The future of
Surgical Simulation
and
Surgical Robotics
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On the cover: The “operating room without people” project is one of the developments in skills-based training outlined by Dr. Satava in the article on page 13. (Photo courtesy of Pablo Garcia, SRI International, Menlo Park, CA, 2006.)
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Richard J. Fantus, MD, FACS

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Late last fall, I had the privilege of participating in a medical mission to an underdeveloped country. Readers of this column may recall that in 2004 I visited the African nations of Kenya and Sudan. For this second trip, I had the opportunity to witness the amazing work that Guy D. Theodore, MD, FACS (who prefers to be called Dr. Guy), and several charitable organizations are carrying out in Pignon, Haiti.

Dr. Guy’s work
Participating in these activities really helps to put into perspective the problems we face in this country. Haiti is the poorest country in the Western hemisphere. Poverty is rampant, and the ravaging effects of malnutrition are visible on the bodies of young and old alike. Very few people have steady sources of income, and many families live in meager shanties. Potable water is a rare commodity, and people rely on their feet and the occasional donkey for most of their transportation. The infant mortality rate is 97 per 1,000 live births, and the average life expectancy is 51 years. Despite these grim realities, Haitians are generally optimistic and spiritual people who have faith that tomorrow will be a better day.

Dr. Guy has combined forces with several groups that organize medical missions to Haiti to ensure that individuals needing medical care there will, in fact, have healthy futures. He attended medical school in Port-Au-Prince and then completed a general surgery residency in the U.S. He went on to serve in the U.S. Air Force, where he broadened his medical and administrative skills.

Dr. Guy returned to his native city of Pignon with the goal of fulfilling his childhood dream of improving the lives of the people in this mountain community. In 1983, he started training nurses to assist him in providing care at what was then a small clinic and is now Hôpital Bienfaisance de Pignon (Charity Hospital). This 65-bed facility is run by the Comite de Bienfaisance de Pignon, which also sponsors public health, education, drinking water, and reforestation programs in this area that has been stripped of so much of its natural beauty and resources.

I visited the hospital, as well as local schools, orphanages, and community centers, as part of a mission organized through Project Haiti and the Community Coalition for Haiti, which are based in Aitkin, MN, and Fairfax, VA, respectively. Taking the lead in this effort were Paul A. Severson, MD, FACS, a general surgeon in Crosby, MN; and Arthur L. Trask, MD, FACS, a general surgeon in Springfield, MO. The hospital contains a state-of-the-art operating room, but it is somewhat lacking in other areas. However, Dr. Guy is working with Project Haiti, the Community Coalition for Haiti, and other groups to ensure that Hôpital Bienfaisance continues to develop into the most advanced medical center in Haiti, if not the entire Caribbean.

Doing much with little
While at the hospital, I had the privilege of watching Dr. Guy’s highly regarded surgeons and general surgery residents perform a range of procedures, including cholecystectomy, splenectomy, head and neck operations, and hernia repair. It was fascinating to see what these physicians could accomplish with such a small budget.

Indeed, the entire experience reminded me of how much surgeons practicing in the U.S. take for
granted. Unquestionably, we are facing numerous challenges. Medical liability concerns, shrinking reimbursement levels, increasing government interference, and loss of autonomy all detract from the joy of practicing surgery. Nonetheless, we have access to the most advanced technology, work with well-educated professionals, and typically work in facilities that have the necessary and appropriate resources at the ready.

Conversely, participating in outreach programs that support missions like the ones that go to Haiti allows surgeons to help truly needy patients and to deliver care without worries about liability or reimbursement and without government interference. Furthermore, because the physical and human resources in poorer parts of our own country and around the world are often finite, surgeons must apply more intuitive thinking and be prepared to perform a wide variety of operations on patients who often have a greater set of risk factors than patients in this country do. It’s really quite exciting, and the gratitude expressed...
Intubating a patient.

In the OR.

A child gathering water.

Dr. Russell with a polio patient.
by the patients reminds us of why we went into surgery in the first place: to serve others.

I would challenge any surgeon who is growing cynical about surgical practice to participate in a medical outreach program either abroad or within the U.S. I can guarantee that you will come away from the experience with a renewed sense of enthusiasm about our profession. At the same time, I would strongly encourage any surgeon who has had an interest in surgical outreach to get involved now.

**Operation Giving Back**

The American College of Surgeons has been working to connect surgeons with organizations that sponsor surgical missions through our Operation Giving Back program. Since Operation Giving Back’s Web site was launched in September 2005, this program has attracted the attention of thousands of surgeons interested in ways to engage in volunteerism.

Myriad opportunities exist, with most combining educational outreach with a clinical component of the mission. Here in the U.S., the many innovative efforts to provide surgical care for those in need include the American Project Access Network (APAN), Operation Access, Fresh Start Surgical Gifts, Primary Care Access Network, Surgery on Sunday, and Operation Blessing, among others.

Opportunities are included for surgeons of all specialties all over the world. Some of the dozens of organizations with an international focus include Operation Smile, the Pan-African Academy of Christian Surgeons, Health Volunteers Overseas, Omni Med, International Volunteers in Urology, Physicians for Peace, the Foundation for International Education in Neurosurgical Surgery, Doctors Without Borders, and Global ENT Outreach.

Such organizations provide surgeons with opportunities to lend their skills and talents to individuals around the globe who otherwise would have limited or no access to appropriate care, as well as contributing to much needed infrastructure through education and training. Humanitarian surgical missions are sponsored in places as diverse as the Congo and Portland, ME, or Guatemala City and Jasper, GA.

To learn more about Operation Giving Back, visit [http://www.operationgivingback.facs.org/](http://www.operationgivingback.facs.org/), or contact Kathleen Casey, MD, FACS, at kcasey@facs.org. I have no doubt that this resource will point you toward experiences as enriching and rewarding as those I have had in Africa and Haiti.

Thomas R. Russell, MD, FACS

If you have comments or suggestions about this or other issues, please send them to Dr. Russell at fmp@facs.org.
The Medicare Payment Advisory Commission (MedPAC) met January 9 and 10, voting once again to support an increase in Medicare payments to physicians. Specifically, MedPAC endorsed a 1.7 percent increase in the conversion factor for 2008. This amount is based on an estimate of input price inflation minus productivity growth for next year. In 2008, Medicare physician payments are scheduled to be cut an estimated 10 percent from 2007 levels. In December 2006, Congress acted to prevent a 5 percent cut from taking effect January 1.

