Strategies for Efficient and Effective Teaching in the Ambulatory Care Setting

Gary Ferenchick, MD, Deborah Simpson, PhD, James Blackman, MD, Debra DaRosa, PhD, and Gary Dunnington, MD

Abstract: Medical education in the ambulatory care setting is characterized in part by the question of how to ensure educational effectiveness while simultaneously providing high-quality, cost-effective patient care. The constraints associated with managed care have only served to escalate the intensity of this dilemma. However, in spite of the difficulties faced by ambulatory care preceptors, there are educationally sound and time-efficient strategies clinical teachers may employ to improve ambulatory care education. Emphasizing the basic three-step process of planning, teaching, and reflection, the authors describe five such strategies: "wave" scheduling, orienting learners to patients, having learners do their case presentations in the examination room, employing the microskills of the "one-minute preceptor," and effectively reflecting on one's teaching in order to develop effective teaching scripts. Research in ambulatory care learning has indicated that learners must be given significant roles in patient care and that preceptors must observe trainees as they care for patients so that they can provide trainees with helpful feedback. Employing these strategies in the ambulatory care setting will help educators to accomplish these two objectives while minimizing disruption to cost-effective, high-quality clinical practice. *Acad. Med.* 1997;72:277–280.

You have been a primary care physician in a small group practice since completing your residency. You and your colleagues have occasionally had medical students and residents rotate through your clinic. Last year, your practice affiliated with a large managed care group. In the mail this morning, you have received two letters. The first letter is from the associate dean for medical education at the local medical school. It begins, "Stemming from the changes in the delivery of health care, our curriculum committee has recently approved a proposal to increase the amount of clinical education students receive in ambulatory care settings." As the letter continues, it is clear that you are being asked to regularly serve as a clinical preceptor for third-year students.

The second letter is from the director for clinical affairs and contains your quarterly clinical productivity record. While you are at the mean for your specialty, all physicians in the plan are being asked to increase their clinical revenues by 10% in the next six months.

Welcome to medical education in the ambulatory care setting, which is characterized in part by the question of how to ensure educational effectiveness while simultaneously providing high-quality, cost-effective patient care. The constraints associated with managed care have only served to escalate the intensity of this dilemma. Irby's recent review of teaching in the ambulatory care setting, which included studies conducted before clinicians had begun to feel pressure from the health care marketplace, revealed that learners were already receiving very limited supervision, little to no feedback about their clinical skills, and virtually no op-

portunity for reflection.[1] In spite of these shortcomings, the momentum to provide ambulatory care education to trainees at all levels continues to increase.

In order to address the central question of whether preceptors can simultaneously provide effective educational experiences and ensure clinical effectiveness, we must reexamine how learners and preceptors interact during scheduled patient visits and identify strategies for providing educational opportunities for learners independent of preceptors and patients. Strategies for enhancing ambulatory care education outside the preceptors' scheduled patient time will be described in a companion article by DaRosa et al., which will be published in the next Ideas column; in this article, we focus on how preceptors may teach most effectively in the context of providing direct patient care. Borrowing from Shulman's three-step teaching model,[2] we have clustered the strategies under three progressive headings: *planning* for the learner's interaction with a patient, *teaching* with the patient, and *reflecting* on teaching.

PLANNING FOR THE LEARNER'S INTERACTION WITH THE PATIENT

Scheduling Patients and Learner

Providing the learner with opportunities for authentic patient contact, maximizing preceptor supervision and

feedback, and maintaining clinic efficiency can be facilitated through several forms of creative patient scheduling. "Wave" scheduling, for example, builds in preceptor teaching time without decreasing the volume of patients seen in a day, because two patients are seen simultaneously in every third time slot (List 1). For example, in one slot, the trainee sees patient 1 while the preceptor sees patient 2. In the next slot, after the preceptor has finished with patient 2, the preceptor meets with the trainee and patient 1 to discuss and teach around the case.

The optimal number and type of trainee–patient encounters per clinic will vary with the level of the trainee and the goals of the rotation. In light of the research stemming from both cognitive and experiential learning theories, novice trainees should be scheduled with patients who have good communication skills and prototypic presentations of common illnesses in order that instruction and learning may move in a sequence from simple to complex patient interactions and so that trainees can develop accurate knowledge representations of diseases. More senior trainees can be assigned a randomly selected panel of patients with conditions of varying complexity and undifferentiated clinical problems, enabling them to learn and practice in an environment that closely mimics the realities of clinical practice.

Orienting the Learner to the Patient

Orienting the trainee to the training site is a well-recognized strategy for creating a positive learning climate and communicating global expectations, and is consistent with Smith et al.'s discussion of experiential learning.[3] But how does one overcome the novice trainee's inefficiency in collecting clinical data?

List 1

Model "Wave" Schedule for Ambulatory Care Teaching Sites

8:00 AM to 8:20 AM
   Student sees patient 1, while preceptor sees patient 2.

