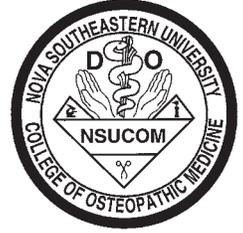


Medical Education Digest



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The Continuum of Assessment in Today's Medical Education Environment

A definition of competence in medicine is, “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of individuals and communities being served.” A model used by the Accreditation Council for Graduate Medical Education (ACGME) uses the following interrelated domains: medical knowledge, patient care, professionalism, communication/interpersonal skills, practice-based learning, and systems-based practice.

Competence, it is reminded, is not an achievement but a habit of lifelong learning. It reflects the relationship between a person's abilities and the tasks required to perform in the real world. One of the aspects of competence, for example, is history taking and clinical reasoning, while content specific may not be generalizable to all situations. Students may appear to be competent in areas where their basic knowledge is well organized and accessible, but much less so in unfamiliar territory.

Other important skills, such as the ability to form a therapeutic relationship, may be less dependent on content. However, competence is also developmental. This is demonstrated by habits of mind and behavior as well as so-called practical wisdom, which is gained through deliberate practice and reflection on experience.

<u>Level</u>	<u>Method Used</u>
Students at novice level	Use abstract, rule-based formulas
Students at higher levels	Apply rules to specific situations
Residents	Make judgments reflecting holistic view; take diagnostic shortcuts
Experts	Make rapid context-based judgments in ambiguous real-life situations where deliberation is essential

The competence of less experienced clinicians is more susceptible to the influence of stress.

Methods of Assessment

Multiple choice or open-ended questions: These may be context rich or context poor. Multiple-choice questions can be administered to large numbers of students in a short time period, be graded by computer, and be standardized. However, they are difficult to write and avoid such topics as ethical dilemmas and cultural ambiguities.

Supervising clinician assessment: This is a most common tool, but subjectivity is a problem and observation of trainees while interacting with patients may be infrequent. (continued on page 2)

“Medical Education Highlights for Primary Health Care”

The Continuum of Assessment in Today's Medical Education Environment

(continued from page 1)

Direct observation or video review: This allows for direct and more-frequent observation of the learner. It can have the same level of reliability as structured examinations with standardized patients.

Clinical simulations with standardized patients: These are as reliable as ratings of directly observed patient encounters and take about the same amount of time. Using standardized patients can be structured to meet specific educational goals.

Simulations involving sophisticated mannequins: These can replicate heart sounds, respirations, oximeter readings, and pulses that respond to a variety of interventions. They can assess how individuals and groups of trainees manage unstable vital signs.

Surgical simulation centers: These are also computer models that through the use of computer graphics and hands-on instrument manipulation are able to create a multisensory environment.

Multisource, 360-degree assessments: These are those done by peers, others on the clinical team, and patients providing insight on the trainees work habits, teamwork capacity, and interpersonal skills.

Portfolios: These provide documentation reflecting different areas of the trainee's competence and can include chart notes, referral letters, procedure logs, videotaped consultations, peer assessments, patient surveys, literature searches, quality-improvement projects, and other learning materials. Their use in summative, high-stakes decisions about advancement is increasing.

Assessment is now used in the medical school application process, medical school, residency training, and as part of the maintenance of certification. Currently, there are challenges to develop techniques that accurately assess such qualities as professionalism, teamwork, and expertise, which are now difficult to define and quantify.

(Epstein R. "Assessment in Medical Education." *New England Journal of Medicine*. 356(4): 387-396; 2007.)



National Board of Medical Examiners Summits on Physician Competence

Through a grant from the Robert Wood Johnson Foundation, more than 30 national medical organizations are engaged in a forum pursuing physician competency. The participants recognized that the current system is not adequate to deal with the future state of physician practice. In the second summit held in December 2005, a draft definition of competence and an outline that describes good medical practice were among the products that emerged. This was refined in the third summit held in June 2006, and at a fourth summit held in January 2007, 42 different organizations were represented to discuss how a continuum of competence can be assessed that includes medical schools, residency programs, licensure, specialty certification, credentialing, and accreditation. This included the notion of a portfolio system as a tool to document physician competence to interested parties through a national Alliance for Physician Competence. Detailed information on the summits is available at www.Innovationlabs.com/summit.

(“A National Dialogue About Ensuring Physician Competence.” *Examiner. National Board of Medical Examiners; Spring/Summer 2007.*)

MCAT as a Predictor of Performance in D.O. Schools

A study was performed among students at Oklahoma State University College of Osteopathic Medicine that included students from 1999 through 2003 to determine the predictive value of the Medical College Admissions Test (MCAT) on the overall academic performance of osteopathic medical students. There were 434 students in the study, which assessed the grade point average (GPA) achieved by these students in the basic sciences, their clinical and cumulative GPA, and Comprehensive Osteopathic Medical Licensing Examination Levels I and 2 (COMLEX) scores. It also included their cumulative undergraduate GPA and MCAT subtest scores. The study revealed that the strongest predictor of global performance in osteopathic medical school was the undergraduate grade point average (UGPA), being a slightly stronger predictor than the science UGPA. The study also showed that MCAT scores have limitations when predicting academic success. The authors queried that they are not sure whether this was unique to osteopathic medical education and recommended that more studies be done to answer that question, including those that include a larger sample as well as students from other osteopathic medical schools.

