post-graduate year (PGY) 2 or 3. All residents also rotate on standard rotations during each academic year. Monthly assignments are based solely on scheduling needs.

PROGRAM EVALUATION

We evaluated the impact of the curriculum on housestaff using annual questionnaires and post-rotation evaluations. A Johns Hopkins Institutional Review Board approved this evaluation. We assessed patient satisfaction utilizing existing institutional records of patient satisfaction as measured by Press Ganey Associate surveys. All statistical analyses were performed with Stata 9.0 (College Station, TX, 2002).

Program Questionnaires

We collected annual questionnaires assessing housestaff perceptions of the intervention using 9 items with a 6-point response scale and 3 open-ended items. Eligible residents were those who completed the intervention during the preceding year (27 of 48 housestaff in 2007–2008 and 36 of 49 in 2008–2009). Some completed the rotation both as an intern

and a resident and were eligible to complete the questionnaire twice. We collected questionnaires during teaching conferences and online, providing \$20 gift cards. Program directors were not present, and we emphasized that participation and responses would not affect residency standing. We calculated the proportion agreeing or strongly agreeing with each item and selected representative responses to open-ended items.

Among 40 respondents (63% response rate), 55% were women; 50% were Caucasian, 27.5% were Asian, and 20% Black or African American. The average age was 29.9 years, and 45% were PGY1, 28.5% PGY2, and 28.5% PGY3. The majority of participating residents agreed or strongly agreed that the experience was professionally valuable (90%), important to their training (90%), and offered experiences not available during other rotations (88%). (Appendices 2 and 3 show all items and representative quotes.)

Post-Rotation Evaluations

We compared post-rotation evaluation ratings for intervention and standard inpatient rotations completed April 2009 to February 2010. Collected through the academic year's end using an on-line evaluation platform, responses comprised a 9-point scale (1=poor, 9=outstanding) for improving traditional medical and patient-centered care competencies (Table 1). To analyze skewed data, we calculated the proportion selecting

Table 1. Comparison of Resident Ratings of a Patient-Centered Care Rotation and Standard Inpatient Rotation

Evaluation Items	Outstanding Rating (7 – 9) †		
	Intervention Team (N=51)	Standard Teams (N=163)	p-value
	N (%)	N (%)	
Improving knowledge of your patients as people	48 (94)	119 (73)	<0.01*
Improving the degree to which you addressed patient adherence issues	46 (90)	111 (69)	<0.01*
Improving your communication with patients about their transition out of the hospital	48 (94)	121 (75)	<0.01*
Relevance to your professional/ educational needs	42 (82)	135 (83)	1.00
Improving your knowledge base	40 (85)	132 (81)	0.39
Improving your clinical reasoning ability and judgment	41 (80)	142 (88)	0.25
Improving your patient management skills	44 (86)	142 (88)	0.85
Improving your teaching skills	38 (75)	110 (70)	0.60
Improving your understanding of diagnostic tests	38 (75)	117 (72)	0.86
Improving your record keeping skills	39 (76)	118 (73)	0.72
Improving your history/ physical examination skills	39 (76)	116 (72)	0.59
Overall rating	44 (86)	127 (78)	0.23‡

* P-value is significant at $p \leq 0.05$

† Response options were from 1 to 9 (1=poor, 5=good, 9=outstanding). We compared proportions of respondents choosing 7 to 9, the highest rating, using Fisher exact test

‡ $p < 0.01$ for full response scale, using Wilcoxon rank sum test

outstanding ratings (7 – 9). Because anonymity precluded paired evaluations, we examined differences between intervention and standard rotations using Fisher exact tests and the Wilcoxon rank sum test for overall rotation rating as a continuous variable.

Housestaff completed 51 evaluations after intervention rotations (84% response rate) and 163 after standard rotations (78% response rate). Among responders, 57% were women; 62% were PGY1, 21% PGY2, and 17% PGY3, and this breakdown did not differ between intervention and standard rotation evaluations. Compared with standard rotation ratings, housestaff more often chose “outstanding” ratings for the degree to which the intervention rotation improved their ability to address patients’ treatment adherence (90% vs. 69%, $p < 0.01$), ability to communicate with patients about transitions out of the hospital (94% vs. 75%, $p < 0.01$), and knowledge of patients as people (94% vs. 73%, $p < 0.01$). Intervention and standard rotation ratings did not differ for traditional medical learning (Table 1). The intervention team overall rotation rating was significantly higher than standard team (median 8 vs. 7, $p < 0.01$).

