Nova Southeastern University College of Osteopathic Medicine

Medical Education Digest

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Role of Medical Education Departments

Departments of medical education have become common in many medical schools and are designated by a wide range of titles such as Center for Educational Development, Center for Educational Research, Medical Education Unit, Office of Research in Medical Education, as well as Department of Medical Education. Among the reasons for their establishment are the increased scope of medicine and the growth of specialization, which have brought attention to such issues as what to teach, how to educate physicians, and the need to train more physicians within existing resources. A medical education department also can evaluate the implications of various trends such as public expectations on the educational process, the appropriate medical school response, and how to facilitate the change process as well as monitor it.

The increasingly complex curriculum has led to the recognition that those who teach require some background and training in education, and that medical education departments can provide teacher-training courses. There is also a growing need to closely examine and plan for the expected learning outcomes of the medical school program. Finally, there also needs to be effort provided in performing research in medical education. Beginning at Case Western Reserve University in 1958, followed by the University of Illinois in 1958, the number of medical education offices expanded to 61 by 2000.

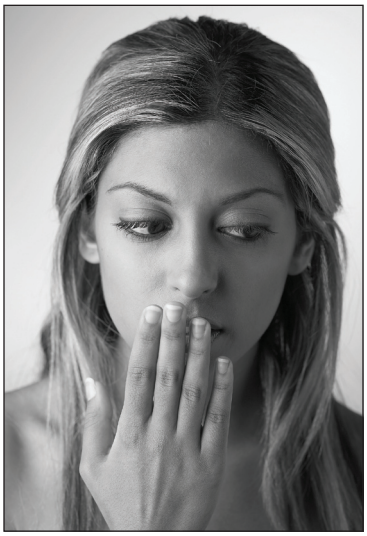
The scope of medical education departments now includes the functions of research, teaching, service, and the nurturing of faculty careers. The research function begins with creating a culture of educational research, including the responsibility to innovate, evaluate innovations, and disseminate the results of the evaluation. It also includes providing communication concerning medical education research through such vehicles as a journal club or newsletter. Publications and communications by members of the medical education department also are among the functions of the department. This may include contributions to such periodicals as *Academic Medicine*, *Medical Education*, *Medical Teacher*, *Advances in Health Science Education*, and *Education for Health*.

The teaching function includes attention to the facilitation of learning, instructional materials, learning technologies and simulations, student assessment, and course development and evaluation. The service function includes advising in curriculum based on best evidence in medical education, providing expertise in student and curriculum evaluation, developing student study guides, and helping to provide online learning materials. In addition, the function of nurturing faculty careers is also important. This may include the production of the future medical educationist, which involves having senior members of the medical education department help junior faculty members to develop and publish in relation to their specific interests.

Those who become part of the medical education department may be members of the health professions, as well as educational personnel who specialize in assessment, course design, teaching and learning, and instructional materials design. Expertise is needed in content areas, educational approaches and methods, management to run projects, as well as computing and instructional technology skills. Only six percent of medical education departments have an M.D. at their helm. The department can focus on all three phases of medical education, namely undergraduate, graduate, and continuing medical education or only on undergraduate education. Financial support can come from the university, governmental grants, and industry contacts. The establishment of this new medical school department requires the support of the dean and other powerful advocates in the school, and its status should be equivalent to other departments in the school.

(Davis MH, Karunathilake I, Harden RM. "The Development and role of Departments of Medical Education." Medical Teacher. 27:665-675; 2005.)

Perceived Medical Errors Quite Common Among Resident Physicians



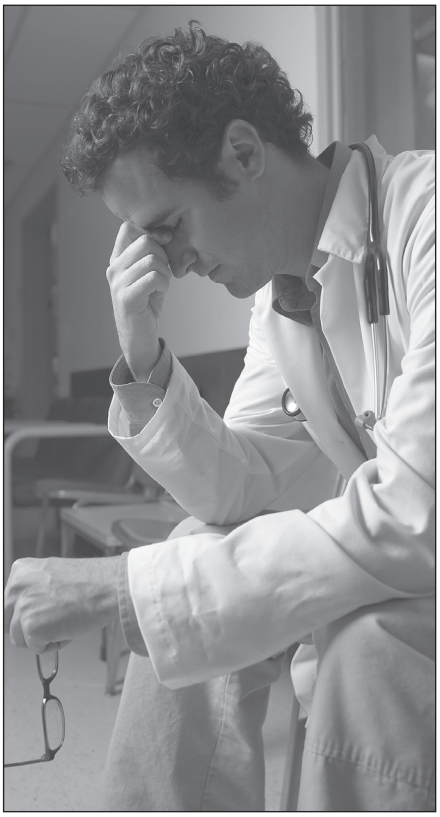
A recent Mayo Clinic study in *JAMA* reported that at its Rochester, Minnesota facilities, resident physicians made at least one major error in regard to hospitalized patients. The study estimated that from 5-to-10 percent of hospitalized patients are affected by medical errors, while other studies place the figure as high as 50 percent. Concern about illnesses, death, and financial costs due to these errors are significant.

