RESEARCH REPORT

Time-efficient Preceptors in Ambulatory Care Settings

Richard P. Usatine, MD, P. Thomas Tremoulet, and David Irby, PhD

ABSTRACT

Purpose. With increasing amounts of medical education occurring in ambulatory care and managed care settings, time-efficient and educationally effective teaching methods are in high demand. To identify such methods, four exemplary preceptors who taught in a family medicine clerkship in the context of their managed care clinics were observed in two consecutive years. The purpose of this second observational case study was to look at the teaching and practice strategies of these four exemplary preceptors in more detail and to directly measure the use of strategies that have previously been identified.

Method. Observation of 44 patient encounters by four exemplary preceptors in ambulatory managed-care settings.

Results. On average, these preceptors spent one minute per patient more when the student was involved. With students present, the preceptors saved 3.3 minutes per patient in charting time, while spending 2.2 minutes more listening to student presentations and 1.6 minutes more in pure teaching time. The preceptors spent half a minute less time in direct contact with each patient when a student was present. However, the patients received 12.4 additional minutes from the health-care team.

Conclusion. Time savings from student charting may allow preceptors to teach and care for patients without losing valuable practice time.

Acad. Med. 2000;75:639–642.

Preceptors who are able to maintain their clinical productivity while teaching medical students in ambulatory care clinics have much to offer as exemplars of time-efficient instructional practice.[1] Efficient teaching strategies are of critical importance because preceptors are rarely paid for their teaching efforts and demands for clinical productivity are increasing.[2] This is especially true in managed care organizations, where preceptors have high productivity standards and may be unable to cancel patients in order to establish designated time for teaching.

In our first article on exemplary preceptors, we described how they teach medical students in time-efficient ways in ambulatory care clinics associated with managed care. We reported on their teaching methods, time-saving strategies, and impact on learners.[1] Prior research on clinical teaching suggests that many preceptors do not reduce their clinical loads but lengthen their workdays by approximately one hour.[3] A review of the literature on teaching in the ambulatory care setting demonstrated that learners received limited supervision and little or no feedback about their clinical skills.[4]

Several authors have suggested that the best way to improve teaching in the ambulatory care setting is for preceptors to develop a broad repertoire of time-efficient teaching strategies.[4–8] Examples of some of these recommendations include priming or orienting the student before each case,[5,6] having students present the case in the exam room,[7] and using the one-minute preceptor.[8] In our prior study, preceptors reported using several of these strategies.[1] We wondered how frequently these and other teaching methods were actually used.

In our prior study, we did not document the amounts of time the preceptors spent charting with and without students present. The preceptors claimed to save time by having students do most of the charting. We were interested in knowing what impact charting by students had on preceptor time expenditures.

The purpose of this observational case study was to look at the teaching and practice strategies of these four exemplary preceptors in more detail and to directly measure the use of strategies

Dr. Usatine *is associate professor of family medicine and assistant dean of student affairs, University of California, Los Angeles, School of Medicine.* ***Mr. Tremoulet*** *is a fourth-year medical student, UCLA School of Medicine.* ***Dr. Irby*** *is vice dean for education and professor of medicine. University of California, San Francisco.*

Correspondence and requests for reprints should be addressed to Dr. Usatine, 200 UCLA Medical Plaza, Suite 220, Los Angeles, CA 90095-1628; e-mail: ⟨rusatine@ucla.edu⟩.

that were previously identified by self-report only. How often were these self-reported time-efficient teaching strategies actually used? In what ways did these strategies impact the amounts of time the preceptors spent with students and patients?

Method

The subjects of this study and the prior study were chosen from among the best family medicine preceptors who teach in third-year family medicine clerkships at our school. Based on conversations with these preceptors, we selected four experienced preceptors because they claimed to practice more efficiently with students than without them. In addition, all of them had excellent student ratings of their teaching and practiced in large staff-model health maintenance organizations in the Los Angeles and Orange County areas. All four preceptors had many years of teaching experience. In the previous study of these preceptors, the students described these preceptors as enthusiastic teachers and good role models.[1] We analyzed the qualitative data provided by preceptor self-report and developed a new instrument that would allow us to measure these strategies by observational techniques. For example, all four preceptors reported using student charting as a time-saving strategy in the first study. This particular strategy was not measured in our initial time–motion study. An observational study was conducted with the four exemplary preceptors. Two medical student observers used stop watches to time each preceptor on a day when he was working with third-year medical students in an outpatient setting. One encounter was defined as the time spent by preceptor and student working with one patient. Based on the prior self-reports of these preceptors, we designed an observational instrument to document the preceptors' time with students and patients and a second instrument to document preceptor–patient interactions without students present. The instrument included a checklist for teaching strategies used by the preceptor.

Means, standard deviations, and independent-samples t tests were performed using the Statistical Package for the Social Sciences. Significance level was set at $p < .05$.

