Contemporary Teaching Strategies of Exemplary Community Preceptors—Is Technology Helping?

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BACKGROUND AND OBJECTIVES: Many schools rely upon community preceptors for office-based education of medical students. These preceptors struggle to balance clinical care with the learning needs of students. We aim to gain a deeper understanding of the teaching rewards and challenges of current community preceptors.

METHODS: Five schools’ family medicine clerkship directors conducted in-depth interviews of two exemplary preceptors at each of their programs. Following qualitative analysis of the interviews, three directors conducted one focus group at their school. The individual and group interviews were recorded, transcribed, and analyzed using grounded theory.

RESULTS: Exemplary community preceptors described strategies to improve the learning environment and specific teaching approaches. Well-known teaching strategies such as role modeling, adjusting instruction to the learner’s needs, and selecting patients appropriate for a specific student were used. They also described newer techniques such as co-learning and integrating technology, for example, accessing online, current practice guidelines together with the student. They detailed challenges to teaching, including time constraints and too much content to cover and provided advice about teaching tools.

CONCLUSIONS: While challenged by clinical demands, preceptors enjoyed teaching and found it rewarding. They used time-proven teaching strategies as well as technology and online resources to facilitate ambulatory teaching. Community preceptors continue to struggle to integrate learners and the priorities of the medical school curriculum into the clinical environment. Further development of electronic tools and other resources to support the teaching needs of preceptors may contribute to learning and help minimize preceptor burden.

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The past 15 years have witnessed frequent calls and considerable effort to shift the focus of undergraduate medical education to the ambulatory setting. More recently, the Carnegie Foundation report reinforced the need for ambulatory-based education and called for enhanced integration of the basic, social, and clinical sciences into medical students’ clinical experiences.¹ The resultant increase in the reliance upon community-based preceptors in medical education has led to a developing body of research about the barriers, motivations, and facilitators experienced by these educators.²⁻⁵ Yet, significant gaps exist in our understanding of the needs of these valued educators in today’s rapidly changing health care climate.
Research has documented some of the costs and rewards of ambulatory teaching. Hosting medical students often increases the length of the workday and can cost between $100 and $200 per day. The majority of community preceptors continue to teach without compensation, though remuneration may improve the preceptor retention rate. Community preceptors consistently cite intrinsic benefits as motivators for teaching. Giving back to the profession, intellectual stimulation, and enjoyment of teaching remained the top reasons for precepting in a 2011 survey, but having students in the office has a negative influence on patient flow, work hours, and income. In response, medical schools and clerkship directors have used long-used methods to support their community preceptors, including continuing medical education, awards, and access to library resources.

Dramatic changes in health care delivery, medical information, and educational curricula continue to impact and alter ambulatory teaching. As the Affordable Care Act is implemented, more US citizens will gain health insurance and seek medical services, which is likely to further strain the primary care workforce, as was seen in Massachusetts following its own health care reform. The rise of accountable-care organizations and patient-centered medical homes requires community preceptors to transform their practices, develop new skills, and report improved outcomes. The recent increase in the size and number of US allopathic and osteopathic medical schools also places a greater teaching demand on existing or new community preceptor sites. With the integration of the electronic health record (EHR), there are further novel challenges for teaching, such as incorporating student notes in practice and having the EHR fully accessible to students.

Other changes in medical education also create new benefits and challenges for preceptors. Electronic curricular resources have become commonplace in clinical education, and the availability of broadband internet connections has facilitated increased use of video in medical curricula. Of note, networks of virtual patient cases matched to national curricula are used in the majority of US medical schools, and research has demonstrated best practices for their integration into clerkship curricula. Despite these advances, little is known about how community preceptors use or interact with computer-assisted education in their interactions with medical students. Further, it is not yet known how community preceptors respond to calls to integrate basic and clinical science teaching into ambulatory clinical experiences. Such integration may challenge preceptors to reframe their views of their educational roles relative to their local academic medical centers, creating additional stressors. Opportunities may also exist to better support preceptors in their modern-day teaching.

In light of these changes, we wanted to gain a deeper understanding of the rewards and challenges of current medical student teaching and to better understand how technology impacts teaching in the clinical setting. We sought to elicit emerging preceptor strategies for incorporating students and teaching into their office practices and how they incorporate current technology into their teaching. With these aims in mind, we conducted a multi-center, qualitative study of exemplary family medicine community-based preceptors.