In addition, commissioners held their final public discussion on possible alternatives to the sustainable growth rate (SGR) methodology, which is currently used to determine Medicare physician payments. MedPAC’s report to Congress, scheduled for release this month, discusses the pros and cons of several different options. Although MedPAC did not vote to support a particular proposal, the panel suggests two possible pathways to reform: (1) repeal the SGR’s expenditure target, or (2) extend an expenditure target to all Medicare service payment systems. Under the latter approach, physicians would no longer be singled out to remain within an expenditure target or face a payment reduction. The report also continues the discussion of linking payments to certain quality measures, and both pathways would include efforts to develop and adopt new approaches for improving value.

MedPAC’s activities underscore the need for Congress to enact long-term Medicare payment reform to preserve patient access to quality surgical care. The College continues to work with policymakers to enact meaningful reform that will avert Medicare payment cuts in the future. For more information, go to http://medpac.gov/.

Growth in U.S. health care spending slowed for the third consecutive year in 2005, increasing 6.9 percent compared to 7.2 percent in 2004 and 8.1 percent in 2003, according to a statement that the Centers for Medicare & Medicaid services (CMS) issued January 9. The 6.9 percent increase in 2005 marks the slowest climb in health care spending since 1999, when growth was 6.2 percent. Health care spending reached nearly $2 trillion in 2005, or $6,697 per person, up from $6,322 per person in 2004. As a share of the nation’s gross domestic product, health care spending increased slightly from 15.9 percent in 2004 to 16 percent in 2005.

One factor cited as contributing to the slower growth rates is the delayed effects of lower prescription drug spending in 2001 caused by the recession. Hospitals accounted for the largest share of overall health care costs in 2005, reaching $611.6 billion, whereas spending for physician and clinical services reached $421.2 billion. For details, go to http://www.cms.hhs.gov/apps/media/press_releases.asp and click on “CMS Releases U.S. Health Spending Estimates Through 2005.”

The American Medical Association (AMA), with the support of the American College of Surgeons and more than 60 other medical specialty societies, is conducting a multispecialty survey of U.S. physician practices. The purpose of the study is to compile up-to-date information...
on physician practice characteristics in order to develop and redefine organized medicine’s policies. Data pertaining to professional practice expenses also will be collected.

The AMA and the College plan to survey thousands of physicians in virtually all specialties to ensure accurate and fair representation of all physicians and their patients. As a result, it is likely that the Gallup Organization will be asking Fellows to participate in the survey.

The College encourages surgeons to participate in this study because the information derived from it will be critically important in shaping the positions it presents to policymakers on behalf of surgeons and their patients. For more information, contact the Division of Advocacy and Health Policy at ahp@facs.org.

On December 11, 2006, the Institute of Medicine (IOM) held its fourth and final workshop aimed at bringing national attention to the findings in three IOM reports, which were released last June, on the future of the nation’s emergency care system. The event took place in Washington, DC.

A. Brent Eastman, MD, FACS, ACS Regent and chief medical officer and N. Paul Whittier Chair of Trauma at ScrippsHealth in San Diego, CA, served on the IOM committee and provided opening remarks at the event. Dr. Eastman challenged political leaders and the medical community to heed the warnings in the reports and to use their recommendations as a blueprint for creating a regionalized, coordinated, and accountable emergency and trauma care system in the U.S. Edward E. Cornwell III, MD, FACS—a trauma surgeon and professor of surgery at Johns Hopkins in Baltimore, MD, and member of the College’s Committee on Trauma—represented the ACS at the workshop. Other participating Fellows included Michael F. Rotondo, MD, FACS; Alex Valadka, MD, FACS; and William Schwab, MD, FACS.

This capstone event provided an opportunity for the College and other stakeholders to engage policy leaders in a discussion of how to implement the IOM report recommendations. A Growing Crisis in Patient Access to Emergency Surgical Care, a College report also released in June 2006, was distributed to attendees. This report offered further details about many of the issues outlined in the IOM reports, particularly with respect to declining access to surgical specialty care in emergency departments. A summary of the key findings and recommendations of the IOM reports can be found at http://www.iom.edu/Object.File/Master/35/040/Emergency%20Care%20Findings%20and%20Recs.pdf.

The College’s report on the emergency surgical workforce crisis can be accessed at http://www.facs.org/ahp/emergcarecrisis.html. (See related article on page 20.)
What surgeons should know about…

Medical licensure and state regulation of medical practice

by Jon H. Sutton, Manager of State Affairs, Division of Advocacy and Health Policy

The practice of medicine is highly regulated at both the federal and state levels. Medicare and Medicaid regulations, public health rules, certificate of need laws, and insurance mandates are just some of the more obvious examples of the regulatory and administrative complexities that influence modern medical practice. One area that may not always receive the same degree of attention, though, is that of medical licensure.

Physicians must be licensed to practice medicine in the state in which they provide medical care. After undergoing a rigorous initial process to gain a license, however, many physicians give little thought to their licensure status until it is time to renew. In most states, license renewal is on a two- or three-year cycle. For most physicians, renewing a license involves payment of the renewal fee, submission of evidence of completion of continuing medical education (CME) requirements, and maintenance of acceptable standards of professional conduct and medical practice. This article addresses some of the licensure-related issues about which surgeons should stay informed.

How is physician licensure regulated?

States regulate physicians through a medical practice act. They generally limit licensure in these acts to medical doctors or doctors of osteopathy. The medical practice act adopted by the state legislature grants regulatory authority to a medical board, which may be called a medical licensing board, a board of medical examiners, or a board of medicine. The act typically contains provisions that define the practice of medicine and requirements for licensure (education, training, and so on); describe various license categories, such as temporary or special licenses; specify individuals who may be appointed to the board and the process for selecting them; explain what constitutes a violation of the act and the practice of medicine, as well as how the board may discipline a physician for a violation; and indicate how to deal with impaired physicians. The Federation of State Medical Boards (FSMB) provides guidance to state medical boards on elements of medical practice acts and regularly updates the Essentials of a Modern Medical Practice Act, which may be accessed at http://www.fsmb.org/grpol_policydocs.html.

