Nova Southeastern University College of Osteopathic Medicine

Medical Education Digest

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Active Case-Based Radiology for First-Year Medical Students

One fifth of the first-year class at the Washington University School of Medicine selected an elective in radiology that employed case-based instruction focusing on active rather than passive learning methods. The students learn about radiology by actively integrating imaging with hospital records and radiology reports rather than passively observing radiologists or images.

The elective allows students to do what radiologists do rather than watch what they do. The course ran concurrently with gross anatomy in two-hour sessions for a total of 10 clock hours leading to a grade of pass/fail based on participation.

Instruction was in lecture/group discussion conference rooms, case-exploration in the radiology library, and in clinical areas. There was extensive use of case files that summarized the care of a patient with a common computed tomographic diagnosis during a hospital stay. Selected diagnoses included acute appendicitis, acute cholecystitis, obstructing renal stone, ruptured diaphragm, extraperitoneal bladder rupture, metastatic lung cancer, and obstructing colon cancer. The files contained a compact disc with images from CT examination (delivered by PowerPoint), an emergency department or admissions report, surgical report and discharge summary, and radiology, pathology, or microbiology report. There were seven files created, one for each student group. The course began with four presentations and group discussions that included

- the role of the radiologist
- radiology decision making
- radiology reporting and case presentation
- Internet resources for radiologists

In subsequent sessions, students went to the library and were provided with case files. Student groups looked up questions they had using the Internet, literature, and textbooks. One radiologist was available as a consultant rather than as a lecturer or instructor if answers to clinical questions could not be found.

(Erinjeri JP and Bhalla S. "Redefining Radiology for First-Year Medical Students: Shifting from a Passive to an Active Case-Based Approach." Academic Radiology. 13(6): 789-796; 2006.)

Comparing D.O. and M.D. Graduates in Musculoskeletal Competence

There is a greater emphasis on the significance of the musculoskeletal system on the practice of medicine in osteopathic medical schools. Therefore, it is suggested that D.O. students should demonstrate superior competence in musculoskeletal medicine compared to that of allopathic medical students. However, a study done by investigators at the Virginia College of Osteopathic Medicine, Virginia Polytechnic University, and Oklahoma State University College of Osteopathic Medicine found that osteopathic medical students only performed marginally better. The authors estimated that compared to allopathic medical students, those attending osteopathic medical school receive an additional 200 hours of training in musculoskeletal medicine.

However, when they compared the performance of the M.D. and D.O. student on a 25-question competency examination, they found that 70 percent of D.O. students failed to meet the minimum passing score set by internists compared to 78 percent of the M.D. students. They questioned whether that was an acceptable rate for osteopathic medical students. The authors recommend that graduates of osteopathic medical schools be able to perform a basic musculoskeletal and orthopedic clinical examination and that they be required to have a two-to-four-week orthopedic clinical rotation. In lieu of an orthopedic rotation, they suggest a two-to-four-week rotation in the three-month family medicine rotation.

(Stockard AR and Allen TW. "Competence Levels in Musculoskeletal Medicine: Comparison of Osteopathic and Allopathic Medical Graduates." Journal of the American Osteopathic Association. 106 (6) 350-355; 2006.)

Trend Toward Reduction in Physician Income

Data from the American Medical Association and American Osteopathic Association for the period 1995-2003 showed that the average physician had a decline in net income from the practice of medicine of about seven percent. The report, which was adjusted for inflation, was based on findings from the Health System Change (HSC) Community Tracking Study Physician Survey. Those who were in primary care practice were less able to keep up with inflation with a 10.2 percent decline in net income since the 1990s. On the other hand, physician specialists had remained virtually unchanged.

However, the net income of other professionals increased by seven percent during the same time period. Nevertheless, medicine remains one of the best-paid professions, with at least half of all those engaged in patient care having an average net income of $170,000 in 2003. The average net income of all physicians was $203,000. Specialists in the surgical fields had an average net income of $272,000, which is 86 percent higher than those who are engaged in primary care and earn $146,405. Residents and fellows were excluded from this survey.

(Tu HT and Ginsburg PB. "Losing Ground: Physician Income, 1995-2003." Tracking Report. 15; June 2006.)

New Approaches to CME Examined

A message from Jordan Cohen, M.D., president of the Association of American Medical Colleges, indicates strong concerns about the value of continuing medical education, especially in its present lecture-based format. He states that studies show little value in such programs changing the behavior of physicians or the outcome for patients. Improvements in the delivery of CME, he concludes, can help the practicing physician keep up with evidenced-based standards of patient care and the progress of science and technology.

The vast majority of CME, he says, should employ self-directed, interactive, and relevant learning experiences. In this way, physicians will be able to acquire knowledge and skills that exceed minimum expectations. He reminds us that medical education does not stop after residency training. There is a need for physicians to have effective support for lifelong learning, but the current CME system is failing to provide this. As a result, CME needs to be transformed if patients are to benefit from what modern medicine has to offer, Dr. Jordan concludes.

(Jordan JC. "A New Vision for Continuing Education." Medscape General Medicine. 8(1): 80; 2006.)