In the Mayo Clinic study, the frequency of perceived medical errors by internal medicine residents was 34 percent in the 184 residents from whom data was provided. These errors were associated with burnout, symptoms of depression, and empathy. The study included a self-assessment survey of medical errors and quality of life every three months. Every six months, it measured burnout, including depersonalization, emotional exhaustion, and personal accomplishment as well as symptoms of depression.

The study began in 2003-2004 and was completed in May 2006. Forty-three percent of residents completing at least one year of the study reported errors. During each three-month period, 14.7 percent of participants reported making a medical error. Those who participated and who reported self-perceived medical errors were three times more likely to screen positive for depression. The investigators recommended that residency programs try to establish activities that will prevent, identify, and treat burnout and promote patient empathy. They also concluded that formal programs are needed to provide the residents who make errors with additional support.

(West, CP, et al. "Distress from Self-Perceived Medical Errors Common Among Resident Physicians." JAMA. 296:1071-1078; 2006.)

Longer Work Hours Pose Significant Injury Risk to Sleep-Deprived Interns



A Harvard Medical School/Brigham and Women's Hospital study found that interns who work longer than established work-hour limits are at significantly greater risk of needle sticks and cuts. This is a major concern because of the possibility of transmitting blood-borne pathogens through percutaneous injuries.

The study included 2,737 U.S. interns from a total of 18,447 between 2002-2003. It found through monthly surveys that there were a total of 498 percutaneous injuries, including 294 lacerations and 204 needle sticks. The greatest risk appeared to be in obstetrics/gynecology and surgery programs, which were thought to be due to the fact that they perform more invasive work. These injuries occurred more frequently during extended work periods averaging 29.1 consecutive hours and transpired twice as often during the night than during the day.

The factor most commonly contributing to these injuries was a lapse in concentration that occurred in 63.8 percent of incidents. Fatigue was cited as the cause 31 percent of the time. The investigators believe that the experimental data indicate that the injuries are associated with extended work duration as a result of adverse cognitive effects of sleep deprivation. They further concluded that measures to reduce these occupational injuries are important because of their potentially serious consequences. The impact of managing fatigue on the risk of these injuries needs to be evaluated.

(Ayas, NT, et al. "Medical Interns Often Work Longer Hours Than Mandated, Risk for Injury." JAMA. 296:1055-1062; 2006.)

Medical Education and Handheld Computers

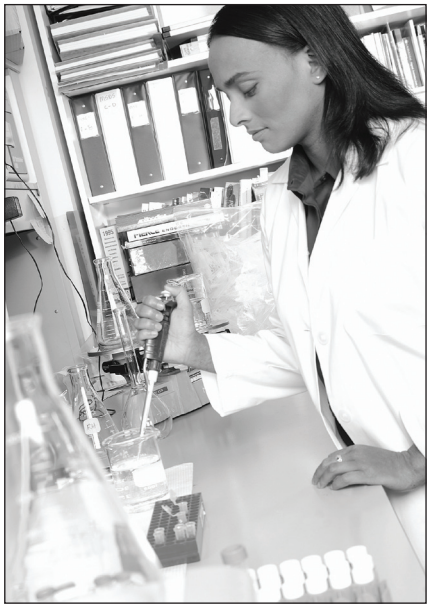
Today, approximately 60 percent of medical students and residents use handheld computers for educational purposes or patient care. At some institutions, lecture materials can be downloaded onto a Personal Digital Assistant (PDA) beforehand so students can concentrate on the lecturer rather than on note taking. PDAs are also used as a polling tool in the classroom so instructors can display multiple-choice questions as a Web page while students respond to these questions. As a result, there is real-time assessment of student knowledge as well as interactivity.

PDAs are used to evaluate teaching in real time, thus avoiding recall that may occur with monthly evaluation. They may also realize significant cost savings. In clinical settings, the most common applications of the PDA include access to medical references, electronic textbooks, and clinical computational programs. It also is used in clinical decision reports, for practice guidelines, and in physician order sets for common diagnoses. A saving of about one minute for each patient encounter is reported as compared to the use of traditional references. In the area of documentation of patient care, software can sometimes be integrated into the hospital information system and may have the ability to retrieve laboratory data. It has also been uploaded into intensive care unit computers.