Licensure and disciplinary activities may be carried out by two separate boards. For instance, Illinois has a medical licensing board and a medical disciplinary board. The Illinois Department of Financial and Professional Regulation oversees both boards and is responsible for licensure of approximately 1 million professionals in more than 100 industries in the state. As this example demonstrates, professional licensure is a major component of state regulatory functions.

There are 70 medical boards in the U.S. and its territories, including 14 state boards of osteopathic medicine. At one time, most states had separate osteopathic boards, but over the years, many of these have been combined with medical boards. Ultimately, these boards are charged with protecting the public from the unprofessional, improper, unlawful, or incompetent practice of medicine.

How many CME credits are necessary to renew a medical license?

The number of CME credit hours per year required for renewal of a medical license varies from state to state. Some states require a specific number of hours in a particular subject, such as pain management, human immunodeficiency virus and acquired immune deficiency syndrome, child abuse, domestic violence, or palliative care. A few states have no CME requirements for license renewal, including Colorado, Indiana,
Montana, New York, Oregon, South Dakota, and Vermont, as well as Hawaii’s osteopathy board. The American Medical Association provides a list of hours per renewal cycle by state on its Web site. To view this information, visit http://www.ama-assn.org/ama/pub/category/2640.html.

The medical boards have a major role in disciplining physicians. What types of actions may they take against a physician’s license and when is disciplinary action permissible?

As noted in the Essentials of a Modern Medical Practice Act, state medical boards may take a range of disciplinary actions against a physician, including revoking or suspending a license; placing a licensee on probation; putting stipulations, limitations, restrictions, and conditions relating to practice on the license; censuring, reprimanding, or chastising the physician; seeking monetary redress to another party or a period of free public or charity service, either medical or nonmedical; compelling the physician to satisfactorily complete an educational, training, and/or treatment program; and leveling a fine or charge to cover disciplinary costs.

The Essentials provides a long list of what defines unprofessional or dishonorable conduct subject to disciplinary action. Examples of some more egregious violations include the following:

- Fraud or misrepresentation in applying for or procuring a medical license
- The commission or conviction of a gross misdemeanor or a felony, regardless of whether the crime is related to the practice of medicine, or the entry of a guilty or nolo contendere plea to a gross misdemeanor or a felony charge
- Conduct likely to deceive, defraud, or harm the public
- Disruptive behavior and/or interaction with physicians, hospital personnel, patients, family members, or others that interferes with patient care or could reasonably be expected to adversely affect the quality of care rendered to a patient
- Negligence in the practice of medicine as determined by the board
- Being mentally or physically unable to engage safely in the practice of medicine
- Commission of any act of sexual misconduct, including sexual contact with patient surrogates or key third parties, which exploits the physician-patient relationship in a sexual way
- Habitual or excessive use or abuse of drugs, alcohol, or other substances that impair ability

How can medical boards fulfill their responsibility and protect the public from incompetent physicians?

Generally speaking, the licensure process is designed to ensure the competent and ethical practice of medicine. Certainly, the vast majority of physicians provide this type of care. However, medical boards are continually examining ways to improve in this area. At the 2006 annual meeting of the FSMB, a number of sessions centered on maintenance of certification, measurement of performance and quality, and implementation of physician health programs. Speakers included representatives from the American Board of Medical Specialties, the American Medical Association Physician Consortium for Performance Improvement, and the National Board of Medical Examiners.

The FSMB also launched a competency initiative in 2005 called the Physician Accountability for Physician Competence. Since then, stakeholders have been participating in a number of competency summits, and an update on this initiative likely will be presented at the 2007 annual meeting of the federation. The focus of this effort is to address how the medical profession will self-regulate in the future, and what role medical boards will have in ensuring the ongoing competence of physicians.

What can medical boards do to address the expansion of scope of practice for nonphysicians?

Many states have gone through legislative battles related to nonphysicians expanding their scope of practice into areas traditionally handled by physicians and osteopathic physicians. Typically, state legislatures have addressed this issue through amendments to the definition of nonphysician scope of practice within their respective practice acts.

In addition, the respective boards may try...
to reach some sort of resolution. Allied health professionals have their own regulatory boards (such as a state board of nursing or of optometry), and most medical boards have no authority over what those boards do. They may request to meet with the other boards, or, in some instances, the boards may form joint committees boards to address a specific issue.

The medical board can go to the legislature and ask for a statutory solution as well. If all else fails, lawsuits can be filed by one board against another to delay or stop implementation of an expansion of scope of practice.

Medical boards are responsible for defining the practice of medicine and may pursue legal options against individuals who practice medicine without a license. Most often, these cases involve individuals who claim to be physicians but are not.

The FSMB adopted a policy document in 2005—Assessing Scope of Practice in Health Care Delivery: Critical Questions in Assuring Public Access and Safety—which is available at http://www.fsmbo.org/grpol_policydos.html. This informational guide outlines patient safety and quality of care issues health care regulatory boards and legislative bodies should consider when making decisions about changes in scope of practice and when attempting to bypass established regulatory standards to extend health care services to underserved areas.

What are some of the “hot” topics currently being considered by medical boards?

**Physician volunteers and national emergencies:** One of the more immediate concerns during the relief effort for victims of Hurricane Katrina was provision of medical care. Unfortunately, it was difficult for physicians to just show up and volunteer their services because of licensing and liability issues; for example, because the licensing board computers were water damaged, it was impossible to verify credentials. Since then, medical boards have been grappling with questions about out-of-state licensure of medical professionals who volunteer their services during natural or manmade disasters. One suggestion has been to issue a national license, which has received little attention within the state medical board community. The FSMB has a national credentials verification service that can help during an emergency, provided the medical board in the state experiencing the emergency can access the service.

If not currently involved, state medical boards will need to start working with the federal government on this issue. Before adjourning in December 2006, the 109th Congress adopted the Pandemic and All-Hazards Preparedness Act. One section of this legislation codifies the existing Volunteer Medical Reserve Corps and ensures a coordinated national infrastructure for deploying volunteers to respond to national emergencies. The legislation also requires the federal government to link existing state volunteer verification systems and maintain a single, nationwide, interoperable network of systems for the purpose of advance registration of volunteer health professions. This system verifies credentials, licenses, and certifications to enable rapid response to public health emergencies.