**Methods**

The study was designed and implemented by five family medicine clerkship directors and/or directors of medical student education and a research consultant representing six medical schools. We used a qualitative research design involving semi-structured interviews followed by focus groups to check the reliability of findings. Each participating institution’s Committee for the Protection of Human Subjects approved the protocol.

For the semi-structured interviews, 10 exemplary preceptors from five different family medicine clerkships (two from each school) were recruited via an email invitation explaining the study. Preceptors who were chosen: (1) taught family medicine clerkship students in the ambulatory setting, (2) had clinical practice as their primary responsibility (>60% time), (3) had evaluations demonstrating consistently positive interactions with students, and (4) represented a breadth of teaching experience (ie, both newer and more experienced).

We developed an interview guide that focused on each preceptor’s precepting background, the joys and challenges of precepting, the specific methods and techniques they use when precepting, and ideas about what might improve their precepting. Five trained interviewers (one from each school) conducted detailed interviews over the phone or in person. All interviews were audio-recorded and transcribed. For their participation, participants were provided either a $35 gift card or lunch and a $20 gift card.

Focus group participants were recruited at three schools using the same eligibility criteria as established for the semi-structured interviews. With the exception of one subject, preceptors who participated in the semi-structured interviews were not included in the focus groups. A focus group guide was developed to: (1) review the major themes and examples from the semi-structured interviews for additional comments and (2) address specific questions ensuing from the semi-structured interview findings. Attendees were provided a gift card and a meal totaling up to $70 per person (ie, a $20 meal and $50 gift certificate).

**Data Analysis**

After removing identifying information, all data were entered into a qualitative data analysis program.
(Dedoose, SocioCultural Research Consultants, LLC). Starting with one of the semi-structured interviews, one author (KES) developed a preliminary coding book based on grounded theory technique, which involves identifying codes within the text and performing ongoing comparative analysis of the data to identify new or revised codes. A second author (SMS) independently tested the coding book by coding a second interview. KES and SMS then jointly reviewed the coding and made additions and modifications to finalize the coding book. All interviews were then coded by SMS and a third author (SLL), with a final review by KES to ensure coding consistency. Grouping of the codes into overall themes was completed by SMS with review and consensus by the other two coders.

In the focus group data analysis, KES used the semi-structured interview code book to code one of the focus groups. The coding was independently reviewed by SMS to ensure accurate application of codes. SMS and SLL then each independently coded the remaining two focus groups (one focus group by each), with final review by KES to ensure coding consistency.

Results
Of the 29 participants (10 in the semi-structured interviews and 19 in the focus groups), 47% were male and 53% were female. The average age was 45.6 years, with an age range of 31 to 66. These preceptors have taught medical students for an average of 10.6 years, with a range of 1 year to 32 years.

We identified 35 codes related to challenges, strategies, and motivations for effective teaching in the 10 1:1 interviews and the three subsequent focus groups. The codes were then collapsed into five overall themes, which are presented in Table 1, along with the most common subtexts of each theme (n ≥ 10, or the top two to three subtexts within a theme). The primary themes included strategies to maximize the learning environment and specific teaching strategies.

When examining subtexts of the learning environment theme, all preceptors in the 1:1 interviews as well as all three focus groups discussed making time for the student. In addition, most preceptors (nine of 10) discussed how students are assigned patients and how they attend to the learner level. The majority of preceptors also discussed methods of teaching in the patient room (six of 10) and teaching out of the room between patients (seven of 10).

With regard to teaching strategies, the majority of preceptors discussed asking the student specific questions (six of 10), sharing essential knowledge or “must-know” topics (seven of 10), giving the student specific assignments (eight of 10), observing and giving the learner feedback (six of 10), use of co-learning (ie, learning something along with the student) (six of 10), general didactic teaching (six of 10), modeling or demonstrating a specific skill (five of 10), and dividing information or a skill into specific chunks or steps (six of 10).

