Pre-precepting Residents on Matters of Importance for Today – The PROMPT Study

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Abstract:

Context: Achieving the goals proposed in national screening guidelines for colon cancer is difficult, especially in a primary care residency. The major vehicle for teaching outpatient medicine is the precepting process. Preceptors use their influence to teach guideline principles. Unfortunately, most precepting occurs after the visit and lost opportunities occur frequently.

Objective: To test whether having preceptors discuss screening guidelines with residents prior to patient encounters (pre-precepting) could improve adherence to colon cancer prevention guidelines.

Design: Intervention trial: An historical control group of 100 randomly chosen patient charts were studied to see if United States Preventative Services Task Force (USPSTF) guidelines for colon cancer screening were achieved. Faculty then pre-precepted 100 randomly chosen eligible patients with residents. Discussion with the patient and/or orders for screening tests were calculated from the residents’ notes. A survey of all participants was also done to gauge acceptance.

Setting: A community health center for the medically underserved with approximately 13,000 patients. We limited our intervention to active patients over the age of 50.

Intervention: Preceptors selected eligible patients from resident appointment lists. USPSTF colon cancer screening guidelines were discussed prior to resident-patient encounters.

Outcome Measures: A review of the pre-precepted charts determined the documented rate of discussion and/or screening. A satisfaction survey of residents and faculty was used to determine acceptance.

Results: A statistically significant improvement was noted in the pre-precepted group as compared to the historical controls (p<0.05, X^2 testing). Surveys of participants showed they accepted the new intervention.

Conclusions: Screening for colon cancer can be improved by pre-precepting. A pilot study for quality improvement via pre-precepting was well accepted by both faculty and residents. A multi-center blinded trial should be considered to further test this technique.

Keywords: Education, Residency, Family Practice, Precepting, Quality Improvement

In her landmark survey of primary care across the United States, McGlynn found that compliance with accepted clinical guidelines is achieved only 54% of the time.1 Colon cancer screening has been particularly difficult to achieve.2 Primary care residency programs have unique hurdles in guideline implementation due to the presence of physicians-in-training. Patients enrolled in residency program clinics are often more challenging than those seen in private practice, because of their lower socioeconomic status. Socioeconomic barriers can be difficult to overcome in the quest to achieve guideline-mandated care.

Quality improvement activities are often aimed at attempting to improve guideline compliance. Improving care frequently involves a team approach, but is centered on the primary care provider. The provider must wade through many competing demands (in terms of patient’s expectations for the visit as opposed to preventative health care that the provider may want to provide) in an attempt to achieve quality care. Systems around the provider should be designed, according to the principles of reliability science,3 to help the provider achieve the best care for the individual patient, at the right time, and in a cost-effective manner. Not meeting accepted guidelines is a form of error; the process of that error can be analyzed, redesigned, and mitigated.

Physician behavior often needs to be changed to help reduce errors in daily practice. In a recent review, Yen looked at strategies commonly used to influence the behavior of physicians.4 He found that active interventions such as academic detailing, reminders, and clinical decision support systems consistently improve the process of care, whereas passive approaches such as audit and feedback mechanisms are minimally effective. Academic de-
tailing, however, is often limited in use due to expense and personnel considerations. It may, however, be feasible in primary care residency programs since precepting is required for all resident-patient encounters.

Precepting, despite its name, unfortunately most often occurs after the patient encounter is complete and the patient has left the clinic. Valuable opportunities to improve care as suggested by clinical guidelines are lost. A recent article by Lillich, et al., described a pilot intervention in which active precepting solved problems and increased efficiency. They proposed the “POwER” model of prepare, orchestrate, educate and review for their precepting encounter. Their methods included a “huddle” with the preceptor and resident prior to the patient encounter and active coaching of the resident by the preceptor. In a similar vein, this paper introduces the concept of “pre-precepting” residents prior to the patient encounter, and then tests this concept to see if it can increase quality. Our premise is that pre-precepting, as we have defined it, is a form of academic detailing and can also serve to remind physicians-in-training about quality guidelines.

Our residency set up a pilot program to see if we could improve care, as measured by nationally recognized clinical guidelines, by pre-precepting residents prior to patient encounters. We chose colon cancer screening as our test variable. We also surveyed both residents and faculty preceptors to gauge their acceptance of this technique.