Patient Satisfaction Surveys

We analyzed post-discharge patient satisfaction surveys administered by Press Ganey Associates (South Bend, IN) to patients discharged from housestaff teams October 2007–February 2009. Mailed within one week of discharge, surveys assess 10 domains of care (Table 2) using items on a 5-point response scale (1=very poor, 2=poor, 3=fair, 4=good, 5=very good). Domain scores are scaled to 100; higher scores indicate greater satisfaction. We compared responses from intervention and standard team patients with unpaired t-tests for all

Table 2. Comparison of Patient Satisfaction Among Patients Receiving Care on Patient-Centered Care Focused Housestaff Teams and Standard Housestaff Teams (n=1101)

Patient Satisfaction Domains†	Intervention Patients (N=117) Mean (SD)	Standard Team Patients (N=924) Mean (SD)	p-value
Admissions	82.90 (21.28)	79.53 (21.69)	0.07
Room	77.81 (17.27)	77.20 (17.57)	0.68
Meals	77.66 (18.94)	75.02 (19.56)	0.11
Nurses	86.54 (17.15)	85.53 (17.27)	0.48
Tests/Treatments	85.27 (16.62)	83.37 (15.88)	0.16
Visitors	84.18 (18.92)	83.39 (17.77)	0.61
Personal Issues	83.08 (18.88)	82.26 (18.43)	0.61
Discharge	82.66 (18.54)	81.41 (18.59)	0.44
Physicians	90.35 (14.88)	86.14 (16.90)	<0.01*
Time physician spent with you	87.42 (17.60)	82.25 (20.59)	<0.01*
Physician concern for your questions and worries	90.12 (16.80)	85.45 (18.92)	<0.01*
How well the physician kept you informed	90.00 (17.10)	85.22 (19.88)	<0.01*
Friendliness/ courtesy of physician	92.48 (15.50)	89.25 (16.08)	0.02*
Skill of physician	92.90 (14.46)	89.84 (15.58)	0.02*
Overall Hospital Experience	88.90 (18.06)	86.00 (19.46)	0.08
Average Total	83.96 (14.03)	81.81 (14.76)	0.08

* P-value is significant at $p \leq 0.05$

† Patient satisfaction questions surveyed by Press Ganey Associates. We compared intervention and standard team patient responses using unpaired t-tests

domain scores and individual items within the physician satisfaction domain. Potential confounders (age, gender, and length of stay) were not associated (pre-specified $p \leq 0.10$) with discharging team or patient satisfaction and were not retained for multivariate analysis.

Satisfaction surveys were completed by 177 intervention team patients and 924 standard housestaff team patients (18% response rate, consistent with national Press Ganey completion rates). The average age was 68.2 years (range 20 – 101); 54.8% were women. Compared with standard team patients, intervention team patients had higher scores for overall physician satisfaction (90.4 vs. 86.1, $p < 0.01$) and for each item within the physician satisfaction domain: time spent with you, concern for your questions and worries, how well the physician kept you informed, friendliness/courtesy, and skill. Intervention and standard team patients did not differ in other domains (Table 2). The physician satisfaction domain score represents a 97% percentile ranking for intervention teams and 47% for standard housestaff teams, as estimated quarterly by Press Ganey.

DISCUSSION

In this evaluation of a patient-centered care intervention, internal medicine residents and their patients reported more positive experiences compared with those on standard housestaff teams, particularly in patient-centered domains. Housestaff felt the rotation offered valuable experiences and improved their ability to communicate with patients about medications and transitions out of the hospital. In addition, patients discharged from the intervention team were more satisfied with their physicians than patients discharged from standard housestaff teams.

This initiative combined redesigned delivery through reduced patient census and a patient-centered communication skills curriculum, targeting “not simply the hours of work but what residents do during those hours.”⁵ Amidst debates about residency duty hours,^{6,7} few have studied reduction of patient volume or workload coupled with an enhanced curricular content. An observational study found that higher patient workload was associated with decreased participation in educational activities.⁸ A redesigned ward team with enhanced bedside teaching and reduced call frequency was associated with higher resident satisfaction and increased time in educational activities, but did not specifically target patient-centered care competencies.⁹ This study’s coupling of a reduced census with a unique curriculum allowed housestaff to engage in specific activities to know their patients better as individuals, and our findings suggest an impact on both residents and their patients.