Most preceptors discussed challenges to precepting (eight of 10), which included not having enough time to teach, the changing nature of practice that limits opportunities for teaching students, and having too much content to cover. Of note, some preceptors suggested that the medical school should teach the factual medical knowledge and that preceptors are better suited to assist students with synthesis, integration, and professional role formation. One analogy they gave was that the medical school knowledge and clinical skills are “trees” that are better taught by the medical school, and the community preceptors are in the position to help students to “see the forest” or the real-world practice of medicine. Interestingly, more preceptors commented on the reality of our changing mode of practice that it is very difficult to feel like you’re imparting any knowledge other than showing them by example. Many shared examples of non-monetary rewards they experience while precepting (six of 10). These included enthusiasm of and appreciation from learners, help with patient flow and information-gathering, and enhancing their own and their institution’s reputation. All of the themes were also present in at least one of the focus groups, with many themes discussed in all three of the focus groups (including making time for the student, co-learning, in-room teaching, questioning the student, modeling, giving student assignments, using electronic tools, and precepting challenges).

Discussion
Our exemplary community preceptors, while making use of time-proven teaching strategies, are facing new challenges and using approaches unique to contemporary preceptors. Among the most common themes were teaching strategies...
that have long been demonstrated to be effective: making time for the student, teaching to the student’s level, directly observing students, and selecting particular patients appropriate to the student’s learning. Despite changes to the medical education environment, such strategies persist in their relevance and importance. Yet, more striking was our preceptors’ use of novel strategies in the face of new challenges. The use of technology and the subsequent opportunities for co-learning stand prominently among these.
Use of Technology
Among these exemplary preceptors, technology has become an important resource for education. For example, preceptors noted that students search online resources and look up information in the exam room at the point of care: “You can check that on your own gadget that you have in your pocket.” Many of the exemplary preceptors in this study appeared to be able to take advantage of these skills both for clinical care and for teaching.

Co-Learning
Searching for answers to clinical questions and applying evidence at the point of care are important emerging learning and role modeling experiences. Preceptors described assigning learners to study online resources or web-based learning...
modules to acquire medical knowledge outside of the clinical time, followed by discussion afterward. In this way, opportunities may exist to use face time with the student for focusing on synthesis of knowledge, critical thinking, and the nuances of treating complicated patients. Prior studies have indicated that community preceptors see and value improvements in their own medical knowledge through teaching. In these studies, however, the process by which community preceptors learn through teaching has not been elucidated. Our exemplary preceptors frequently described engaging in active learning with the student. For example, one preceptor commented:

...it is helpful for both of us to learn, and I do a lot of looking up stuff on a day to day basis, and when I have students here, I look things up with them.

This type of co-learning has not been previously well-detailed in ambulatory education. This strategy, facilitated by the availability of point-of-care clinical resources, provides a critical opportunity for preceptors to enhance their own knowledge and to model valuable professional behaviors. Strategies and tools to facilitate and standardize this process deserve future attention.

**Emerging Threats and New Challenges**

In addition to providing resources, technology can present challenges for teaching. Although the electronic health record (EHR) may improve care by allowing timely access to structured patient information, participants shared that the EHR poses a barrier for clinical teaching. Further research would help us to understand these tensions brought about by technology, tensions which represent a significant threat to clinical teaching.

**Shared Teaching: Partnership Between Preceptors and Medical Schools**

Some preceptors expressed concern about expectations that they should be teaching what they viewed as core material. Such teaching, which the Carnegie Foundation report envisions being integrated in the clinical setting, may be beyond the scope of what community preceptors currently are able to achieve given their clinical demands. Further, our preceptors felt that such teaching does not make use of what they view to be their strengths, which are highlighted by clinical experience and wisdom. The availability (to both the student and the teacher) of virtual patient cases and other forms of technology-assisted learning may provide an opportunity to connect community preceptors to their academic institutions while minimizing the perceived burden of addressing a crowded and changing medical curriculum in the context of evolving clinical practice demands. Web-based modules can offer students more convenient learning with flexible access, which is especially relevant at frequently dispersed and distant community-based placements. These features may assist preceptors in being able to focus on other areas of teaching in the clinical setting, and preceptors expressed interest in more effective mobile tools that would provide them access to the technology-assisted curricula currently assigned to their students.

Despite the promise of new tools, it is not yet clear how these growing resources can be effectively integrated to support preceptor teaching with all of its attendant demands. Principles of good, learner-centered teaching (which requires time, attention to the learner level, and direct observation) are endorsed by contemporary preceptors and are not likely to change. To retain and enhance the valuable resource of community preceptor teaching, we need to better understand and support community-based preceptors’ needs as teachers. Further studies could assess both the structures needed to facilitate effective preceptor engagement with learners as well as the design, development, and validation of tools that could facilitate teaching and learning in practice.

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**References**