**Specialty licensure:** Specialty licensure has been debated for many years. Currently, physicians are licensed to practice medicine in whatever specialty they choose and are not prevented through licensure from practicing outside of their specialty training. In light of the concerns related to physician competence, greater interest has been expressed in the concept of specialty licensure.

**Telehealth/telemedicine:** As technology has advanced, telehealth and telemedicine have increased in importance. Not only are there licensure issues across state lines, but national boundaries also come into play when, for example, computed tomography scans can be read by a physician in another country with a report e-mailed to a physician in the U.S. for a patient visit the next day. Improvements in robotic surgery also create cross-border licensure challenges. One potential solution recommended by the FSMB and its Special Committee on License Portability is an expedited licensure process by endorsement if physicians meet a number of qualifications, including the following:

1. Full and unrestricted licensure (in all jurisdictions where a medical license is held)
2. Free of disciplinary history, license restrictions
The future of **Surgical Simulation** and **Surgical Robotics**

by Richard M. Satava, MD, FACS, Seattle, WA
Editor’s note: This article is adapted from a presentation at the 2006 Clinical Congress in Chicago, IL.

Over the past decade and a half, information technologies have revolutionized how skills-based training can be accomplished. The potential for simulation of clinical and robotic procedures lies in two basic premises that have been mainstays of other industries for a half-century. The first requirement is a computer representation of the product (in the case of surgery, the “product” is the patient). With the use of sophisticated three-dimensional (3-D) graphics and high-resolution computed tomography (CT) scans, it is possible to create an accurate, computerized, 3-D representation of patient organs. The second requirement is the understanding of robotics as an “information system with arms,” and a CT scanner as an “information system with eyes,” such that it is now possible to create a system that uses both 3-D graphics and robotics together as a single, integrated “information system.”

Robotic surgery: Current status and research trends

Based on these fundamental premises, the surgical console of the robotic system becomes the place where integration of surgery occurs. Only with a robotic surgical system is it possible to do open surgery, minimally invasive surgery, remote telesurgery, preoperative planning, surgical rehearsal, intraoperative navigation (image-guided surgery), and surgical simulation all from one place: the console (see photo, page 15). This is the overall architecture that will provide even greater capabilities in the future—and this is just the beginning.

A next-generation robotic system is being researched by the military. In this program, Trauma Pod, the first phase is to build an operating room that doesn’t need to be staffed by people. This concept is based on the current industry standard of integrating cooperating robotic systems into a single robotic “cell.” There are no people changing instruments on industrial robots; instead, there are “tool changers.” Furthermore, there are no people handing parts to robots; rather, there are supply dispensers. Now that surgeons are using robots, the next logical step is to integrate tool changers (scrub nurses) and supply dispensers (circulating nurse) into the surgical robotic system. Such a prototype, referred to as the “operating room without people,” has been successfully demonstrated as a military-sponsored research project involving the currently available DaVinci robot (see photo, page 16).

Although this is simply an early prototype system, it has proven that certain repetitive tasks (such as handling instruments or fetching supplies) can be done more efficiently with integrated robotic systems. This would relieve scrub nurses and circulating nurses from the drudgery of repetitive tasks so they are able to perform more intellectually challenging tasks, or it could decrease the number of nurses needed in the OR (a single nurse can perform both circulating and scrub nurse functions). In addition, every time an instrument is changed or a supply is dispensed, three things occur automatically: The patient is billed, an order to restock the OR is sent, and a request is sent to the supply center to reorder a replacement—all within 50 milliseconds and with 99.99 percent accuracy. This automatically incorporates operating room function with the hospital logistics and information systems, such as supply chain management, just-in-time inventory, asset tracking, and so on, further increasing efficiency and quality. In essence, the OR communicates directly to the logistics and supply center automatically, without human intervention.

With such a system, the following scenario would be possible. A patient is taken to the preoperative holding area, placed in the correct position for surgery, and anesthetized. A CT scan of the area for surgery is taken and the patient is taken to prepping. While the patient is being prepped and is moved into the OR, the surgeon sits at the console and rehearses the critical part of the surgical procedure on the patient’s CT scan, thereby making any errors on the patient’s image and not the patient (the military calls this “mission rehearsal”). Thus, when the patient is brought into the OR and docked with the robotic system, the surgeon is already familiar with the anatomy and knows...
what to expect. Throughout the procedure, the logistic and information systems are continuously updated, and a record of the operation is automatically generated. It should be noted that this is an early developmental state of the project, and the final outcome would likely have slightly different implementation; however, the important factors of improved efficiency, quality, and total integration can be achieved, just as they have been the standard in all other industries for the past three decades.

Such a scenario logically leads to the concept of the solo surgeon controlling a robotic surgical system, with no other person in the OR. At this time, this system is not quite achievable; however, in the not-too-distant future, it will be possible.

**SIMULATORS:**
The basis for skills training and assessment

Surgeons have often been compared with fighter pilots, so it is worthwhile to consider the recent accomplishments of these pilots. Until 2002, the fighter pilot was “king of the air,” flying dangerous missions into combat. In 2003, the Predator unmanned aircraft was introduced for surveillance, then hunter-seeker, and then attack. Now the military is specifically training pilots on computer consoles to fly the unmanned aircraft—these pilots will never climb into a cockpit. Will the surgeons of the future follow a same pathway and operate on their patients remotely, never to enter the OR?

Similarly, surgery can learn from aviation in
regard to surgical education and training. Flight simulators have been in use for more than 50 years, but surgical simulators are just now entering into surgical education and training. Current flight simulators are highly sophisticated, with accurate representation of the aircraft performance and ultra-realistic, specific graphic representations of every airport in the world. In addition, training engages the entire cockpit crew into an integrated team using crew resource management training. The lessons for surgery are to develop simulators with even more sophisticated graphic representation of anatomy, to develop libraries of many different procedures and anatomic variations, to import patient-specific anatomy for surgical rehearsal, and to institute OR team training.

**Surgical Curricula:**
The keystone to surgical training

As important as these first steps are in the development of surgical simulators, the real fundamental issue is not the simulator; rather, it is the curriculum. The simulator is just another tool, and it is the curriculum that will determine the training of the surgeon. Thus, it is necessary to incorporate the basic principles of adult education, curriculum design, setting of quantitative performance metrics for outcomes, and validation of the curriculum. Then, and only then, should the appropriate simulator be incorporated into the curriculum. Recent experience with curricula revealed that simulation provides the unique opportunity to radically change the method of surgical skills training, changing from time-based training to criterion-based training.