8:20 AM to 8:40 AM
   Patient 1 seen by student and preceptor together.

8:40 AM to 9:00 AM
   Student charts on patient 1, while preceptor sees patient 3.

9:00 AM to 9:20 AM
   Student sees patient 4, while preceptor sees patient 5.

9:20 AM to 9:40 AM
   Patient 4 seen by student and preceptor together.

[Wave-scheduling pattern would be continued throughout the day.]

Orienting the learner to each patient encounter is a less obvious but equally efficient strategy for creating a supportive learning environment while decreasing disruption to the clinic flow. After the trainee reviews the patient's chart and the purpose of the patient's visit, the preceptor can provide a one-minute, patient-specific orientation. This will give the learner a conceptual framework that will help him or her to efficiently interpret the patient's new symptoms. In orienting the trainee to a patient, the preceptor should (1) review the patient's medical background; (2) tell the trainee what complaint to focus on; (3) set guidelines for the physical examination; and (4) set a time limit for the initial encounter. Here is an example of how this might be done:

> Mr. Smith is a 60-year-old man who has been under my care for the past six years and has a history of hypertension and renal stones and is maintained on daily hydrochlorothiazide. He is here today for cough. I'd like you to focus on his chief complaint and perform a focused examination of his head, neck, and cardiopulmonary system. I'll meet you in 15 minutes, at which time I would like you to give me a two-to-three-minute focused presentation of your findings.

During each patient-specific orientation, the preceptor should alert the learner that any potentially anxiety-provoking conditions, sensitive points in the patient's medical history, or tentative diagnoses that may be premature to discuss in front of the patient (e.g., the possibility of a serious illness such as cancer or AIDS) that are considered by the trainee after examining the patient should be discussed with the preceptor outside the examination room.

TEACHING WITH THE PATIENT

Case Presentations

The case presentation offers preceptors and trainees a key opportunity for teaching and learning.[4] However, trainees often present cases to preceptors outside the examination room, which can both interfere with clinic efficiency and limit educational effectiveness. Hearing a trainee's case presentation in the examination room increases the preceptor's "face time" with the patient, reinforces the trainee's role, and facilitates almost instantaneous feedback from the patient. It also enables the preceptor to immediately ask follow-up questions directed to the trainee or the patient, and/or to directly proceed with his or her examination of the patient. Teaching in the examination room also allows the preceptor to observe the trainee's "real-time" performance and provide immediate feedback. While only limited portions of a trainee's history-taking or physical examination skills can be observed by the preceptor in any single patient encounter, in most primary care settings the preceptor will be able to observe the full range of a

trainee's skills after he or she observes the trainee in several patient encounters. This process will enable the preceptor to give credible feedback to the trainee about his or her clinical competencies. In addition, examination-room teaching allows the preceptor to demonstrate diagnostic reasoning and positive doctor–patient communications, facilitating the trainee's acquisition of good models of professional practice.[5] Specific strategies for teaching in the examination room are described below.

The "One-minute Preceptor"

Neher et al. have described a set of microskills that can help preceptors to organize and focus their teaching.[6] Adapting these microskills—the abilities to quickly assess a trainee's knowledge and diagnostic reasoning skills and to provide focused clinical instruction and feedback—to teaching in the examination room can provide the preceptor with an approach to teaching that is both efficient and educationally sound. In light of the efficiency this approach brings to clinical teaching, it has been dubbed the "one-minute preceptor" model.

After listening to a trainee's case presentation in the examination room, the "one-minute preceptor" will attempt to diagnose the patient's condition while at the same time assessing the trainee's knowledge and clinical reasoning. In the first step of this process, the preceptor will ask the student for his or her diagnosis (e.g., "Given these signs and symptoms, what do you think is going on with this patient?"). Then the preceptor will question the trainee to elicit his or her reasons for arriving at this diagnosis. The questioning could be geared to the learner's level of training; for example, the preceptor might ask a more novice trainee, "As I think about Mr. Smith's chronic cough, I wonder about asthma. Does this fit with what we know about Mr. Smith's signs and symptoms?" The preceptor may move on from here to ask other types of questions that would call for the trainee to synthesize and integrate information: *broadening* questions (e.g., "What are other causes of cough?"), *justifying* questions (e.g., "What is it about this patient that suggests asthma?"), *hypothetical* questions (e.g., "If this patient were known to be HIV-positive, how might this change the nature of the problem?"), and *alternative* questions (e.g., "What might happen if we were to go ahead and treat this patient based on what we know now versus if we chose to get an x-ray before suggesting a course of treatment?").[7]

After first asking the student to commit to a diagnosis and, second, assessing the student's clinical reasoning, the third step the one-minute preceptor will take will be to focus on a single relevant teaching point, which will provide an opportunity for either the trainee (observed by the preceptor) or the preceptor (acting as a role model for the trainee)

to collect additional information as needed.[5] For example, the preceptor may say, "Three important considerations in patients presenting with chronic cough include asthma, which can be present without audible wheezing; gastroesophogeal reflux disease, which is commonly associated with nocturnal coughing; and postnasal drip, which can be suspected on the basis of the patient's medical history and characteristic pharyngeal findings."

