Nova Southeastern University College of Osteopathic Medicine

Medical Education Digest

Volume 9, Number 1 | Published six times per year by NSU College of Osteopathic Medicine | January/February 2007

Communicating and Listening to Older Adults

A seminar for third-year medical students at the University of South Carolina School of Medicine focused on communication and listening skills involving adults over age 65. This involved 8-to-12 students in a psychiatry rotation. The seminar included a 15-minute slide presentation followed by the introduction of a "branching question" and a format referred to as L-I-S-T-E-N.

The branching question could be phrased as, "Your life, like a tree or river, has had branching points. What events, experiences, and circumstances have most affected your life or have been the branching points that shaped you life?" Follow-up questions by students included: "What health-related events caused your life to branch or take another course?"; "What stresses have caused branching points or life-altering courses for you?"; "What success or happy times have caused branching points?"

The seminar then employed the L-I-S-T-E-N format, which is

- **L** Learn from open-ended questions
- **I** Integrate often using a diagram or visual
- **S** Summarize for accuracy and completeness
- **T** Talk about omissions, additions, meaning, misunderstandings
- **E** Empathize by validating (emotions)
- **N** Negotiate recommendations

Students varied from being interviewers and speaker. They learned how psychosocial, cultural, spiritual, and life-changing events affect health and health behaviors.

(McFarland K, Rhoades D, Roberts E, Eleazer P. "Teaching Communication and Listening Skills to Medical Students Using Life Review with Older Adults." Gerontology and Geriatrics Education 27(1); 81-94; 2006.)

Computer-Assisted Instruction and Osteopathic Medical Students

A study of the attitudes of 306 osteopathic medical students regarding computer-assisted instruction was conducted at the University of Medicine and Dentistry of New Jersey-School of Osteopathic Medicine. Of those surveyed, 80 percent or 246 completed the questionnaire provided. The study revealed that 72 percent of the students claimed that they learned best from both hearing, seeing, or reading new material. Of students with advanced computer skills, 67 percent felt they learned best from the printed page, while 82 percent of those with intermediate skills and 84 percent with basic skills indicated that they learned best using that format.

When comparing students who have basic and intermediate skills to those with advanced skills, those who were more advanced were more in favor of computer-assisted instruction and testing. However, the authors indicated that their study was done in 2001, and the data collected at that time may be different than what current attitudes may be.

(Forman LJ and Pomerantz SC. "Computer-Assisted Instruction: A Survey on the Attitudes of Osteopathic Medical Students." Journal of the American Osteopathic Medical Association. 106 (9); 2006.)

The Need to Change Surgical Skill Education

Compared to the past, patients in teaching hospitals are more complex and sicker. This complexity results in more emphasis on the prevention of medical errors. In addition, pressures have led to a shorter workweek for residents and an emphasis on operating room efficiency that reduces the amount of teaching time. This has caused an increased interest in surgical education that includes practice on models and simulators. The early stages of teaching technical skills can be learned outside the operating room.

An example is the Objective Structured Assessment of Technical Skills (OSATS). Under direct observation by an expert, residents perform a series of standardized surgical tasks. Examiners use a checklist of 10-to-30 essential surgical maneuvers. A second part of the course includes 5-to-8 surgical behaviors such as respect for tissues, economy of motion, and appropriate use of assistants. The validity and reliability of OATS is similar to the Objective Structured Clinical Examination (OSCE).

The McGill Inanimate System for Training and Evaluation of Laparoscopic Skills (MISTELS) uses an inanimate box to simulate generic skills needed to perform laparoscopic surgery and has been shown to be both valid and reliable in assessing laparoscopic surgical skills. A third device is the Imperial College Surgical Assessment Device that has a sensor to translate movement into a computerized tracing of hand motion and is effective as an index of technical skill in both laparoscopic and open procedures.

These devices are safe, reproducible, portable, readily available, and generally more cost-effective than animals or cadavers. The availability of virtual reality technology allows for very detailed feedback that is possibly subtler in measurement of trainee performance than in the real world. These devices permit measures of precision and accuracy as well as provide means to reduce error rates. A Food and Drug Administration panel, for example, has recommended the use of virtual reality simulation as an integral part of the training component used for carotid artery stenting.

As more evidence builds up regarding the efficacy of simulation training combined with societal pressure, it is likely that residents will have to demonstrate proficiency in basic techniques before operating on patients. It is also likely that as computer technology improves, most, if not all, surgical programs will devote considerable curricular time to simulator-based training.

