WHAT’S THE EVIDENCE: A REVIEW OF THE ONE-MINUTE PRECEPTOR MODEL OF CLINICAL TEACHING AND IMPLICATIONS FOR TEACHING IN THE EMERGENCY DEPARTMENT

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Abstract—Background: The 2012 Academic Emergency Medicine Consensus Conference, “Education Research in Emergency Medicine: Opportunities, Challenges, and Strategies for Success” noted that emergency medicine (EM) educators often rely on theory and tradition in molding their approaches to teaching and learning, and called on the EM education community to advance the teaching of our specialty through the performance and application of research in teaching and assessment methods, cognitive function, and the effects of education interventions. Objective: The purpose of this article is to review the research-based evidence for the effectiveness of the one-minute preceptor (OMP) teaching method, and to provide suggestions for its use in clinical teaching and learning in EM. Discussion: This article reviews hypothesis-testing education research related to the use of the OMP as a pedagogical method applicable to clinical teaching. Evidence indicates that the OMP prompts the teaching of higher level concepts, facilitates the assessment of students’ knowledge, and prompts the provision of feedback. Students indicate satisfaction with this method of clinical case-based discussion teaching. Conclusion: Advancing EM education will require that high quality education research results be translated into actual curricular, pedagogical, assessment, and professional development changes. The OMP is a pedagogical method that is applicable to teaching in the emergency department. © 2016 Elsevier Inc. All rights reserved.

Keywords—clinical teaching; education research; emergency medicine; one-minute preceptor

CONSIDER THE FOLLOWING CASE PRESENTATION

Medical Student Case Presentation to Preceptor

Hi, Dr. F., I have a new patient I’d like to present, OK? This is a 27-year-old woman who fell off her bicycle 2 days ago. She’s here complaining of neck pain and numbness and weakness in her right hand. She landed on her right arm and her ribs when she fell, and I think she hit her head. Now she says she can’t lift her shoulder or pick up a pencil in her right hand and she feels numb and “cold” in her hand. She says everything hurts her: head, neck, and arm.

On examination, her vital signs are normal. She has a bruise on the back of her head and it hurts everywhere I touch from her head to her fingers, except that she says she can’t feel me as well when I touch her right palm. I think her fingertips feel cold. She has weakness in her right shoulder and her biceps reflex is 3+.

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I’m not sure what’s going on, but I put her in a long arm splint.

INTRODUCTION

Teaching in a busy ambulatory clinical setting can be challenging. Physicians must juggle the tasks of assessing and addressing trainees’ learning needs while simultaneously providing efficient, minimally disrupted patient care.

Although the above case may be an extreme example in which the preceptor will need to develop an organized teaching response to a somewhat disorganized and highly incomplete case presentation, methods do exist for efficient clinical teaching. The one-minute preceptor (OMP) or 5 microskills model of learner-centered clinical teaching was initially described in the family medicine literature as an efficient method of successfully performing the dual tasks of clinical teaching and patient care. It consists of 5 steps that a preceptor can use to frame a teaching discussion after a learner’s case presentation:

1) Get a commitment from the learner about what she or he thinks is going on with the patient—in other words, ask the learner to state the probable diagnoses
2) Probe the learner for her or his underlying reasoning—in other words, encourage the learner to state why and how she or he has reached the conclusions regarding the differential diagnosis
3) Based on the answers to steps 1 and 2, teach general principles about the clinical case—deliver a teaching pearl
4) Provide positive feedback to the learner
5) Correct errors for future performance

The OMP provides a framework for structuring a teaching conversation around learners’ clinical case presentations. Despite its name, it does not imply teaching “in only 1 minute,” but rather is named for the teaching efficiency that it engenders. Since its description in the family practice literature in 1992, the OMP has been described as the basis for a number of professional development courses for both faculty and residents (1–4). Its use as a teaching method has been described in numerous settings, including basic science laboratories, nursing education, and a variety of medical specialties (5–12).

