The Senior Prep Conference: Simultaneous Learning and Teaching

Dana Sall, MD
Matthew Kelleher, MD
Michael Hellmann, MD
Marshall Weesner, MD
Eric J. Warm, MD

Setting and Problem

The Accreditation Council for Graduate Medical Education requires residents to have opportunities to teach other learners. In the past, our academic half day (AHD) was a series of small group, problem-based learning sessions that placed all levels of learners in the same classroom at the same time. We initially designed AHD so that senior residents would act as teachers to junior residents within the small groups. However, we found it difficult to satisfy the needs of students, interns, and seniors at the same time. We thus grouped the students and interns into one teaching session and the senior residents into another. Both sessions covered the same topic at different levels during the week. However, the senior level session was poorly attended, and did not provide a structure to foster teaching between senior residents and interns.

Intervention

To address this issue, we created the Senior Preparatory Conference (or "Senior Prep"; see the TABLE for details). This required the chief resident in charge of a particular AHD to be prepared at least 1 week prior to the conference, secure a faculty member for both sessions, and arrange conference space for 2 separate sessions. During Senior Prep, senior residents receive education on in-depth learning objectives for a given topic 1 week prior to AHD, during which similar material will be covered. Senior residents are also given teaching objectives as a guide to discussing material with interns and students in preparation for the next week's AHD.

Senior Prep incorporates the adult learning theory concepts of testing, spacing, and interleaving. Testing is the principle that repeated opportunities to retrieve information enhance long-term memory and learning. For senior residents, teaching the material itself is a method of self-testing and retrieval. Spacing is the closely related concept that repeatedly studying material over several sessions can improve long-term retention. Interns and senior residents are exposed to the topic matter several times during the week through the provided reading material, Senior Prep, teaching during the week before AHD, and AHD itself. Interleaving is the process of learning material across subject matters, as opposed to being blocked by type, and has been shown to improve learning. Senior Prep topics are diverse throughout the year, and the same topic is covered among residents on different clinical rotations (TABLE).

Outcomes to Date

Senior residents have had a positive response to Senior Prep. Attendance records have exceeded expectation, and even off-service residents are frequently present. In post-session feedback, more than 90% of senior residents (34 of 37) feel that Senior Prep is a positive addition to their educational curriculum. In addition, the vast majority of interns and medical students report being taught by their senior residents prior to attending AHD. Senior residents have noted an increase in their time spent teaching and have indicated that the Senior Prep sessions are a welcome source of material to teach. We found that if the same chief resident presented both at Senior Prep and AHD in the same week on different topics, it could be difficult with respect to the amount of work and planning it took to be successful at both sessions. However, the general structure of presenting a conference topic first to senior residents, and then to interns in successive weeks, allowed us to refine the conference along the way.

We anticipate several next assessment steps, including quantifying the frequency of teaching taking place and evaluating the quality of that teaching. We will also be tracking which topic sessions each senior resident attends. These data will be used to correlate with performance on specific in-training examination objectives. Our hypothesis is that Senior Prep may improve in-training examination performance on the topics each resident has learned and taught.

The Senior Prep conference format has been well received by our residents, and provides a more formal structure for teaching that benefits junior residents and students. The Senior Prep approach incorporates the adult learning theory concepts of spacing, interleaving, and testing. More study is needed to measure effectiveness of this intervention on long-term learning.

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TABLE **Senior Prep Structure and Timeline**[a]

Timeline	Event Description	Applicable Educational Principles
Thursday, 1 week prior to AHD	**Senior preparatory session** ▪ Chief resident leads 1-h topic session with expert faculty present. (*Example: Meningitis with infectious disease faculty)* ▪ Learning objectives created are appropriate to senior level. (*Example: Name the evidence behind steroid use in meningitis.*) ▪ Separate teaching objectives established. (*Example: Teach indications for steroid use in meningitis.*)	Interleaving—topic is covered regardless of what service senior resident is rotating on. (*Example: Resident on renal team will learn about meningitis; the following week will learn about acute coronary syndrome.*) Spacing—first exposure to material.
Friday through Wednesday	**Senior resident teaches team topic based on assigned teaching objectives.**	Spacing—second exposure to material. Testing—seniors must retrieve the information to teach their teams. Interleaving—as for senior residents, topic is covered for interns independent of current clinical rotation.
Thursday, AHD	**Academic half day** ▪ Attended by approximately 50 to 75 interns and medical students. ▪ Case-based conference on topic led by chief resident with expert faculty presence. (*Example: Meningitis with infectious disease faculty.*) ▪ Learning objectives are identical to teaching objectives given to senior residents.	Spacing—third exposure to material. Testing—during interactive cases, interns must retrieve learned information.

Abbreviation: AHD, academic half day.

[a] A reading assignment is provided for all residents.

Dana Sall, MD
Chief Medical Resident, Department of Internal Medicine, University of Cincinnati Medical Center

Matthew Kelleher, MD
Chief Medical Resident, Department of Internal Medicine, University of Cincinnati Medical Center

Michael Hellmann, MD
Chief Medical Resident, Department of Internal Medicine, University of Cincinnati Medical Center

Marshall Weesner, MD
Medical Resident, Department of Internal Medicine, University of Cincinnati Medical Center

Eric J. Warm, MD
Program Director, Department of Internal Medicine, University of Cincinnati Medical Center

Corresponding author: Dana Sall, MD, University of Cincinnati Medical Center, Division of General Internal Medicine, Room 6055, 231 Albert B. Sabin Way, Cincinnati, OH 45267-0534, 513.558.5295, sallda@ucmail.uc.edu