Methods

Setting - The Family Health Center is the primary care clinical arm of the Dartmouth Family Practice Residency at Concord Hospital in Concord, New Hampshire. The clinic cares for approximately 13,000 patients, 32% of whom are uninsured. The main clinic is located on the campus of the Concord Hospital; a smaller satellite clinic in Hillsborough, NH is a short drive away. Both sites serve as a home clinical base to our 8-8-8 Family Practice Residency. Our faculty consists of 13 Family Physicians, 4 Pediatricians, 2 OB-GYNs and one Internist. In addition, a number of Family Physicians in private practice serve as part-time preceptors. All preceptors were board certified in their specialty and ranged in age from 30 to 62. All clinical providers who have a role in training residents participated in the study between November 2003 and May 2004. The Concord Hospital Internal Review Board approved the study prior to its inception.

Control Group - An historic control group of 100 patients was randomly chosen by picking the first four eligible patients from each letter of the alphabet (except
Eligible patients were those who had been seen within the previous year and were over the age of 50. Either residents or attendings in their prior encounters saw these patients. The USPSTF guidelines for colon cancer were used as our standard reference for achieving quality. Charts were reviewed to determine a pre-intervention rate of meeting colon cancer guidelines.

**Intervention** - All faculty attended a training session on pre-precepting. We asked each preceptor to scan the residents’ appointment lists at the beginning of each clinical session. The preceptors were asked to identify two or three patients over the age of 50 and to engage the resident in a conversation about colon cancer screening. They then asked the resident to consider addressing this issue with the chosen patients. The intervention was not limited to health maintenance exams. The faculty member then precepted the resident in the usual manner at the end of the encounter.

The clinic uses the Centricity (formerly Logician) electronic medical record (version 5.6). At the end of the standard required precepting note we added an electronic check box to record which patients had been pre-precepted. We did not limit pre-precepting to colon cancer screening alone, but for the purposes of this report we analyzed only those charts where the topic of colon cancer screening was checked (see Figure 1 for a copy of a screen shot of part of the precepting note).

**Data Analysis** - At the end of the study period, we analyzed the pre-precepted encounters for colon cancer screening. We counted as positive those charts where the resident documented either a discussion of colon cancer screening and/or entered electronic orders to fulfill that screening. Statistical analysis was done by X² testing. Finally, both the residents and the precepting faculty completed anonymous surveys about pre-precepting.

**Results**

Table 1 summarizes our two populations of interest. Forty-two percent of the historic controls had been adequately screened for colon cancer, or had discussed the need for screening. After the implementation of pre-precepting, 57% of encounters fulfilled the screening requirements. This increase was statistically significant by X² testing (P< 0.05).

Eighteen of 24 residents (75%) completed surveys on pre-precepting; 100% agreed that preventative health guidelines are an important part of primary care. Seventy-two percent of the residents were aware of the faculty effort to carry out pre-precepting and 88% acknowledged having been pre-precepted. Of those who were pre-precepted, 100% found it useful. Seventy-five percent of the residents felt they could carry out the suggested screening guidelines “most of the time.”

Twenty-four of 26 preceptors (92%) completed the faculty survey. All who returned the survey had tried pre-precepting. Seventy-one percent felt that pre-precepting reduced the time required to precept the encounter after the fact. Seventy-nine percent of the faculty thought that the residents carried out the suggested screening guidelines “most of the time.” The faculty thought the residents were receptive to pre-precepting “all of the time” (25%) or “most of the time” (58%). Although a majority of faculty thought that pre-precepting added 3-4 minutes to their time with the residents prior to the encounter, they also thought they saved 1-2 minutes after the encounter was complete. Figure 2 gives the principle reasons that the survey respondents listed as to why they thought the screening did not actually occur.

**Discussion**

This study was designed to test pre-precepting as a way to improve colon cancer screening. Pre-precepting is an amalgam of academic detailing and a reminder that attempts to improve the quality of care provided by residents. Our analysis showed a statistically significant increase in either discussion and/or orders to achieve colon cancer screening. Surveys of our participants demonstrated that this technique was acceptable and doable within the constraints of a busy residency program.
The Institute of Medicine’s report, *Crossing the Quality Chasm*, had six aims for improvement of our health care system: 1. Safety 2. Effectiveness 3. Patient Centered 4. Timely 5. Efficient and 6. Equitable. This study attempted to address factors related to effectiveness, timeliness and efficiency in carrying out a challenging evidence based guideline.

Why did we not achieve better results? Forty-three percent of encounters did not show improvement. In comments received with the survey, some residents cited difficulty in bringing up the topic of colon cancer screening in the context of a visit for other acute issues. Attending physicians cited the same issue in personal discussions. Time pressure in short office visits precluded some discussions. Undocumented discussions may have occurred. The tension between meeting the needs of the patient and the need for primary care providers to fulfill their list of screening requirements was real and often was resolved in favor of the patient’s immediate goals. Some residents commented on their surveys that although they may not have addressed the topic of colon cancer screening during the visit associated with the pre-precepting, they did follow up later during subsequent health maintenance exams to carry out the guidelines. These efforts would not have shown up in our analysis as we only considered the immediate visit in our study. Although pre-precepting by its very nature is a reminder, residents admitted they still forgot to follow through on the issues discussed. Reliability science principles suggest that building further redundancies, perhaps computer or nursing based, into our system could prevent this. Colon cancer screening is an uncomfortable topic for many patients, and perhaps for some doctors. Discomfort, inconvenience and cost require education on many levels.

