

Creation of Physician-Mentored Patient Rounds (PMPR) to Observe and Assess Pre-Clinical Medical Students' Entrustable Professional Activities (EPA) 1-4

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Abstract

The pre-clinical years of medical school focus on the explanatory sciences to inform clinical practice. Entrustable professional activities (EPAs) were created to determine if students can be entrusted with clinical practice. Many different ways to observe and assess students' EPA skills are commonly employed during the clinical years. If pre-clinical students' EPA skill development could be observed and assessed, then our students may begin the process of developing EPA skills earlier. We utilize large-group, physician-mentored, patient rounds (PMPR) to observe EPAs in pre-clinical students. PMPR involves a patient, a physician-mentor and a class of 172 students. Each PMPR is divided into four 30-minute sessions. To assess pre-clinical students' EPAs 1-4 skills, assignments are given after PMPR sessions 1-3 and aggregated by two faculty members for analysis. Aggregated assignment data is then used by the physician to mentor students during PMPR sessions.

Methods

A physician identified one of their patients to participate in PMPR sessions 1-2 (Table 1). The physician met with each patient before the PMPR to obtain their written permission to share medical information with students, to discuss how patients would answer history questions, and to discuss what physical examinations patients were willing to have performed before students. PMPR sessions followed a patient through history taking (PMPR sessions 1 and 2; EPA-1), physical examination (PMPR session 2; EPA-1), diagnostic test ordering/interpretation (PMPR session 3; EPA-3) and treatment plan creation (PMPR session 4; EPA-4). Between sessions students were given an assignment using Google Forms™. Assignments included construction and refinement of a differential diagnosis (DDx; EPA-2), ordering diagnostic tests (EPA-3) and developing a treatment plan (EPA-4). The student responses to these assignments were collected, aggregated and presented at the next session by a physician who discussed students' aggregate thinking. To ensure maximum student participation and to observe students' abilities to perform EPAs 1-4 certain physician, patient, physician-patient relations, assignment, and facility characteristics were identified as important.

Results

I. PMPR requirements and class attendance

- Three classes of preclinical medical students were given the opportunity to participate in PMPR experiences (516 students). A total of 10 PMPRs have been provided. The class of 2017 and 2019 had 3 PMPRs. The class of 2018 had 4 PMPRs.
- Between 83 and 95% of each class participated in PMPR sessions and completed PMPR assignments.
- PMPR session attendance and assignment completion were required for students to earn points in an Internal Medicine course.
- Total points were no more than 1.8% of the points awarded in the course.

Conclusion: Attendance was high for all three classes. Awarding of attendance and assignment completion points encouraged high student attendance percentages (83-95%).



II. Physician characteristics

- 1. Preceptor experience:** Prior experience working with third year students in clerkships and with first year residents.
- 2. Positive attitude towards novices:** A physician that had a positive attitude towards medical students and had been a teaching faculty member at a medical school.
- 3. Desire to engage student participation:** A physician that sought to maximize student participation and did **not** lecture during the PMPR sessions.
- 4. Desired acquisition of clinical reasoning skills rather than getting the "right" diagnosis:** A physician that understood PMPRs were more about students learning the clinical reasoning process than they were about students getting the "right answer" (patient diagnosis). Generalist physicians were more likely to have this desire.
- 5. Ability to use open-ended questions of patients and students.**

Student participation enhancing behaviors: patience, desired student participation, good listener, provided their clinical perspective in concise ways, prescriptive only when patient safety was a concern, and could positively compare their clinical reasoning with aggregate student clinical reasoning.

Behaviors that inhibited student participation: Requiring students do things a particular way, not allowing students to finish questions, constantly rephrasing student questions, answering for the patient, taking over the sessions with long content rich answers, and assuming students would usually get things wrong.

Conclusion: Physician characteristics that encouraged student engagement improved student participation during PMPR sessions.

Table 1: PMR Session Overview

Week	Participants/Activity	Discussions	Assignment
1	Patient, Physician, and First or Second year medical students/Obtain Patient History	-Allowed students to ask questions -Guided group in how to phrase questions and noted the need for students to ask questions to get a more complete history	-List 5 (class 2017) or 6 (classes of 2018 and 2019) diagnoses -What will you do next and why (class 2017)? -What regions of the patient would you like to FOCUS on during your physical examination (classes 2018 and 2019)?
2	Patient, Physician, and First or Second year medical students/Finish history and model physical exam	-Discussed students' DDx -Discussed the breath of the students' DDx -Discussed likely and unlikely diagnoses	-List 3 diagnoses (classes 2017 and 2018) or 6 diagnoses (class of 2019) -Select diagnostic tests
3	Physician and First or Second year medical students/Discussion	-Discussed students' DDx and their diagnostic test choices - Discussed ordering appropriate diagnostic tests to narrow their DDx list	-List 1 (class 2019) or 2 diagnoses (classes 2017 and 2018); Explain how you narrowed your DDx list -Goals of treatment
4	Physician and First or Second year medical students/Discussion	- Discussed students' most likely diagnosis, their diagnostic test choices and medication choices	-Develop treatment plan

II. Patient characteristics

- 1. Not afraid to stand in front of a large group of students**
- 2. Knowledgeable concerning their medical condition**
- 3. Open to being asked about their medical condition**
- 4. Ability to give answers that were clear and easy to understand**
- 5. Avoided long irrelevant answers**
- 6. Avoided long stories to get to an answer**
- 7. Approachable and encouraged student questions**
- 8. Good listener. Did not interrupt students while they were asking questions**
- 9. Avoided the desire to take over the session**
- 10. Listened while the physician mentored the students**

Conclusion: Patient characteristics that encouraged students to ask questions and to get accurate patient information significantly improved PMPR sessions.

III. Physician-patient relationship

- 1. Prior patient/physician meeting;** The patient was comfortable enough with the physician to meet and discuss answers to potential student questions. They also discussed physical examinations the patient was willing to have performed in front of students.
- 2. A relatively trusting and long-term relationship**
- 3. The physician knew when to answer questions for the patient when they were uncomfortable answering a question.**

Conclusion: Relatively long-term and trusted patient/physician relationships yielded the best experiences for students in PMPR sessions.

IV. Assignment characteristics

- 1. Utilize open-ended questions;** Provided more opportunities to get more information on student clinical reasoning.
- 2. Avoid lists for students to select answers from;** resulted in excessive ordering of diagnostic tests and did not afford opportunities to find out what students were thinking.

Conclusion: Open-ended questions were harder to aggregate but they yielded more information on student thinking than checklists.

V. Facility characteristics

- 1. A room that can accommodate all students and allowed for interactions with the patient and physician.**
- 2. Audiovisual equipment that allowed students to hear the physician and patient and to see aggregated student response data.**