(Reznick RK and MacRae, H. "Teaching Surgical Skills: Changes in the Wind." The New England Journal of Medicine. 335(25): 2664-2669; 2006.)

Medical Students Serving as Teachers

Practicing physicians are frequently called upon to teach residents and medical students. In addition, they essentially serve the role of teacher in helping their patients better understand their disease and treatment plan. Ultimately, when they finish their medical school course of study, students become residents and often find themselves involved as part of the team responsible for teaching other medical students. However, most of those who are responsible for the education of the future physician have received no formal training as educators.

It is rare to see a faculty member comment on the teaching ability of junior or senior medical students or their potential as an educator. Typically, students recommended to tutor other medical students have received honors grades in their courses, but no information is provided about their prior teaching experience. Students at all levels need to become not only effective learners but also effective teachers. One recommendation is to identify those medical students with previous teaching experience who might be selected to conduct a workshop on "how to teach."

Those faculty members who have received teaching awards from students can volunteer to conduct a workshop to enhance medical student teaching skills. Workshops can be organized by medical school master teachers on how to construct a lecture, use a PowerPoint, facilitate small-group discussions, construct multiple-choice examinations, or how to effectively tutor a student having difficulties.

(Newswise. "University Launches Center to Enhance Learning and Teaching." www.newswisew.com/articles/views/524025/?sc=dwhp; Wednesday, October 4, 2006.)

Analyzing Simulated Operating Theater

More than 20 years ago, it was found by the National Aeronautics and Space Administration (NASA) that human causes were the reasons for errors. This included failure in interpersonal communication, decision-making, and leadership. NASA developed crew resource management (CRM) training that included simulators, lectures, and seminars in order to establish a culture of safety as well as to understand the limits of human performance. Those in the anesthesia field have adopted this approach by implementing anesthesia crisis resource management (ACRM) worldwide.

Residents practice skills in an artificial environment, integrating technical and team training skills. In surgery, however, this rarely occurs because residents do not routinely receive feedback on their non-technical skills such as teamwork, judgment, and leadership. While they may receive instruction in the patient-doctor relationship, there is often little regard for skills regarding the relationship needed with fellow team members. It has been pointed out in one study that a skillfully performed surgical procedure is 75 percent decision-making and 25 percent dexterity.

Simulation is use of devices or exercises that enables trainees to reproduce or represent, under test conditions, phenomena likely to occur in actual performance. By using a simulated operating room environment, it is possible to train and assess the performance of residents in such skills as team interaction and communication. At the same time, simulators can ensure that residents are armed with basic surgical skills prior to entering the operating room.

Using such models allows mistakes to be made without fear of complication and affords individuals an opportunity to perform the same task until competence is achieved. It also allows repetition of a standardized task until competence is reached and can be used as an assessment of competence.

(Aggarwal R, Undre S, Moorthy K, Vincent C, Darzi A. "The Simulated Operating Theatre: Comprehensive Training for Surgical Teams." Quality and Safety in Health Care. 13: 27-32; 2004.)

Studying the Gap Between Undergraduate Minorities and Medical School Applicants

In addition to an anticipated shortage of physicians, there is an increasingly growing need for a diverse physician workforce. Today, about a quarter of the population is made up of African Americans, Hispanics/Latinos, and Native Americans, but only about 12 percent of medical students represent these groups. In addition, only 6 percent of practicing physicians are members of these minorities.

Over 55 percent of all applicants to medical school from 1993 to 2004 were biology majors—the most frequently indicated major of those who applied to medical school. However, the proportion of Black/African Americans who were biology majors who applied to medical school decreased from 83 percent to 44 percent during the same time period. Among Hispanics/Latinos, the drop was from 75 percent to 39 percent and from 73 percent to 45 percent among Native Americans.

It was found that even though more students from these minority groups than ever are graduating with undergraduate degrees in biology, for more than a decade the proportion of these who are applying to medical school has not increased.

("New Analysis Reveals Growing Gap Between Undergraduates and Medical School Applicants." Association of American Medical Colleges. November 16, 2006.)