Currently, students are trained for a certain length of time, number of days, or number of trials (infra vide). In addition, today residents become experienced surgeons depending on whatever random surgical procedure “walks in the door”; by building virtual libraries of all the essential surgical procedures, structured training programs with standardized curricula can be developed to ensure that every resident is trained (to criterion) in every essential surgical procedure.

The Accreditation Council on Graduate Medical Education, in collaboration with the American Board of Medical Specialties, has defined the six competencies that every physician must demonstrate (see Figure 1, page 17). This has provided a huge challenge to the surgical education community, because with the exception of knowledge and patient care, there are neither available curricula nor methods of testing these competencies. What is the appropriate training for professionalism or communication skills, and what objective measures are available to assess these skills? Can they be simulated?

We are at a unique moment in history, when so much new technology is being introduced and new requirements for training have been established that the surgical education process is in complete
revolution. History shows that revolutions in surgical education have occurred only once every 50 to 100 years, so whatever is developed during this coming decade will likely endure for at least the next three generations of surgeons, perhaps as long as a century. There is a short window of opportunity, while program directors are engaged in establishing new training programs to meet the newly established requirements, to develop a national standardized curriculum, and to validate assessment tools that will provide a uniform level of training and certification. There are numerous efforts at curriculum development; however, most incorporate a series of fundamental steps (see Figure 2, this page). This approach includes a definition of the goals of the training and description of the anatomy and the steps of a procedure. However, most curricula do not include a thorough explanation of the errors that can occur.

In training residents, it was discovered that the same error was frequently repeated; when questioned, the residents usually responded that they were not aware that they had committed an error. Educators spend so much time teaching students the correct thing to do that they forget to teach what an error is, so the student can learn to avoid errors or to recognize when one has occurred. Once this didactic portion of the curriculum is completed, the student should be tested before starting the simulator. Theoretically, any errors that occur on the simulator would be because of psychomotor skills, as the students had already proven that they understand the initial cognitive part of the training. Finally, the outcomes (quantitative measures from the computer) need to be provided to the student for improvement. Although this is a generic approach to curriculum design, it can provide a template for standardizing curriculum development.

**OBJECTIVE ASSESSMENT:**
Quantifying performance

Just as important as the curriculum development is the objective assessment methodology. Reznick has introduced the objective structured assessment of technical skills (OSATS) and Fried has provided the McGill Inanimate System for Training and Evaluation for Laparoscopic Skills as excellent examples of methods of objective assessment. For each task, specific, quantifiable measures have been determined and a mentor observes the student and grades the student performance based on these metrics. Although this is extremely accurate, it is also very demanding on faculty time.

Emerging new simulation tools, such as the Red Dragon from the University of Washington, are capable of precisely measuring hand position, motion, force, and so on. The record of the performance can be displayed as a graphic “signature” (see photos, page 18) in addition to the specific measurements, which can be used to guide the student to improved performance. Automatic recording of performance with direct feedback has the potential to decrease (but not eliminate) the amount of faculty time.

**CRITERION-BASED TRAINING:**
Successor to time-based training

One of the most significant benefits of simulators has been the ability to assess the performance of an expert or experienced surgeon and...
then use those performance measures as the benchmark or criteria to which the student must perform. This radically changes the training from time based (that is, training on the simulator for a given length of time or number of trials) to criterion based (training as long as necessary until the student achieves the criterion measures on two successive trials). Theoretically, no resident will perform a procedure on a patient until it is proven that he or she can achieve the same level of proficiency as an experienced surgeon. Unequivocal evidence has been demonstrated by Seymour et al that training to a criterion (or proficiency) on a simulator reduces operating time by 29 percent and errors by 85 percent.3

Likewise, there is a growing public demand for demonstration of maintenance of competency by practicing surgeons; thus, simulation with specific benchmarks can provide a cost-effective way for practicing surgeons to demonstrate maintenance of their skills and certification.

**NEXT-GENERATION SURGICAL EDUCATION: Emerging technologies**

We have come through three generations of simulation: From aviation to surgical simulation (1939-1987), from simulation to curriculum development with validation (1988-2002), and from time-based training to criterion-based training (2003-2006). The next generations of simulators are in the laboratory exploring issues of haptics (sense of touch), incorporation of simulation into the DaVinci robotic console, intelligent tutoring, and judgment assessment. It is unclear at this time how critical haptics are to training, and although every experienced surgeon is aware of the importance of the sense of touch in open surgery, the major degradation of haptics in laparoscopic surgery seriously questions the need for haptics in laparoscopic simulators. In robotic surgery, there are efforts to develop virtual reality simulators; the two approaches are to modify current laparoscopic simulators in a cost-effective manner, or to incorporate a simulator into the console of the DaVinci robot. Both approaches are in their infancy but will be important to growing use of surgical robots. The added advantage of having the simulation embedded into the surgical console is that the simulation mode can then import patient-specific images to be used in preoperative planning and surgical rehearsal.

The remaining two areas—embedded intelligent tutoring and judgment assessment—involv a significant combination of curriculum and simulator development. For intelligent tutoring, expert surgeons initially identify (for the curriculum and simulator) the critical errors for a procedure as well as the instructions to prevent
or correct an error. Once these have been defined (via consensus conference of experts), they must be incorporated into the simulator by the commercial company. The result will be a “virtual mentor”. Whenever the student makes an error, there will be immediate (proximate or formative) feedback that includes the information about the error, specifically its identification and its correction. For judgment assessment, the new technology of eye tracking projects a dot on the computer monitor that designates the position where the student is looking. By simultaneously recording the hand motions from the instrument handles, it may be possible to compare hand positions and eye motions to infer what the student was thinking. Although eye tracking is a standard and well-developed technology for advertising and marketing, it has not yet been translated to surgical training and assessment.