Despite its widespread use in professional development courses, what is the evidence to support the supposition that the OMP facilitates “diagnosing” both the learner and the patient, while providing teaching to one and facilitating the care of the other? What research supports the use of the OMP as both effective and efficient? This brief article reviews the existing research evidence and provides tips for teaching with the OMP in the emergency department (ED).

Search Strategy and Evidence Selection

A PubMed search for English language articles was performed using the following search terms: “one minute preceptor” and “five micro-skills AND teaching.” Thirty-four articles related to or mentioning the OMP were identified. Seventeen articles that describe the use of the OMP for teaching in the health professions were reviewed (Table 1). Articles that describe the content or use of the OMP in laboratory science teaching contexts or professional development activities were not considered for this review of the pertinent education research. Four articles met the criteria as hypothesis-testing educational research studies and are discussed below.


This is the first study to use an experimental design to assess the effectiveness of the OMP in facilitating both teaching and patient diagnosis. The authors developed and recorded 2 scripted, standardized, simulated third-year student-preceptor encounters. Each encounter began with the same student presentation and was precepted by the same preceptor. Two versions of each case were recorded, and the preceptor used 1 of 2 different clinical teaching approaches (i.e., the OMP or a “traditional” teaching method consisting of questions to clarify clinical data and patient care issues). Study subjects were 116 teaching faculty participating in faculty development programs at 7 United States (US) medical schools. Each subject watched the 4 video-recorded (2 versions of each encounter), and rated the observed teaching encounter on the following: students’ abilities, subject’s confidence in rating students’ abilities, and the effectiveness and efficiency of the teaching encounters. Subjects rated their ability to correctly diagnose the patient problem equal or better (92% vs. 76%; p = 0.02) when observing the OMP teaching encounter. Controlling for years of teaching/rating experience, subjects rated students’ demonstration of clinical reasoning skills and fund of knowledge more highly after observing the OMP encounter (p = 0.00), and were more confident of their ratings of these skills after observing the OMP encounter (p = 0.00). Subjects rated the OMP method significantly more effective and efficient as a clinical teaching method (p = 0.00).

Irby DM, Aagaard E, Teherani A. Teaching points identified by preceptors observing one-minute preceptor and traditional preceptor encounters. Acad Med 2004;79:50–55

In a companion to their previous study, the same 116 subjects identified 843 total teaching points during their observations of the 2 case recordings. The authors compared the characteristics of the teaching points identified in each of the 2 precepting models. The traditional
The precepting model was associated with more generic teaching points, such as history-taking and presentation skills ($p < 0.05$), while the OMP model was associated with more disease-specific teaching points—specifically, broadening the differential diagnosis, further diagnostic testing and evaluation, and the natural presentation of disease ($p < 0.05$).

**Comment:** This multicenter study and its companion were the first attempts to research the OMP as a teaching and assessment method. The authors controlled for a number of potential confounders by using 2 scripted teaching scenarios, precepted by the same preceptor, watched in random order by faculty subjects. Subjects’ previous education experience was also controlled for in their ratings of the preceptor-student encounters. Limitations to this study include the fact that only 2 scripted clinical chief complaints were the basis for the study; therefore, it may be difficult to generalize the faculty subjects’ abilities to diagnose other clinical problems while using this teaching method. Finally, unknown and therefore uncontrolled variations in the faculty subjects’ ratings of student performance could have influenced the final ratings.

**Table 1. Compilation of Selected One-Minute Preceptor Literature**

<table>
<thead>
<tr>
<th>Author</th>
<th>Journal (Year)</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furney et al.</td>
<td>J Gen Intern Med (2001)</td>
<td>Resident teaching evaluations randomized to OMP vs. traditional questioning</td>
</tr>
<tr>
<td>Kertis</td>
<td>J Nurses Staff Dev (2007)</td>
<td>Description of OMP in nurse education</td>
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<tr>
<td>Teherani et al.</td>
<td>Med Teach (2007)</td>
<td>Student perceptions of teaching using OMP vs. traditional questioning</td>
</tr>
<tr>
<td>Dang et al.</td>
<td>Acad Psychiatry (2010)</td>
<td>Description of OMP in psychiatry education</td>
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OB/GYN = obstetrics and gynecology; OMP = one-minute preceptor.