A modest reduction of just more than 10 percent in documentation errors was found in resident progress notes. Other PDA applications include medical recordkeeping, order entry, note and prescription writing, and billing. In at least one program, PDAs were used to collect research data as well as transfer it to the files of collaborators. With regard to patient outcomes, one study indicated that through PDA use, it was better able to inform patients about medication use.

(Kohl A, et al. "Use of Handheld Computers in Medical Education: A Systematic Review." Journal of General Internal Medicine. 21:531-537; 2006.)

Clinical Research Training in Residency



A research methods curriculum at the University of California San Francisco Medical Center (UCSF) based at the San Francisco Veteran's Affairs Medical Center has the purpose of teaching basic epidemiology skills and providing mentoring for clinical research. The outpatient-based Primary Medical Education (PRIME) program has produced 32 residents in 4 years, with 22 publishing 20 papers in peer-reviewed journals. No difference has been noted in the clinical evaluations between these residents and others in the UCSF medicine residency programs.

The PRIME program implemented evidence-based medicine and clinical research in 2000, which is consistent with the core competencies established by the Accreditation Council on Graduate Medical Education (ACGME). Residents are provided with protected time to complete clinical research, but the program also ensures that they acquire necessary clinical skills.

The PRIME program has time evenly divided between standard inpatient rotations and outpatient blocks, and journal clubs are supplemented by lunchtime evidence-based medicine lectures and outpatient seminars. The epidemiology curriculum includes an overview of epidemiological studies, discussions about epidemiological data, research design, measurement, causal inference, qualitative biostatistics, computer skills, research ethics, and meta-analysis.

Those selected to the PRIME program must have a commitment to ambulatory medicine, an academic career, and evidence-based medicine. They must also have a commitment to academic and community leadership. Of the PRIME residents, 7 out of 32 were selected to be chief residents compared to 17 of the 185 residents from other UCSF internal medicine programs.

(Kohlwes RJ, et al. "The PRIME Curriculum: Clinical Research Training During Residency." Journal of General Internal Medicine. 21:5060509; 2006.)

Prescribing Performance of Medical Students

An active teaching method has been devised to improve the perceived deficit medical students and residents have in writing complete and accurate prescriptions. Among these deficits are polypharmacy, wrong medication for the diagnosis, use of expensive drugs when less expensive ones are available, wrong dosing, and unnecessary prescribing. Lectures are supplemented by a tutorial that includes two case scenarios for groups of 12-19 students. At the end of the tutorials, the groups develop a consensus for an ideal prescription for each scenario. An objective structured clinical examination (OSCE) with 13 scored items includes a simulated clinical scenario that requires students to determine the correct drug for the condition and to write an appropriate prescription. The items include:

Item	Points
Patient Profile	1
Excludes Systemic Symptoms	1
Asks About Allergies	2
Appropriate Drug Choice	2
Generic Drug Use	1
Correct Dose and Route	2
Correct Frequency	1
Correct Duration	1
Legibility, Signature, and Date	2
Overall Approach to Patient	1
Overall Approach to Task	2

(Tonkin AL, Taverner D, Latte J, Doecke C. "The Effect of an Interactive Tutorial on the Prescribing Performance of Medical Students." Medical Education Online. 11:9; 2006. http://www.med-ed-online.org.)

D.O. Distribution in ACGME Residencies

The largest percentage of osteopathic physicians in Accreditation Council for Graduate Medical Education (ACGME) accredited graduate medical training as of August 1, 2004, was in physical medicine and rehabilitation. About 15 percent of PM&R residents in ACGME-accredited programs were D.O.s. This was followed by family practice, where about 13 percent of the residents in ACGME programs were osteopathic physicians. More than 9 percent of rheumatology fellows were D.O.s in ACGME programs, while almost 10 percent of the anesthesiology ACGME residents were members of the osteopathic medical profession. About 7.5 percent of ACGME neurology and obstetrics and gynecology residents were D.O.s. Orthopedic surgery, interventional cardiology, plastic surgery, and neurological surgery ACGME-accredited residency programs had 1 percent or fewer residents who were from osteopathic medicine.

("Physician Specialty Data: A Chart Book." Center for Workforce Studies. Association of American Medical Colleges. Figure 18. Page 20; 2006.)

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