Results

Over 80% of the preceptors' patients allowed their visits to be observed. This resulted in 44 timed observations of the four preceptors. Three preceptors were observed during July 1997 and the fourth preceptor was observed during January 1998 because of scheduling conflicts in July. Thirty interactions of preceptors and patients included students and 14 did not. These were evenly divided among the four preceptors and occurred on one to two half-days per preceptor.

Results of the observations of preceptor time per patient with and without students present are found in Table 1. Overall, the preceptors spent an average of 16.2 minutes per patient visit with students present and 15.3 minutes without a student present. The time the students spent on the history and physical examination is not included in this total because it did not involve preceptor time. This 0.9-minute-per-patient visit difference was not statistically significant when the means were compared using an independent-samples t test ($p = .2$). Although the following times account for only part of the 0.9 minute difference, it is notable that the preceptors saved 3.3 minutes per patient visit in charting time while spending 2.2

Table 1

Amounts of Time Four Preceptors Spent with Patients When Students Were and Were Not Present, 1997–98*

Timed Event	Preceptor with Student Mean No. of Minutes	Preceptor Alone Mean No. of Minutes
Review of history before seeing patient	0.4	0.2
History, physical exam by student alone	12.9	None
Student presentation	2.2	None
History, physical, and patient education by preceptor	8.8	8.9
Post-exam discussion with the patient	1.6	1.9
Teaching the student	1.6	None
After the presentation 1.0		
After patient contact 0.6		
Consultation and/or research time	0.9	0.3
Charting time by preceptor	0.7	4.0
Total preceptor time per patient	16.2†	15.3
Total time of patient with preceptor	10.4‡	10.8
Total time of patient with team	23.2§	10.8

* Data from 44 encounters observed during a time–motion study of four exemplary family medicine preceptors in managed care outpatient settings.

† Excludes student time alone with patient since this does not involve preceptor time. This .9 minute per patient visit difference in preceptor time with a student present versus not present was not statistically significant when the means were compared using an independent-samples t test ($p < .05$).

‡ Includes only history, physical, and patient education by preceptor and post-exam discussion with the patient categories.

§ Includes history and physical by student alone plus history, physical, and patient education by preceptor and post-exam discussion with the patient categories.

minutes more listening to student presentations and 1.6 minutes more in direct teaching.

From the patient's perspective, two issues related to time are of concern. Do patients lose direct contact time with the preceptor when a student is present, and do patients increase their total time in the clinic when they see both the student and the preceptor? On average, patients received 0.4 minutes less contact with their physician when a student was present than when a student was not present (10.4 versus 10.8 minutes per visit). This 0.4-minute difference was not statistically significant ($p = .7$). The total time in direct interaction with the preceptor and/or student increased from 10.8 minutes per visit when seeing the preceptor alone to 23.2 minutes per visit when a student was present (significant at $p = .001$). The extra time was due mainly to the 12.9 minutes students spent with patients alone.

Specific teaching strategies used by the preceptors were measured by direct observation of the 30 encounters with the students and patients. Table 2 presents the number of times that each strategy was observed.

Table 2

Specific Strategies Used by Four Preceptors to Make Most Efficient the Time Spent with Students and Patients, 1997–98*

Strategy	No. of Times Out of 30 Encounters
Have the student write notes in patient charts	26
Provide health education to a patient simultaneously while teaching the student	14
Summarize the patient's history from the chart	11
Have the student present the case in front of the patient	8
Tell the student how far to go with the physical exam	5
Give the student specific feedback	4
Set limited goals for your student in seeing a patient	3
Give mini-lectures to the student on medical topics	3
Have the student provide health education to a patient	2
Encourage the student to read about a patient's problem	2

* Direct observation of the 30 encounters with the four exemplary preceptors and their students.

Discussion

The results of this study are consistent with those of our prior study.[1] Three categories of observations remained the same or were quite similar: student case presentation (2.2 minutes in both studies); history, physical, and patient education by preceptor (7.9 minutes in prior study without patient education and 8.8 minutes in this study with patient education); and direct teaching of the student (1.8 minutes in prior study and 1.6 minutes in this study).

The strategies used by the preceptors as measured by direct observation were consistent with the strategies described by them in the prior study and overlap to a large degree with strategies that were described by Ferenchick.[7] The most commonly used strategy was to have the student write notes in the patient's chart. The next most common strategies included the preceptor's providing health education to a patient simultaneously with teaching the student and summarizing the patient's history from the chart prior to the student's seeing the patient. Telling the student how far to go with the examination, giving specific feedback, and setting limited goals were used only three to five times in the study. Although the preceptors were generally in favor of having the student present the case in front of the patient, only eight of 30 encounters used this process. Ferenchick and colleagues state that the hearing of a trainee's case presentation in the examination room increases the preceptor's time with the patient, reinforces the trainee's role, and facilities instantaneous feedback from the patient.