* Discussed in detail in this review.

The teaching method that was used and to identify the learning points in which they had greatest interest while observing the precepting encounters. Students preferred the OMP teaching model in all 10 areas in which the models were compared, most significantly in the involvement of the student in the clinical care decision-making discussion, provision of feedback to the student, and overall effectiveness and satisfaction with the teaching encounter. The learning points requested by the students were similar across both teaching models.

**Comment:** Again, these authors used the same scripted, randomly viewed recorded encounters to study students’ perceptions of 2 teaching methods, including preferences for student involvement in higher-level clinical discussions and feedback on performance. Limitations are similar to those noted in the previous iterations of the study, but in this case, may also include student-dependent variations in perceptions of the measured content, including the content of the clinical discussions.


The OMP has been applied in a number of resident-teacher programs, but only studied with an experimental design in this unblinded, randomized controlled trial. Half of second- and third-year internal medicine residents were randomized to receive a 1-hour training session on the OMP. Residents and their students were then queried regarding teaching behaviors and satisfaction with resident teaching. Although overall ratings of resident teacher effectiveness were not statistically significant between the groups, 87% of residents rated the
OMP as useful or very useful. Residents in the intervention group were more likely to exhibit a change in their teaching behaviors, most noticeably in offering students suggestions for improvement, providing feedback more frequently, and motivating students to do outside reading on clinical cases ($p < 0.05$). The association between teaching with the OMP and the teacher providing feedback to students has also been noted in a qualitative analysis of internists who participated in OMP training (13).

**Comment:** This randomized resident teacher development study introduced the OMP as a method to enhance resident teaching of students. Although residents were randomly assigned to the intervention, the study was unblinded. There was no significant difference in students’ ratings of resident teaching. However, the known introduction of an intervention to improve resident teaching may have contributed to unmeasured teaching behaviors in the control group.

**DISCUSSION**

Although experimental studies of the OMP teaching model are relatively scarce, the existing experimental education research supports the use of the OMP as an effective clinical teaching method when used by both faculty and resident teachers. When the 5 steps of the OMP are used, it is possible to successfully fulfill multiple simultaneous missions: understand the learner’s case-related knowledge, identify relevant learning needs, actively engage the learner in a higher level, clinical decision-making discussion, improve disease-specific teaching points, enhance feedback for improvement, motivate the learner’s reading behavior, and diagnose the clinical needs of the patient. In addition, students prefer this method of clinical case-based discussion teaching over traditional questioning. Given this, how can the OMP be applied in a busy ED?

Each clinical encounter can support the use of OMP-based questioning and a discussion that can efficiently achieve learning in the ED. Let’s return to the introductory case (14–17).

**Get a Commitment**

Ask the learner to commit to an appraisal of a clinical problem. This is the first step in understanding the learner’s ability to synthesize clinical information and formulate a problem or diagnosis. “Committing” to a judgment actively invites the learner into a teaching dialogue.

Dr. F.: Given what you’ve found on this patient’s physical examination, what do you think might be causing her symptoms?

S: Well, she has a lot of muscle tenderness, but I’m most concerned that this might be a nerve injury in her right arm.

Other ways to elicit a commitment include asking “What do you think is going on with this patient?,” “What do you think the main problem is here?,” or “What complaint is the most important to focus on during this visit?”

**Probe for Underlying Reasoning**

Ask the learner to explain the basis for his or her clinical appraisal. This allows the preceptor to better understand the learner’s ability to synthesize a variety of clinical information while identifying gaps in knowledge or reasoning. In essence, points for teaching are elicited through the learner’s explanation of his or her thinking.

Dr. F.: I agree that nerve injury would be high on the differential diagnosis. What makes you think this may be likely?

S: Well, I don’t think muscle pain would cause a change in the reflexes and I’m quite sure that I can map the changes in her hand sensation to 1 peripheral nerve distribution.