CERTIFIED TRAINING CENTERS: Toward national standards

The American College of Surgeons has recognized the importance of simulation, curriculum development, objective assessment, and maintenance of skills (certification). With so many new training centers being established, the College has taken the bold initiative to ensure the highest-quality training by promoting ACS-certified educational institutes. There are two levels to educational institutes: Level II: Basic Training Laboratory, which provides the fundamental skills, curricula, personnel, and space to train surgical residents and surgeons; and level I: Comprehensive Center, which trains multiple surgical and medical specialties, medical students, and nurses, and which conducts research and validation studies in surgical education and simulation. It is expected that comprehensive centers would become assets for an entire region. In addition, there will be a consortium of the comprehensive centers, which would play an important role in helping develop, organize, and establish national-level guidelines, standards, and so on. The College has recognized its responsibility for stewardship of surgical education and intends to seize this unique opportunity to revolutionize surgical education on a global level.

CONCLUSION: A unique moment in surgical education is here

The paradigm has shifted: The robots are coming and simulation and objective assessment are here to stay. Information systems, robots, and simulators are being incorporated into the daily practice of surgery and perhaps the inevitable direction will be that every surgical procedure will automatically and continuously include rehearsal, training, recording, and assessment. The expected features of next-generation simulation could include intelligent tutors, judgment assessment, virtual mentors, complex procedures, digital libraries with varying anatomy, and patient-specific data for surgical planning and rehearsal. Although these advances are speculative, it is critical that each new technology and each new curriculum and simulation undergo the same stringent validation to ensure that there is value added to the training.

References


Dr. Satava is professor of surgery, University of Washington Medical Center, Seattle.
IOM and ACS warn of
THE IMPENDING CRISIS IN EMERGENCY CARE:

Emergency departments overwhelmed, underfunded, and dangerously fragmented

by Geoff Werth, Government Affairs Associate, Division of Advocacy and Health Policy
In June 2006, the Institute of Medicine (IOM) released three reports detailing the deteriorating condition of the nation’s emergency health care system. The IOM’s Committee on the Future of Emergency Care in the U.S. Health System was convened in 2003 to examine the state of emergency care in the U.S. and their findings and recommendations are presented in the following three reports: Hospital-Based Emergency Care: At the Breaking Point,1 Emergency Medical Services at the Crossroads,2 and Emergency Care for Children: Growing Pains.3 The College has been instrumental in bringing attention to this crisis and welcomes the national focus brought to this issue by the IOM reports. The ACS will continue to provide policymakers with the leadership and insight gained by the programs and strategies developed by our Committee on Trauma (COT), which have proven to dramatically improve emergency and trauma care.

In 2005, under the leadership of A. Brent Eastman, MD, FACS—ACS Regent, former COT Chair, and member of the IOM Committee on the Future of Emergency Care—the College first called a meeting of the surgical specialty societies to discuss the emergency care surgical crisis. Following these meetings and concurrent with the release of the IOM reports, the College released its own report, A Growing Crisis in Patient Access to Emergency Surgical Care,4 which reached similar conclusions to those of the IOM with respect to patients’ declining access to emergency surgical care, detailing more fully the emergency surgical care shortage and providing recommendations for facing this crisis. This past year, the College continued its commitment to this issue by sponsoring a series of IOM emergency care reports dissemination workshops throughout the U.S. that were designed to bring further national attention to the findings in the IOM reports and to deliver the IOM recommendations to leading federal health care policymakers.

The IOM reports caution that our nation’s highly fractured system of emergency departments (EDs) and trauma centers is plagued by overcrowding and ambulance diversion while remaining ill-equipped to handle pediatric cases and major disasters. (See the recommendations on page 22.) The IOM concludes that the quality of emergency care will continue to decline partly as a result of shortages of critical care specialists who are increasingly overburdened with uncompensated and complex cases that tend to inflate their medical liability exposure.

Regionalization

The IOM reports recommend the development of a regionalized, coordinated, and accountable emergency care system, calling on Congress to dedicate $88 million to enact a demonstration program to encourage states to identify and test strategies for reaching this vision. As described below, the IOM reports recommend the adoption of a system based on the model developed by the American College of Surgeons’ COT:

The design of the emergency care system envisioned by the [IOM] committee bears similarities to the inclusive trauma system concept originally conceived and first proposed and developed by the [Centers for Disease Control and Prevention], and adapted and disseminated by the American College of Surgeons.1

The committee’s vision expands this concept beyond trauma care to include all serious illnesses and injuries, and extends beyond hospitals to include the entire continuum of emergency care—including 9-1-1 and dispatch and prehospital [emergency medical systems], as well as clinics and urgent care providers.1

The College fully supports the IOM recommendation that the COT-developed trauma care model be expanded and adapted at the federal level to cover the entirety of the emergency care system. The College has a long history of developing successful programs proven to enhance the nation’s trauma care system and convincing Congress of the need to provide federal funding for these efforts. Former COT Chair Wayne Meredith, MD, FACS, has continued his leadership role in advocating for an expansion of the COT trauma model, detailing its successes at the IOM emergency care reports dissemination workshop in Chicago in October 2006.

Since 1990, the College has advocated on behalf of the federal Trauma Care Systems Planning and Development Act (Trauma Act), which has provided $31.4 million for the Trauma-EMS
RECOMMENDATIONS*

Create a coordinated, regionalized, accountable system. [Drawn from all three reports]
- The emergency care system of the future should be one in which all participants (from 9-1-1 to ambulances to EDs) fully coordinate their activities and integrate communications to ensure seamless emergency and trauma services for the patient.
- Congress should enact a demonstration program ($88 million over 5 years) to encourage states to identify and test alternative strategies for achieving the vision.
- The federal government should support the development of national standards for: emergency care performance measurement; categorization of all emergency care facilities; and protocols for the treatment, triage, and transport of prehospital patients.

Create a lead agency. [Drawn from all three reports]
- The federal government should consolidate functions related to emergency care that are currently scattered among multiple agencies into a single agency in the Department of Health and Human Services (DHHS).

End ED boarding and diversion. [Drawn from Hospital-Based Emergency Care: At the Breaking Point]
- Hospitals should reduce crowding by improving hospital efficiency and patient flow, and using operational management methods and information technologies.
- The Joint Commission on the Accreditation of Healthcare Organizations should reinstate strong standards for ED boarding and diversion.
- The Centers for Medicare & Medicaid Services should develop payment and other incentives to discourage boarding and diversion.