Simply discussing colon cancer screening with a patient does not necessarily fulfill the screening guideline. Initiating the discussion, however, is a necessary first step towards better care. Studying the charts of our controls revealed a lack of any discussions surrounding this issue across multiple visits over time. Prochaska and DiClemente have outlined a stage of change model that argues that people will be in various stages of readiness to actually accomplish a goal. Here, there are two groups that need to examine their stage of change: patients and physicians. For many patients, simple education about established recommendations may suffice. For others, resistance to change requires various techniques of persuasion based upon their state of readiness. Physicians agree with stated recommendations but then incompletely fulfill them for a variety of reasons. Changing physician behavior is often a great challenge for quality improvement proponents. Our systems must be designed to help nudge both groups along. Facilitating a discussion on this topic is a critical first step for both groups.

We did not attempt to limit our intervention to patients having full physical exams because a significant fraction of our patients rarely or never have yearly physicals. We wanted to test this intervention within the context of usual care.

Preceptors took the opportunity to pre-precept on topics other than colon cancer screening. At the time of this study other separate ongoing quality improvement initiatives also utilized pre-precepting including diabetes...
care, asthma, immunizations and mammograms, and we did not report on them here. No other clinic wide effort to improve the quality of colon cancer screening rates occurred contemporaneously with this study, however.

One barrier cited in the comments portion of both surveys was timely arrival to clinic. This intervention required a huddle between preceptor and resident prior to the initiation of patient care. If either party was late, pre-precepting did not occur.

In our survey of study participants we found that pre-precepting did require time for both parties. Preceptors, however, estimated that they were almost able to make up this time in their post-visit precepting. Instituting this change in our practice and educational program did not require grant money or incur costs other than the time required to introduce the topic at a preceptor-training seminar.

While we did use an electronic medical record to help facilitate the documentation in our study, this improvement effort did not depend upon a computerized medical record. As such, it could be instituted in residencies with paper charts.

**Limitations**

Several limitations could be cited for this paper. This study used historical controls that might be dissimilar enough from our intervention cohort to account for the differences obtained. For instance, the historic controls also included nursing home patients that would not have shown up for an office-based intervention. As our intervention was limited to office encounters, nursing home patients could not benefit. Historical controls are often used in quality improvement efforts where separating out two groups in a system of care is impractical. As this was a limited pilot study, further evaluation will be needed to confirm this suggested outcome.

Neither the study participants nor the providers were blinded. There may have been a selection bias by preceptors or residents to pick patients that they thought would respond to the intervention. Our clinic is large enough, however, that many of our patients are not well known by any particular preceptor and so this is less likely. The Hawthorne effect of improving an outcome just by examining it, could have led to part of the improvement.

While we had a good return rate for our surveys, the numbers were not large enough to do any statistical analysis and so only overall trends are reported. Our sample size did not allow us to draw any meaningful conclusions as to whether the intervention was more successful by a particular visit type or if pre-precepting on more than one issue interfered with our goal of increasing colon cancer screening rates.

Our intervention lasted approximately 6 months and in that time we did not encounter a “tailing-off” effect from repetition. This conceivably could happen over a longer period of time and might be countered by rotating topics for pre-precepting monthly through the year.

The chi squared test used in our statistical analysis makes the assumption that each observation point is a dichotomous random variable. Some of the data collected occurred through multiple encounters by either the same preceptor or resident so could not be truly considered independent. Caution should therefore be used in interpreting the results of this statistical test. A rigorous test of this idea would require a multicenter-blinded trial with concurrent controls to confirm our findings.

**Conclusions**

Residency programs present challenges to the fulfillment of evidence-based guidelines. This paper introduces and presents evidence of an improvement strategy we have termed pre-precepting (or PROMPTing) that improves the rate of compliance with the quality guideline of colon cancer screening. PROMPTing combines the ideas of timely reminders with academic detailing in a cost effective and acceptable way to achieve its goal. It need not be restricted to one guideline, however, but could be used in a broad effort to improve quality. It adds to the armamentarium of tools that physicians can use to implement the principles of reliability science. PROMPTing has become an important teaching tool for our residents’ education. Further study of this idea on a more longitudinal basis over multiple sites might potentially show further improvement as this embeds itself into our educational culture.

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