Women in Academic Medicine

In 2005-06, about 50 percent of applicants to medical school were women. This has been quite similar for the classes that entered in 2002. This year, 49 percent of graduating medical students were female and 42 percent of all residents and fellows were women. However, representation of women in academic medicine still is of concern. Only 11 percent of medical school deans are women, while 16 percent of full professors in medical schools holding the rank of full professor are female. In addition, of medical school department chairs, only 10 percent are female. More progress has been made at the assistant dean level, where 43 percent are reported as being female.

Magrane M. "An Overview of Women in U.S. Academic Medicine, 2005-06." Analysis in Brief. AAMC. 6(7) October 2006.)

Sizing Up the Stanford Medical Youth Science Program

In 1988, Stanford University School of Medicine began a program designed to increase the diversity of its medical graduates that focused on 250 California high school students. Each year, it enrolls 24 high school students who are from low-income minority backgrounds and who spend five weeks during the summer in a residential program. The program, referred to as the Stanford Medical Youth Science Program (SMYSP), offers enrichment in the biological and health sciences and provides information about health and scientific careers. It also provides personalized college admissions preparation and career counseling. Attempts are made to build an excitement in science and medicine among the students by having lectures provided by faculty and physicians that build on what the students received in high school classes.

Eligible students are applicants from northern and central California and will have completed their sophomore or junior year of high school and have an interest in the sciences or health professions. In addition to letters of reference and transcripts, they must complete four short essays about their backgrounds and career goals. They also must have completed biology and have attained at least a B grade in a science course. Each year, about 250 students apply, of which 100 are interviewed by two Stanford undergraduate student staff, resulting in 45 finalists who spend one day with their families and teachers at Stanford for a series of group discussions. From these, the 24 who enter the program are represented equally by gender and ethnicity and live in residential quarters on the campus. Staffing is by 10 Stanford undergraduate students who serve as counselors, role models, and teachers. Future staff is derived frequently from those students admitted to the university who completed the program.

The program helps those enrolled develop skills such as SAT preparedness, scientific writing, public speaking, cultural awareness, and time management. They attend career guidance workshops and also spend two afternoons weekly in the gross anatomy laboratory, where they dissect human cadavers. In addition, they complete hospital placements at either the Stanford University Hospital or the Palo Alto Veterans Affairs Health Care Center. This includes experience in cardiac surgery, obstetrics, labor, delivery, emergency medicine, and physical therapy. Of 405 graduates of the program since 1988, 81 percent graduated from four-year colleges. Fifty-two percent graduated or are attending medical/graduate school, while 22 percent are attending medical school (M.D. or D.O.) and 29 percent are attending graduate school. Of the four-year college graduates, 44.4 percent are becoming or have become health professionals.

(Winkleby MA. "The Stanford Medical Youth Science Program: 18 Years of a Biomedical Program for Low-Income High School Students." Academic Medicine. 82 (2): 139-145; 2007.)

Medical Emergency Team and Computerized Human Simulator

As has been done in civil aviation, the Institute of Medicine has recommended that simulation be established for team-training programs. A study was done at the University of Pittsburgh School of Medicine that confirms that not only is team training for ad hoc crisis response teams in hospitals using computerized human simulators possible, but it may also result in superior resuscitation process and outcome. The program focuses on improving the organization, efficiency, and reliability of the crisis-team response, rather than simply on the improvement of individual ACLS skills. Furthermore, the study concluded that communication and integration of individual activities into a team response might be as important as individual clinical or procedural skills. The University of Pittsburgh crisis team-training course emphasized organizational elements that included

- medical emergency team members must be self-identified.
- tasks to be accomplished need to be prioritized.
- required individual steps to achieve specific goals must be sequenced.
- roles and specific task responsibilities need to be delegated and rehearsed.

(DeVita MA, Schaefer J, Lutz J, Wang H, Dongilli T. "Improving Medical Emergency Team (MET) Performance Using Novel Curriculum and a Computerized Human Patient Simulator." Quality and Safety in Health. 14: 326-331; 2005.)

NSU NOVA SOUTHEASTERN UNIVERSITY
Beyond the Classroom

Health Professions Division
College of Osteopathic Medicine
3200 South University Drive
4th Floor, Room 1495
(954) 262-1469
Fort Lauderdale, FL 33328-2018
http://medicine.nova.edu

Medical Education Digest

The *Medical Education Digest* is published bimonthly through the NSU-COM Office of Education, Planning, and Research

Editor
Leonard Levy, D.P.M., M.P.H.
Associate Dean

Associate Editor/Art Design
Scott Colton
Director of Medical Communications