Levinson argued, “Patient-centered care requires physicians to be formally trained in a set of communication skills that enables them to effectively deliver this type of care.”¹⁰ Other curricular programs targeting individual aspects of care have produced favorable attitudinal outcomes.^{11–14} This curriculum specifically addresses continuity of care, patient communication and education, and safe transitions of care, but focuses on knowing patients as individuals. Residents on the intervention team rated the rotation more highly in improving their skills in

patient-centered tasks, adding systematic evidence to previously published testimonials about meaningful patient relationships from this rotation.¹⁵

Finally, patients rated their physicians more highly, a fundamental assessment for a patient-centered curricular intervention. Patient satisfaction has been associated with improved adherence, reduced readmission rates, and lower inpatient mortality, suggesting that patients' perspectives may have value in discriminating quality of care.^{16,17}

The generalizability of this approach will depend on a number of factors. Certainly, effects on the entire system must be considered during implementation. Program leaders should anticipate concerns that the reduced census threatens "traditional clinical learning," though this was not reported by intervention team residents or faculty. If the intervention is implemented on part of the teaching service, census and admission pace on other teaching teams must be monitored. Also, directors should assess the student experience to ensure comparable exposure to numbers, medical diversity and complexity of patients.

The sustainability of the intervention must also be considered. Halving one housestaff team's census required 1.75 additional hospitalists, at an incremental direct cost of \$164.00 per admission. While philanthropy initially funded the costs, several potential benefits may offset this cost. Patients admitted with a principal diagnosis of congestive heart failure to our intervention team had a significantly lower 30-day readmission compared to patients with the same diagnosis on standard housestaff teams.⁴ Whereas some studies have found that hospitalist and traditional housestaff services have similar efficiency and costs of care,¹⁸ others have found that hospitalist care is associated with lower costs, especially as hospitalists gain experience on the job.¹⁹ These cost offsets may facilitate implementation and sustainability, even without philanthropic support.²⁰ Academic centers are focusing attention on the favorable financial implications of improved patient satisfaction scores, which may reflect greater customer loyalty.²¹ Finally, more patient-centered hospitals could experience reduced lengths of stay, costs per case, adverse events, operating costs, and malpractice claims and increase employee satisfaction and retention rates.²² Thus, academic medical centers may simultaneously reduce health care costs and ensure that trainees experience more meaningful clinical relationships.^{5,23,24} More detailed economic evaluations of this intervention will be conducted.

The study limitations should be noted. The evaluation lacked true learner controls, since residents rotate on both standard and intervention rotations each year. While patients were assigned randomly, there were not two separate groups of learners. Although our findings could be confounded by other factors, "contamination" of standard teams with residents who completed the intervention would, if anything, have reduced differences. Second, selection of intervention team attendings based on reputation for teaching and delivering patient-centered clinical care could have influenced observed differences, particularly in patient satisfaction. However, 86% of intervention team attendings also cared for patients on standard teams during the study, suggesting that findings may reflect patients' experience with the whole physician team. Third, recall bias may have affected all methodologies, particularly the housestaff questionnaire, given its annual administration. Social desirability and selection bias may also be

factors, and higher response rates (particularly for patients) would have strengthened the evaluation. We do not have patient non-responder characteristics to investigate this potential bias. Fourth, paired analysis of post-rotation ratings was not possible due to evaluation anonymity. Fifth, more objective educational outcome assessment such as observation checklists will strengthen future evaluation. Finally, we cannot determine whether outcomes may be due to the curricular components or the reduced census, which were implemented simultaneously. Additional research is needed to evaluate the independent contributions of these elements of the intervention.

In summary, a redesigned inpatient ward team coupling a reduced census with a patient-centered care curriculum was associated with higher satisfaction ratings in patient-centered domains by internal medicine residents and with higher satisfaction ratings of their physicians by patients. Future research needs to be done to determine the feasibility of curriculum implementation (potentially with different census reductions), costs, and impact on patient and educational outcomes at other medical centers.

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