Objective Structured Video Examinations

A series of 25 Objective Structured Video Examinations (OSVE) has been developed for the geriatrics curriculum of the Medical College of Wisconsin. A modification of the Objective Structured Clinical Examination (OSCE), each OSVE includes

- a toolkit produced as a CD-ROM that has a one-to-three minute trigger video
- an instructor's manual to serve as a guide in the administration of the OSCE
- a written assessment tool for the learner
- a scoring kit with correct answers and values for each item

The OSVEs were developed by an interdisciplinary team including specialists in geriatrics, family medicine, general internal medicine, counseling psychology, a dentist, and an educationist. The scripts include physicians and residents, as well as a social worker, pharmacist, billing specialist, family member, and an actor in the role of patient. When piloted by a resident, it took 15 minutes to complete an OSVE under the supervision of faculty. The OSVE toolkit instructor's guide includes a list of competencies, tool objectives, and basic instructions. The assessment tool includes background of clinical setting and clinical specific questions. Included in the scoring key is the background of the clinical setting, correct answers, scoring points, and references and resources. Each OSVE is able to assess patent care, medical knowledge, interpersonal communication skills, practice-based learning and improvement, professionalism, and system-based practice.

(Simpson D, Helm R, et al. "Objective Structured Video Examinations for Geriatrics Education." Gerontology & Geriatric Education. (26) 4: 7-24; 2006.)

Improvements in USMLE and Residency Evaluation Through Problem-Based Learning

According to a 10-year study of about 1,000 students at the University of Missouri-Columbia School of Medicine (UMCSOM), USMLE performance and residency program evaluations improved as a result of its problem-based learning curriculum. Of the students admitted to UMCSOM, 83 percent were white, 17 percent were minorities, and 44 percent were women. Their average age at matriculation was 24. The study compared graduating students from 1993-2006 and found there were an increased number of students in the 90th, 95th, and 99th percentile on the USMLE after the introduction of PBL.

The study also showed that this change was not explained by the selection of academically superior students. This included examination of undergraduate GPA, mean MCAT scores, as well as the verbal, biological, and physical science components of the MCAT. Also examined was the performance of graduates in the first year of graduate medical education.

Some tried to explain that the superior performance on the USMLE by students in the PBL curriculum was due to spending more time with faculty. In fact, the amount of time students spent in formal learning activities and with faculty decreased. It is argued that PBL motivated students to actively engage in self-directed learning outside of formal learning events. The study also compared 17 discrete elements of performance during the first year residency of graduates before and after PBL was implemented.

Among these were general fund of knowledge, physical diagnosis and history taking, ability to manage expected number of patients, medical judgement/ability to perform under pressure, quality of oral presentations, quality of written presentations, effectiveness with patients, ability to accept criticism, ability to teach medical students, and willingness to accept responsibility. The investigators suggest the study be duplicated at other medical schools since this study was only limited to UMCSOM.

(Hoffman K, Hosokawa M, Blake Jr. R, Headrick L, Johnson G. "Problem-Based Learning Outcomes: 10 years of Experience at the University of Missouri-Columbia School of Medicine." Academic Medicine 81: 617-625; 2006.)

Strategy to Reform Primary Care Discussed

The U.S. health care system has an ominous future, and primary care is in danger of collapsing unless there are prompt and significant changes according to the American College of Physicians (ACP). Chronic care management is poorly supported, and the coordination of cross-disciplinary care and preventive services are inadequate. Approximately 45 percent of Americans live with a chronic condition, and 83 percent of Medicare beneficiaries have one or more such conditions, with 23 percent having five or more. In six years there will be 76 million baby boomers that will be eligible for Medicare, and there will be a 54 percent growth in adults aged 65 and over between 2000 and 2020.

The ACP cautions against using international medical graduates as the only means to address the chronic shortage of primary care physicians. More than 80 percent of graduating medical students are in debt, with a median burden of $100,000 for graduates of public schools and $135,000 for private school graduates. In fact, as many as five percent have debts exceeding $200,000, and those with debts of $150,000 or more are less likely to enter primary care specialties. Either there must be considerable debt relief or an increase in the income of generalists to change this.

The ACP suggests an expansion of federal loan repayment programs, an increase in loan forgiveness programs, and deferral of educational loan repayment. With regard to the training of generalists, team-based care should be incorporated into residency training with the inclusion of non-physician health professionals. The ACP also recommends the programs remain at three years in length, with the first two years being core years and the final year being tailored to the resident's career goals.

(Simmon-Glickman R. "Reforming Primary Care: A Comprehensive Strategy from the American College of Physicians." American College of Physicians 2006 Annual Session. Medscape.http://www.medscape.com/viewprogram/55-9_pnt; June 20, 2006.)

Technology and Interdisciplinary Training

A Harvard Medical School team indicates that while instructional technology cannot substitute for student-teacher interaction, it can provide a foundation of medical knowledge. In addition, it is able to enrich and facilitate the learning process. This is achieved by forcing students to rapidly integrate data into clinical practice.

Medical schools are now faced with the challenge of restructuring preclinical education, which is the result of online curricula and Web-based learning tools. They advocate that in addition to using instructional technologies to assess the outcome of learning, they should also be used to measure the process itself. Too often, however, the novelty of educational technology centers on the technology itself rather than its utility and purpose. The authors conclude that by emphasizing hypothesis-driven problem solving, decision-making, collaborative strategies, and team management, educational technology can yield interdisciplinary competency. This, they believe, can shape the new practitioner of 21st century medicine.

(Mostaghimi A, Levison JH, et al. "The Doctor's New Black Bag: Instructional Technology and the Tools of the 21st Century Physician." Medical Education Online 11; 2006. http://www.med-ed-online.org.)

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