(Evans P and Wen FK. “Does the Medical College Admissions Test Predict Global Academic Performance in Osteopathic Medical School?” *JAOA*. 107(4): 157-162; 2007.)

Number of D.O. Students Expected to Increase 25 Percent by 2012



In collaboration with the Association of American Medical Colleges, the American Association of Colleges of Osteopathic Medicine surveyed the 23 current colleges of osteopathic medicine, reporting that a 25 percent first-year enrollment increase is anticipated by the 2011-2012 academic year. This excludes the provisionally accredited Rocky Vista University in Colorado and the Pacific Northwest University in Washington.

First-year enrollment, currently reported at 3,767, is expected to expand to 4,724 in 2011-12. Eleven of the osteopathic medical schools will be adding from 5 to 100 additional students for a total of 582, resulting in a 15.4 percent increase. All five of the public

osteopathic medical schools will be expanding their facilities, and five of the six private schools indicated they too were contemplating such an expansion. Barriers to growth include classroom and laboratory space, library and study areas, and ambulatory training sites. Hospital training sites were considered a small or nonexistent problem; however the availability of full-time faculty was considered a major problem.

A large percentage of colleges believed that costs were a major problem, but only two schools (one private and one public institution) felt that applicant quality was a major barrier to growth. Since 1968, the numbers of osteopathic medical schools has increased from 5 to 23, and enrollment grew from 521 first-year students to almost 3,800. Of the 23 existing schools, 17 are private and 6 are public.

(Levitan L and Shannon SC. "Osteopathic Medical College Growth Plans Through 2011-12." American Association of Colleges of Osteopathic Medicine Report; 2007.)

Sleepy Residents and Patient Care Implications

A study that followed 20 residents who were on-call for 24 hours in the Intensive Care Unit of Baylor College of Medicine in Houston assessed the sleepiness of the residents the day before they were on-call and the day after. The study employed the Multiple Sleep Latency Test (MSLT) in which residents rested with their eyes closed in a dark room for 20 minutes and their brain activity was recorded. The MSLT is based on the idea that people fall asleep faster when they are sleepy. A sleepiness score that was higher was found on the post-call day.

In addition to the MSLT, residents also were given tests that determined their concentration, attention, reaction time, and motor coordination. In these tests, there were significant changes between pre- and post-call days. However, the researchers, who presented their finding on May 20 at the American Thoracic Society 2007 International Conference, believe that this may be because the residents performed poorly to begin with on pre-call days. Other studies showed that residents who are sleep-deprived perform poorly in areas of judgment and concentration as well as being at risk for serious motor accidents. The investigators also concluded that residents who worked within the maximum of 80 hours as required experience severe sleepiness and that this might have major implications on patient care as well as resident safety.

(Subramanian S and Reddy R. "Approved Medical Resident Hours Still Resulting in Sleepy Doctors." American Thoracic Society 2007 International Conference, Session A30; Abstract #4856; May 2007.)

Interruptions by Teachers During Oral Presentations



A study involving 20 faculty members and 41 learners was conducted in the Emergency Department at San Francisco General Hospital, University of California San Francisco Medical Center to determine how interrupting the learner during oral presentations affected the learning experience. The learners included fourth-year medical students, interns, and second- and third-year emergency medicine residents. Faculty members were not aware that an interruption by them of the learner was the focus of the study.

An event that resulted in causing the learner to stop an oral presentation by longer than two seconds was classified as an interruption. Over each work shift, there were 200 hours of observation. The observer was a second-year medical student who received training regarding oral case presentations and one week of supervised training. The attending physicians were not disclosed the aims of the study. When each oral case presentation was concluded, there was a survey completed by the learner.

The study showed that in more than 40 percent of the presentations, the learner was interrupted by the attending physician, who gave an assessment or plan before the learner did. Interruptions were more frequent in students (57 percent) compared to interns (48 percent), second-year residents (32 percent), and third-year residents (10 percent).

The study corroborates the findings of others, who concluded that emergency physicians are “interrupt driven.” However, the study concluded from learner surveys that teacher interruptions have little effect on the perceived effectiveness of the oral-case presentation as a learning experience.

(Yang G and Chin R. “Assessment of Teacher Interruptions on Learners During Oral Case Presentations.” Journal of Academic Emergency Medicine. 14:521-525; 2007.)



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