Increase funding for emergency care. [Drawn from Hospital-Based Emergency Care: At the Breaking Point and Emergency Medical Services At the Crossroads]
- Congress should appropriate $50 million for hospitals that provide large amounts of uncompensated emergency and trauma care.
- Funding should be increased for the emergency medical component of preparedness—both EMS and hospital-based—especially for personal protective equipment, training, and planning.

Enhance emergency care research. [Drawn from all three reports]
- Federal agencies should target additional research funding to prehospital emergency care services and pediatric emergency care.
- DHHS should conduct a study of the research needs and gaps in emergency care, and determine the best strategy for closing the gaps, which may include a center or institute for emergency care research.

Promote EMS workforce standards. [Drawn from Emergency Medical Services At the Crossroads]
- States should strengthen the EMS workforce by: requiring national accreditation of paramedic education programs, accepting national certification for state licensure, and adopting common EMS certification levels.

Enhance pediatric presence throughout emergency care. [Drawn from Emergency Care for Children: Growing Pains.]
- EDs and EMS agencies should have pediatric coordinators to ensure appropriate equipment, training, and services for children.
- Pediatric concerns should be explicit in disaster planning.
- More research is needed to determine the appropriateness of many medical treatments, medications, and medical technologies for the care of children.
- Congress should increase funding for the federal Emergency Medical Services for Children Program to $37.5 million per year for 5 years.

The Trauma Systems Program to help states develop and implement statewide trauma care systems. This trauma care program was developed in response to a 1986 Government Accountability Office report that found that a sample of severely injured individuals in a majority of both urban and rural areas of the U.S. were not receiving the benefit of trauma systems despite considerable evidence that these systems improve survival rates. This program has proven its worth according to the Trauma-EMS Systems Program Assessment Rating Tool released by the Office of Management and Budget:

...The Trauma Care program has demonstrated success in assisting states in adopting statewide standardized triage protocols and designating trauma centers. Studies indicate with some consistency that improving organized systems of trauma care, specifically states designating trauma centers and adopting standardized triage protocols, leads to measurable decreases in mortality due to trauma.5

Unfortunately, lack of sufficient funding for the Trauma-EMS Program in the past has left many states without the means to fully develop sufficient trauma systems. The College continues to recommend that Congress dedicate adequate funding to the Trauma Act so that states will be able to address this issue.

A large part of the effort to enhance our emergency care system will include, as called for in the IOM reports, the development of national standards for emergency care performance measurement; categorization of all emergency care facilities; and protocols for the treatment, triage, and transport of prehospital patients. As these national standards are developed, the College recommends that the federal government utilize the programs and resources developed by the COT. The IOM reports conclude that this process could be better facilitated through a consolidation of functions related to emergency care into a single agency in the U.S. Department of Health and Human Services. These functions are currently scattered among multiple agencies, causing inefficiencies and a lack of coordination and accountability.

As mentioned, the College, specifically the COT, has been the catalyst in the development of the most successful trauma care programs. The College will continue to work with Congress to further implement the following COT trauma programs and resources:

- **The Trauma System Verification Program:**
  An essential resource for standards development, this program currently provides a comprehensive, on-site trauma system review to help states and regions assess their organization strengths and weaknesses in providing optimal care for injured patients beyond the walls of individual trauma centers.

- **Resources for Optimal Care of the Injured Patient:**
  Currently used by state and local authorities nationwide as the foundation for trauma center designation, this publication outlines the resources hospitals must have in order to fulfill their commitment to trauma patient care statewide and providing COT consultation visits at the request of hospitals, communities, or state authorities to assess trauma care and verify trauma center compliance with these criteria.

- **Advanced Trauma Life Support® Program:**
  For more than 25 years, ACS has been offering a series of courses throughout the U.S. and abroad that provide an organized approach for the evaluation and management of seriously injured patients. This program is widely accepted as the “gold standard” educational program for inculcating all members of the trauma team in the common principles of emergency care and is applicable in large, urban centers as well as small, rural EDs.

- **Rural Trauma Team Development course:**
  This course is designed integrate the trauma care team of a small, rural hospital or clinic into a larger state or regional trauma care system, improving the efficiency of resource use and ensuring that the injured patients receive the appropriate level of care.

As this effort to develop a more mature emergency and trauma care system gains momentum, the College will continue to work with the federal government to further implement these time-tested ACS trauma programs.

**Shortages in emergency specialty care**

In the 1980s and 1990s, workforce analysts and public policymakers, with few exceptions, predicted the U.S. would experience a substantial
excess of physicians by the beginning of the 21st century.\(^7\) Analytical evidence and peer-reviewed studies have largely contradicted these predictions, and many experts are calling on the need for dramatic increases in the physician workforce. This trend is evidenced by the 2006 Association of American Medical Colleges (AAMC) Position Statement on the Physician Workforce, which was revised upwards by 15 percent and now calls for a 30 percent increase in U.S. medical school enrollment by 2015.\(^7\) The IOM reports bring specific attention to emergency specialty care shortages, noting that the numbers of these specialists available to adequately treat our nation’s emergency and trauma patients is already dangerously low in many areas of the country and will only get worse with the aging of the baby boomer population.

The IOM reports found that key critical care specialists such as neurosurgeons and orthopaedic surgeons are in short supply; furthermore, the organization warned that three-quarters of hospitals are reporting difficulty finding specialists to take emergency and trauma call, a problem compounded by increases in patient volume, uncompensated emergency care, and patients presenting with more serious or complex illnesses.\(^1\) The reports explain that the more complex emergency cases often lead to increased medical liability risk. The College’s report agrees with these findings and notes that further studies have shown that neurosurgeons, orthopaedic surgeons, general surgeons, and plastic surgeons are among the specialists in short supply for ED panels.

The College has noted that contrary to the earlier assumptions that there would be increases, the number of trained emergency care surgeons practicing in the U.S. has remained constant over the past 20 years.\(^4\) The U.S. population growth has already begun to outpace the supply of surgeons providing this care and this gap could widen substantially with the aging of the baby boomers. In addition, the demographics of this aging emergency surgical workforce, the 80-hour workweek restrictions, and a growing trend toward subspecialization will make it harder to adequately train the number of surgeons needed to fill this surge in demand.

