



The Revolving Door of Resident Continuity Practice: Identifying Gaps in Transitions of Care

Laurie C. Caines, MD¹, Diane M. Brockmeyer, MD², Anjala V. Tess, MD², Hans Kim, MD², Gila Kriegel, MD² and Carol K. Bates, MD²

¹Department of Medicine, University of Connecticut School of Medicine, Farmington, CT, USA; ²Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Boston, MA, USA.

BACKGROUND: It is well documented that transitions of care pose a risk to patient safety. Every year, graduating residents transfer their patient panels to incoming interns, yet in our practice we consistently find that approximately 50% of patients do not return for follow-up care within a year of their resident leaving.

OBJECTIVE: To examine the implications of this lapse of care with respect to chronic disease management, follow-up of abnormal test results, and adherence with routine health care maintenance.

DESIGN: Retrospective chart review

SUBJECTS: We studied a subset of patients cared for by 46 senior internal medicine residents who graduated in the spring of 2008. 300 patients had been identified as high priority requiring follow-up within a year. We examined the records of the 130 of these patients who did not return for care.

MAIN MEASURES: We tabulated unaddressed abnormal test results, missed health care screening opportunities and unmonitored chronic medical conditions. We also attempted to call these patients to identify barriers to follow-up.

KEY RESULTS: These patients had a total of 185 chronic medical conditions. They missed a total of 106 screening opportunities including mammogram (24), Pap smear (60) and colon cancer screening (22). Thirty-two abnormal pathology, imaging and laboratory test results were not followed-up as the graduating senior intended. Among a small sample of patients who were reached by phone, barriers to follow-up included a lack of knowledge about the need to see a physician, distance between home and our office, difficulties with insurance, and transportation.

CONCLUSIONS: This study demonstrates the high-risk nature of patient handoffs in the ambulatory setting when residents graduate. We discuss changes that might improve the panel transfer process.

KEY WORDS: patient safety; resident continuity practice; transitions of care.

J Gen Intern Med 26(9):995-8

DOI: 10.1007/s11606-011-1731-8

© Society of General Internal Medicine 2011

INTRODUCTION

Transitions of care are abundant in medical practice. Hand-offs have been shown to increase the potential for medical error and adverse patient outcomes between hospitalists and primary care physicians when patients are discharged from the hospital^{1,2} and when residents complete their shifts and sign out to a covering resident due to work hour restrictions.³⁻⁵ Although the nature of resident continuity practice guarantees transfer of care every three years when residents graduate, outcomes of this type of patient care transition are not yet described in adult primary care.⁶ Based on data from program sizes in family medicine, internal medicine, pediatrics and psychiatry, an estimated 12,800 residents transferred their outpatient panel in 2007 meaning that hundreds of thousands of patients are affected each year.⁷ In addition, this transition of care is particularly risky since the graduating resident is usually leaving the institution and the accepting resident is new to the system.

In our practice, graduating residents review lists generated by our computerized scheduling system of all patients they have seen in order to identify patients for whom they serve as primary care provider. We ask them to indicate which patients are medically complex, which patients need to be transferred to a junior resident rather than a new intern, and when the patients need to be seen in clinic follow-up. We also have a mandatory meeting that addresses the emotion and impact of saying goodbye to patients and details our process of panel transfer. After reassignment of patients to new residents, we mail letters to these patients informing them of the resident's departure and providing the name of their new doctor.

Despite this effort, only 48% of patients of our 2008 residency graduates had ongoing care within a year of the residents' graduation. In this study, we sought to examine the impact of this lapse in care in our highest risk patients and sought to measure the numbers of unaddressed abnormal test results, missed cancer screening opportunities and chronic medical conditions that required regular monitoring. In phase 2 of our project, we also explored the barriers to follow-up that these

Received September 13, 2010

Revised March 3, 2011

Accepted March 22, 2011

Published online May 11, 2011

patients encountered via a telephone survey. We did this in the context of our outpatient quality improvement curriculum that is based within ambulatory blocks.

METHODS

This study was classified as exempt by our Institutional Review Board. We studied the population of patients cared for by 46 senior internal medicine residents who graduated in the spring of 2008 from our hospital-based academic practice where a total of 136 housestaff, 61 faculty and 10 nurse practitioners practice. Residents work under the supervision of attendings, but patients identify the resident as the primary care physician. Our electronic record denotes the resident as the primary care physician and their faculty advisor as the "insurance PCP." In our system, we try but cannot always transfer patients to panels of residents precepted by the same faculty member. We focused on those patients within their practice who were identified as high priority requiring follow-up within a year. Graduating residents each labeled 5–10 patients as high priority; they identified 300 patients of the total of the 3977 patients transferred. In August of 2009, following an introductory training meeting led by the first author, 97 residents assigned to an ambulatory rotation examined the electronic medical records of the 130 of those high priority patients who had not returned to our practice. Using a standardized data abstraction form with clear instructions, they collected patient demographics, the time since the last appointment, the time between the last appointment and the most recent medication refill, and whether or not an appointment was scheduled at the time of their last visit. They also tabulated unaddressed abnormal test results, missed health care screening opportunities, and unmonitored chronic medical conditions to better understand the extent of the problem. In phase two, residents created a telephone survey in a facilitated small group setting and attempted to call these patients to better understand the barriers to follow-up they experienced. We provided scripted language for a message to be left on answering machines to call the office but left specific discussion of barriers to the residents.