On average, the four exemplary preceptors took less than a minute longer per patient visit with students present than without them (16.2 versus 15.3 minutes). The time difference in this study is consistent with our prior study (11.7 versus 10.6 minutes), with that of Bestvater and colleagues (13.6 versus 10.8 minutes),[9] and with that of Frank et al. (10.3 versus 9.9 minutes).[10] However, there may have been some shift in how that time was spent with patients.[10]

Times in this study were longer because ours was the only study to include charting time. These results, in association with those of the other time–motion studies, challenge the notion that teaching will disrupt the flow of patient care. While there is a modest increase in preceptor time associated with teaching, this may be offset by the intellectual stimulation and professional fulfillment that preceptors receive from having students in their practices and by the longer amounts of time patients receive from the health care team.

Vinson reported that family physicians in private practice shifted substantial amounts of work time from patient-centered to student-centered activities.[3] With a student present, the community physicians spent 27 fewer minutes per day in patient-care activities and the academic physicians spent 47.5 fewer minutes per day in these activities. Community and academic physicians spent 71 and 63 minutes per day, respectively, in student-centered activities. In our study, we found that the pa-

tients lost only 24 seconds of preceptor time per encounter when a student was present. Our preceptors also balanced the student-centered activity by time saved through student charting.

With patients scheduled every ten to 15 minutes in these managed care organizations, these preceptors were able to maintain their routine schedules while teaching third-year medical students. The key to this process is the availability of an additional clinic room where students can perform an independent history and physical examination while the preceptor sees another patient. Students were able to complete their examinations in 13 minutes and present the results in two minutes. This fast pace is made possible by previewing the case with the student, establishing clear expectations, and providing focused teaching. In our study, although the patient lost an average of 24 seconds with his or her physician when students were involved, the patient received an additional 12.9 minutes from the student. These patients received more time from the health care team while spending more time in the office (an additional 12.4 minutes). Because we did not survey the patients, we do not know whether this was experienced as a benefit or as an inconvenience. Bestvater and colleagues reported shorter waiting-room times when students were involved.[9]

There are a number of limitations to this study. Only four preceptors were observed, for only one to two half-days of practice time. Not all patients consented to be observed, so that not all encounters on each half-day were observed. Therefore, the number of total encounters was relatively small. Because the number of observations per preceptor was even smaller, there was no attempt to compare times between preceptors. Furthermore, all observations occurred while students were present in the clinic. Specifically, comparisons of preceptor time with and without students were made on the same days that students were present. Thus, the preceptors might have been more time-compressed while seeing patients alone as a result of trying to save time for teaching. However, the preceptors reported similar practice routines while students were not present, and three of the preceptors had students in their practices continuously.

Informal discussion with the four exemplary preceptors indicates that the preceptors felt that the students' charts were generally complete, accurate, and legible. When these preceptors found deficiencies or inaccuracies in the charts written by the students they immediately corrected those areas before cosigning the charts. Current Medicare documentation guidelines do not accept exclusive student charting as valid documentation. We believe these data strongly support a reconsideration of the current Medicare documentation guidelines.

In conclusion, clinical teaching in these four practices added less than a minute per case. The increase in preceptor time to preview cases, listen to student case presentations, and teach was offset by time saving achieved by student charting. Charting is also an important part of the learning experience for students. Unfortunately, this valuable learning experience and time-saving strategy is under threat by Medicare rules that limit the use of notes written by students in teaching situations.

The authors once again express their appreciation to Drs. Jimmy Hara, John Kovac, Martin Levitt, and Joseph Scherger for opening their practices to the study and for their continued dedication to medical student education. They thank Dr. LuAnn Wilkerson for her help with the manuscript.

References

1. Usatine R, Nguyen K, Randall J, Irby D. Four exemplary preceptors' strategies for efficient teaching in managed care settings. Acad Med. 1997;72:766–9.
2. Fields S, Usatine R, Stearns J, Toffler W, Vinson D. The utilization and compensation of community preceptors in U.S. medical schools. Acad Med. 1998;73:95–7.
3. Vinson DC, Paden C, Devera-Sales A. Impact of medical student teaching on family physicians' use of time. J Fam Pract. 1996;42:243–9.
4. Irby DM. Teaching and learning in ambulatory care settings: a thematic review of the literature. Acad Med. 1995;70:898–931.
5. McGee SR, Irby DM. Teaching in the outpatient clinic: practical tips. J Gen Intern Med. 1997;2:S34–S40.
6. Usatine R, Scherger J. Tips for preceptors teaching medical students in managed care settings. Fam Med. 1996;28:688–9.
7. Ferenchick G, Simpson D, Blackman J, DaRosa D, Dunnington G. Strategies for efficient and effective teaching in the ambulatory care setting. Acad Med. 1997;72:277–80.
8. Neher JO, Gordon C, Meyer B, Stevens N. A five-step "microskills" model of clinical teaching. Am Board Fam Pract. 1992;5:419–24.
9. Bestvater D, Dunn EV, Nelson W, Townsend C. The effects of learners on waiting times and patient satisfaction in an ambulatory teaching practice. Fam Med. 1988;20:39–42.
10. Frank SH, Stange KC, Langa D, Workings M. Direct observation of community-based ambulatory encounters involving medical students. JAMA. 1997;278:712–6.