The fourth educational task for the one-minute preceptor will be to verbally identify what the student did well. The fifth and final task will be for the preceptor to identify problem areas and suggest steps the student might take to correct them. Typically, both positive and negative feedback should be given outside the examination room. After leaving the patient's room, the preceptor may say something like, "You were accurate in your description of this patient's breath sounds; however, your examination of Mr. Smith's pharynx was cursory, and as a result you missed the characteristic changes associated with postnasal drip. Next time you see a patient with chronic cough, remember to pay particular attention to the pharynx."

If these simple steps are incorporated, teaching in the examination room can be a powerful educational approach and an efficient strategy for addressing the common deficiencies associated with ambulatory care education (lack of feedback, supervision, and role modeling). The process will also increase the amount of time preceptors spend with patients. The trainee–patient–preceptor teaching and learning triad facilitates almost instantaneous feedback from the patient to the learner while allowing the preceptor to verify the learner's clinical findings. Further, the five steps outlined above provide preceptors with a systematic approach to assessing trainees' knowledge and clinical reasoning skills, focusing on a single teaching point, and providing immediate feedback.

REFLECTING ON TEACHING

Expert clinical teachers are excellent clinicians who have developed teaching scripts that are linked to learner level, clinical setting, and patient problems/diseases.[4] Clinical scripts enable physicians to generate correct diagnoses early in patient encounters; clinical teaching scripts can similarly be used to enable clinical teachers to improve their abilities to assess trainees' knowledge and clinical reasoning. Embedded within each teaching script is an array of information that can improve the efficiency of clinical teaching. For example, a teaching script for chronic cough would include the critical teaching points specific to that problem, errors that trainees commonly make in diagnosing and assessing chronic cough, and relevant teaching strategies.

Clinical teaching scripts do not just happen; the expert

teacher develops and continually adapts them based on his or her experiences with teaching, feedback on teaching effectiveness, readings, discussions with colleagues, and other activities. The common and most useful component of all of these activities is reflection. In order to build one's teaching scripts and gain the associated benefits of greater efficiency and effectiveness, we offer an addition to the set of one-minute preceptor microskills: reflection. At least once a day, preceptors should take one minute to identify a teaching approach that. was effective or ineffective and ask themselves two questions about it. First, why was the approach effective or ineffective? In considering this question, preceptors might focus on one of the microskills' areas (assessment, focusing on a teaching point, feedback), thinking about how the particular microskill enhanced, or could have enhanced, the development of the teaching script in question. Second, what if anything would you do differently next time, and why?

While self-analysis of a single teaching encounter may have limited usefulness, the importance of this kind of reflection cannot be underestimated. Expert teachers critically analyze their teaching, thereby enhancing the utility of their teaching scripts. With time, such analysis of many teaching encounters facilitates more efficient and effective clinical teaching.

CONCLUSION

The acts of planning, teaching, and reflection are artificially separated in this article for emphasis. However, as Irby has written, reflection flows into planning, which in turn shapes the next teaching encounter.[4] The challenge faced by teachers in ambulatory care settings is to incorporate these three interrelated steps into the clinical teaching process. Key findings from learning theories and associated research have shown that students in ambulatory care settings need to have real roles in caring for patients and need to be regularly observed by preceptors in their interactions with patients.

Preceptors, then, must find a way to observe and effectively teach trainees while at the same time providing high-quality, cost-effective care for patients. We believe the template we have described, which emphasizes creative scheduling, orienting learners to each patient encounter, teaching in the examination room, and the microskills of the one-minute preceptor, is theoretically sound, does not require significantly more time or effort of preceptors, and addresses many of the problems identified with ambulatory care education.

Dr. Ferenchick is associate professor and vice chair for clinical practice, Department of Internal Medicine, Michigan State University, East Lansing; Dr. Simpson is professor, Department of Family and Community Medicine, and director, Office of Educational Services, Medical College of Wisconsin, Milwaukee; Dr. Blackman is assistant dean for regional affairs and clinical professor of family medicine, University of Washington School of Medicine, WAMI (Idaho) Center for Clinical Medical Education, Boise, Idaho; Dr. DaRosa is professor, Department of Surgery, Northwestern University Medical School, Chicago, Illinois; and Dr. Dunnington is associate professor of surgery, Department of Surgery, and senior associate dean for academic affairs, University of Southern California School of Medicine, Los Angeles.

Address correspondence and requests for reprints to Dr. Ferenchick, B-311 Clinical Center, Michigan State University, East Lansing, MI 48824-1315. e-mail: <ferenchi@pilot.msu.edu>.

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