RESULTS

We found that 130 of the 300 (43%) patients did not have medical visits in our practice since their resident providers graduated. This group of patients was comprised of 54 males and 76 females. Their mean age was 40.4 years old with a range from 20 to 87 years of age. An average of 21 months had passed since the last medical visit with an average of 10 months since the last prescription refill. Ninety-two of 130 (68%) patients never had a new visit scheduled to re-establish care, 34 of 130 (29%) patients were scheduled for but did not keep the new appointment, and 4 of 130 (3%) patients cancelled their new appointment. These patients had a total of 185 chronic medical conditions (Table 1). They missed a total of 106 screening opportunities including mammogram (24), Pap smear (60) and colon cancer screening (22). A total of

Table 1. Chronic Medical Conditions of Patients Lost to Follow-up

Medical Condition	Number of Patients
Diabetes	36
Hypertension	35
Depression	31
Hyperlipidemia	22
Asthma/COPD	19
Malignancy	12
Coronary Artery Disease	10
Hypothyroidism	7
Kidney disease	7
Liver disease	5
HIV	1

32 abnormal pathology, imaging and laboratory test results were not followed-up as the graduating senior intended. Eight of these abnormal tests were imaging studies of which 6 were incidental findings. Imaging studies included one patient each with a pulmonary nodule, an ovarian cyst, thickened endometrium, complex renal cysts, white matter lesions on MRI, a head CT showing subdural hematoma, and osteoporosis on DEXA scan. Pathology results not followed up included absent endocervical cells on pap smear and colonic polyps. Laboratory tests that were not followed up as intended included CBC, hemoglobin A1c, glucose, cholesterol, electrolytes, creatinine, liver tests, TSH and urinalyses.

We asked the reviewing resident whether appropriate measures were taken during transition of care to arrange for individual patient follow up. Of 139 responses, 67 (48%) agreed, 51 (37%) were neutral, and 21 (15%) disagreed that appropriate measures had been taken.

In phase two of our project, residents attempted to contact the 130 nonreturning patients, calling the patient up to three times if unable to reach at the first call. Only 26 of 130 (18%) patients were reached and completed the survey questions. Ten phone numbers were incorrect or disconnected, and 29 patients were contacted three times but did not respond. For the remaining patients called, the inability to reach the patient was not specified. Of the 26 patients who were reached, 12 (46%) had a new PCP in a different system, five (19%) did not know that their resident physician graduated, 12 (47%) did not remember receiving a letter stating that their resident had left the practice, and 12 (47%) were unaware a new doctor was assigned to them. The main barriers to follow-up included a lack of knowledge about the need to see a physician (5 of 26 or 19%), distance between home and our office (4 of 26 or 15%), difficulties with insurance (4 of 26 or 15%), and transportation

Table 2. Phone Survey Results

Reasons patients did not return for care	Number of Patients (N=26) *
Did not feel they needed to see a physician	5
Insurance problems	4
Cared for by a subspecialist	4
Transportation problems	4
Moved away	4
Non-English speaking	2
Dissatisfied with their care	2
Deceased	1

* Twenty-six patients were contacted, out of 130 patients in original sample

(4 of 26 or 15%) (Table 2). As a result of these phone calls, six patients made appointments to return to the practice and three kept those appointments.

DISCUSSION

Despite our efforts to facilitate transitions of care, 43% of our highest risk patients have lapsed from care with important delays in follow-up of abnormal test results, recommended cancer screening, and chronic disease management. This study suggests that patient handoffs between primary care providers are high risk and begins to identify barriers to follow-up. Although we do not have data to support this, we believe that one of the main barriers to follow-up was our inability to schedule a new appointment with an incoming intern during the last visit with the graduating resident. Our incoming intern and continuing resident schedules are complicated and in 2008 were only available for appointment booking in the month of June usually after the last appointment with a graduating resident. Despite the letters informing patients of the departure of their current doctor, many did not know their current doctor left the practice. Our process for resident panel transition begins in January of a resident's senior year; we hypothesize that many patients were not seen during the time period when the graduating resident was preparing to leave. Our residents also felt that in 15% of cases, their former colleague had not taken sufficient measures to facilitate patient followup.