Other questions to probe for supporting evidence include asking “What are the findings that led you to this diagnosis?,” “Tell me more about why you think the patient has a peripheral nerve injury?,” or “What other diagnoses did you consider in this case?” Get the learner to think out loud to demonstrate their reasoning to show you how they arrived at their conclusions.

**Positive Feedback and Teach General Rules**

Provide positive reinforcement for things that are correct or done well. Be specific. Use the identified gaps in knowledge or understanding as the basis for focused teaching about generally applicable rules.

Dr. F.: Very good, you performed a thorough neurologic examination and elicited a key finding of hyper-reflexia. What other aspects of your evaluation went well, and what would you like to improve for next time?

Now, let’s talk briefly about how you would differentiate between an upper and a lower motor nerve injury, and we’ll go back and examine the patient together.

The feedback process should be a bilateral exchange of information between the learner and the preceptor, prompting the learner to reflect on his or her own knowledge and performance. This dialogue of shared information—learner reflections and preceptor observations—facilitates the development of a specific action plan for improvement and follow-up.
Suggestions for Improvement

No matter the level of performance, always offer suggestions for improvement in the next clinical encounter.

Dr. F.: One important consideration to rule out in any patient who presents with a potential peripheral neuropathy after trauma is the possibility of a spinal cord injury. In the future, let’s plan to include a focused examination of the cervical spine with attention to cervical spine immobilization until we ensure that the spine is uninjured.

LIMITATIONS

This review and discussion of the OMP as a potential clinical teaching method in the ED is based on an analysis of hypothesis-testing educational research on the use of the OMP. Only 4 articles met the inclusion criteria as research reports. It is notable that 3 authors comprised the primary researchers directing the 4 studies, indicating that there are still questions to answer regarding the use of the OMP, such as: What is the observable, sustained change in teaching behavior following OMP training? What is the long-term effect of this method of teaching on learners’ clinical reasoning? Finally, what is the most effective use of this pedagogical method in emergency medicine?

CONCLUSION

The OMP teaching model has been assessed in educational studies and suggests an effective and efficient method of engaging learners in high-level case discussions of clinical problems. It is simple to remember, easy to apply, and may be well-suited to a variety of teaching and learning topics in a busy ED. Although research has not extended its use in this clinical setting, it is likely to meet the needs of busy clinicians who are challenged to teach while providing simultaneous clinical care.

Here are some tips for using the OMP method in an ED:

- Strongly encourage the learner to state a differential diagnosis and state a justified opinion to support this differential at the end of the patient presentation
- Listen closely to the learner’s reasoning, and probe as necessary, in order to clearly understand the learning needs of the learner.
- Teach using general rules. Deliver the applicable “pearl of wisdom”
- Provide positive, constructive feedback for improvement to the learner, as appropriate
- Correct the learner’s errors, with an eye toward improving future performance
- If using the OMP at the bedside, be sure to counsel the learner about appropriate discussions in front of patients with attention to Health Insurance Portability and Accountability Act compliance, explain the teaching process to the patient before beginning, and involve the patient in the conversation as desired by the patient
- Remind learners that interruptions frequently occur in the ED, but that both the learner and preceptor share responsibility for “circling back” and “closing the loop” on this brief teaching discussion.

REFERENCES

ARTICLE SUMMARY

1. Why is this topic important?
   The one-minute preceptor (OMP) method is an efficient and effective method of teaching through clinical case discussions in busy clinical settings. Its use allows clinician-educators to teach while facilitating patient care.

2. What does this review attempt to show?
   This review shows the educational research that, though sparse, indicate that the OMP can be implemented successfully, resulting in simultaneous teaching and patient care, teaching higher order concepts, and regular feedback.

3. What are the key findings?
   The results of 4 educational research studies provide evidence that the OMP can be an efficient and effective method of clinical teaching when used by faculty or residents. As compared to traditional questioning, it is preferred by students as a way of learning through clinical case discussion.

4. How is patient care impacted?
   Patient care can be delivered while teaching with the OMP method. The OMP method can facilitate the diagnosis of the patient’s care needs and the learner’s learning needs. When used at the bedside, it may engage patients in their own care and may improve patient–physician understanding.