These data informed our decision to change the panel transfer process in our residency practice in an effort to improve the transition of care for our most vulnerable patients. Our intervention was multifaceted. After the panel transfer meeting in January 2010, residents were asked to send letters to their high-risk patients requesting they come in for a visit in order to say goodbye to their patients and follow-up on any outstanding issues. In addition, all graduating residents are now required to write transfer of care notes for their complex patients as a graduation requirement. We classify patients as "complex" if they have a pending test to be reviewed or acted upon after the resident's graduation, if they are actively undergoing an evaluation of a new problem, or if they have a chronic medical condition that requires follow-up within a year such as hypertension or diabetes. The transfer of care note contains information regarding tests to be reviewed or ordered, an active problem list with comments on past and potential future care plans, and a health care maintenance list with due dates for colon, cervical and breast cancer screening. These notes have been given to both the incoming intern and to the outgoing resident's preceptor to ensure adequate follow-up of ongoing medical issues. These notes are also part of the patient's medical record in case the patient establishes care with a physician in our practice to whom they weren't originally assigned. In addition, incoming intern clinics were entered into our scheduling system as early as possible after the residency match. This was done to ensure an appointment was scheduled with the appropriate incoming intern. Prior to this year, patients were instructed to call the clinic after July 1st in order to make an appointment with the new intern and they were often scheduled with any available intern and not

necessarily the one to whom they were assigned. We also had a new verbal sign-out event and invited outgoing seniors to intern orientation in order to review written sign outs of the senior's most complex patients. The goal of our intervention is both to improve the sign-out process and to make sure new appointments are scheduled with the intern who received a detailed sign-out in order to facilitate a smooth transition of care for these high priority patients.

Our study has several limitations. The sample size was small. We do not have comparison data for patients who were lost to follow-up while their resident (or faculty PCP) was still practicing in our clinic; we worry less about these patients as providers still in our health care system can use our electronic record to review their patient panels including "to do" lists and diabetes registries. We do not set explicit criteria for designation of patients as high priority for follow-up; since we limited our review only to high priority patients we likely missed important consequences of lapsed care in patients whose residents failed to note them as high priority and in healthier patients. We do not know whether the imaging results that were not followed up were largely incidentalomas that would ultimately have been found to be of no concern. We did not set explicit intervals for missed Pap smears (i.e. annual vs. up to every 3 years) and mammograms so residents may have used different intervals in denoting delaying screening. Since the patients in this sample had a mean age of 40 and this study was done prior to new mammography screening recommendations, the number of missed mammograms would be controversial. We did not examine panels of departed faculty to see whether this problem is specific to resident continuity practices. The response rate to our phone survey on barriers to care was very low and should not be viewed as comprehensive nor quantitative.

CONCLUSIONS

Although our methodology does not allow us to quantitate the absolute risk to patients when their resident physicians graduate, these results suggest that abnormal results are lost to follow-up and that lapses in chronic disease management and preventive care occur. We believe that resident patients are at particularly high risk given the annual nature of handoffs and the lower educational and socioeconomic level of patients seen nationally in resident practices.⁸ In the future, we intend to study whether our new panel transfer interventions will increase the number of patients who return for care and whether there is a reduction in the number of items that are lost to follow-up as a result.

Acknowledgments: We thank the medical residents at Beth Israel Deaconess Medical Center for performing the chart review and patient surveys and for the outstanding care they provide to their patients. We received no funding for the design implementation, interpretation or publication of this study. This work was presented at the Society of General Internal Medicine national meeting in Minneapolis, Minnesota in 2010.

Conflicts of Interest: None disclosed.

Corresponding Author: Carol K. Bates, MD; Division of General Medicine and Primary Care, Beth Israel Deaconess Medical Center, Healthcare Associates, Suite 607, 330 Brookline Avenue, Boston, MA, USA (e-mail: cbates@bidmc.harvard.edu).

REFERENCES

1. **Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW.** Deficits in Communication and Information Transfer Between Hospital-Based and Primary Care Physicians. *JAMA*. 2007;297:831-841.
2. **Arora V, Lavinger D, Humphrey HJ, Meltzer DO.** Communication failures in patient sign-out and suggestions for improvement: a critical incident analysis. *Qual Saf Health Care*. 2005;14:401-407.
3. **Vidyarthi AR, Arora V, Schnipper JL, Wall SD, Wachter RM.** Managing Discontinuity in Academic Medical Centers: Strategies for a Safe and Effective Resident Sign-Out. *Journal of Hospital Medicine*. 2006;1:257-266.
4. **Horwitz LI, Moin T, Krumholz HM, et al.** What are covering doctors told about their patients? Analysis of sign-out among internal medicine house staff. *Qual Saf Health Care* 2009;18:248-55.
5. **Chang VY, Arora VM, Lev-Ari S, et al.** Interns overestimate the effectiveness of their hand-off communication. *Pediatrics* 2010;125(3):491-6.
6. **Young JG, Wachter RM.** Academic Year-End Transfers of Outpatients From Outgoing to Incoming Residents: An Unaddressed Patient Safety Issue. *JAMA*. 2009;302:1327-1329.
7. **Salsberg E, Rockey RH, Rivers KL, Brotherton SE, Jackson GR.** US Residency Training Before and After the 1997 Balanced Budget Act. *JAMA*. 2008;300: 1174-1180.
8. **Nadkarni M, Reddy S, Bates CK, et al.** Ambulatory-based education in internal medicine: Current organization and implications for transformation. Results of a national survey of resident continuity clinic directors. *JGIM* 2011;26:16-20.