The IOM reports found that rural EDs in particular face persistent shortages of emergency and trauma on-call specialists and argue that it is important to find alternative ways of enhancing emergency services in these areas.\(^5\) This approach would include linking rural hospitals with academic health centers to enhance opportunities for professional consultation, telemedicine, patient referral and transport, and continuing professional education. The College supports the creation of a health professions support program to help cover medical school debt for young surgeons providing needed surgical care in community or rural hospitals and trauma centers, recommending this approach along with other efforts to offer incentives for surgical specialists to provide care in areas where demand is the greatest.

The College agrees with the IOM finding that specialists too often treat ED and trauma patients without receiving compensation and calls on Congress to take bold steps to remedy the nation’s high levels of uninsured. The IOM recommends that an additional $50 million should be endowed to hospitals that provide large amounts of uncompensated emergency and trauma care. The College supports the notion that a lack of adequate physician reimbursement for emergency and trauma care is a large factor in this crisis and supports a variety of mechanisms for improving this situation.

In addition to permanently fixing a Medicare payment structure that annually threatens negative payments for physician services, the government should consider adjusting the practice expense “pools” it develops for each specialty in determining overhead costs by taking into account the impact of uncompensated care (as it already has for emergency medicine). In addition, this funding could be structured to allow hospitals to fill holes in their emergency workforce through the use of stipends for emergency specialists to take call.

The College’s report concurs with the IOM findings that surgical specialists who provide on-call ED coverage face higher medical liability exposure. All medical and surgical specialty organizations support enactment of comprehensive, common-sense, medical liability reforms, but until such a solution emerges, interim steps addressing these most immediate concerns should be considered.
The Emergency Medical Treatment and Active Labor Act (EMTALA), designed to ensure public access to emergency services, has been seen as a major contributor to the surgical workforce problem. Many specialists view EMTALA as a mandate to provide uncompensated care around the clock and the law is widely believed to be a primary factor behind the practice behavior changes that are taking surgeons away from hospitals and EDs. Although some of the law’s most serious weaknesses have been addressed by the federal government, the College will continue to work with regulators to refine this law to remove disincentives for specialists to provide emergency care. Policymakers could limit exposure to medical litigation by providing qualified immunity for EMTALA care, bringing these mandated services under the Federal Tort Claims Act. Furthermore, provisions expanding the Public Health Service Act to include government liability coverage for physicians who provide EMTALA-related care should be considered.

Political climate
At the IOM’s December 2006 final, “capstone,” emergency care reports dissemination workshop, Dr. Eastman provided opening remarks that challenged political leaders and the medical community to heed the warnings found in the IOM reports: The nation’s emergency and trauma care system is overwhelmed, underfunded, and dangerously fragmented. He called on the stakeholders to use the IOM recommendations as a blueprint for the creation of a regionalized, coordinated, and accountable system. Edward E. Cornwell III, MD, FACS—a trauma surgeon and professor of surgery at Johns Hopkins University in Baltimore, MD, and a member of the COT—also represented the ACS at the workshop. Other participating Fellows at the IOM workshops included Michael F. Rotondo, MD, FACS; Alex Valadka, MD, FACS; William Schwab, MD, FACS; and Mark Stevens, MD, FACS, Past-Chair of the Utah COT.

With the Democrats now in charge of the House and the Senate, one could assume that funding for larger-scale systemic changes in the nation’s emergency and trauma care system are more likely, as members of this political party have historically been more supportive of such health system reforms. Yet, congressional staffers at the IOM workshop noted that this assumption should be tempered, given the political realities inherent in the present budget situation. Although the emergency care issue may be a logical area for bipartisan cooperation, the new Congress has agreed to abide by “pay as you go” rules, which require increases in mandatory spending to be offset elsewhere in the national budget in order to avoid further deficits. Congressional health staffers noted that these trade-offs in spending will be difficult in the immediate future, especially with new policies that call for significant investment.

Congressional staffers at the capstone workshop noted that while the IOM reports had not gone unnoticed by policy leaders, the reform effort had not coalesced around any specific legislative vehicle. Policymakers and stakeholders agreed that a more focused attempt at legislation was needed and that getting this effort on the agenda would require a dedicated, national public relations effort. Policymakers noted that despite a modest amount of national media coverage following the release of these reports and the proceeding IOM workshops, this crisis has so far largely gone unnoticed by the American public and will continue to languish if politicians do not begin to sense a greater level of concern from their constituents. In this respect, the IOM reports should be seen as the beginning of what could be an arduous but worthy campaign to bring this problem to the attention of everyday Americans.

Rep. Pete Stark (D-CA), incoming Chair of the powerful Ways and Means Subcommittee on Health, gave the keynote address at the final workshop. His combative style was on full display as he quickly shot down ideas such as providing further medical liability protections to emergency specialists, opening up EMTALA for refinement, and stipends or other payment changes designed to encourage on-call participation by emergency specialists. Representative Stark said that he was considering making call a requirement for specialty physicians to receive payment through the Medicare program while also criticizing specialty hospitals as a threat to existing acute care hospitals.

The American College of Emergency Physi-
cians board chairman and member of the IOM Committee Art Kellerman noted at the capstone workshop that, while such statements may be of concern to many emergency specialists, Chairman Stark is known to work toward compromise on important health concerns in a bipartisan manner when all is said and done. This was evident by the chairman’s more tempered statements at a hearing on this very subject held by his subcommittee this past year. At the final workshop, Chairman Stark went on to note that the physician community must begin to decide how to better apportion care, while calling for reasonable physician reimbursement through Medicare with premium protections for beneficiaries and renewed steps toward universal care.

Many argue that the looming physician shortage has already begun to rear its head in the nation’s EDs and this shortage will certainly be a hot topic among the specialty societies over the next few months and years. The College is working with the emergency surgical specialists to craft a cohesive federal legislative response to the emergency surgical crisis. In addition, the College is meeting with various specialty societies at the AAMC to explore solutions to the overall physician shortage problem, which may include a coordinated effort to eliminate or increase the caps (in place since 1997) on Medicare funding for the number of residents trained at teaching hospitals.

Overall, the reaction to the IOM report by policymakers and stakeholders was one of cautious optimism. The stakeholders were reminded by policymakers that this effort, while not without merit, was in the nascent stages as is often the case when the IOM first presents serious health care concerns to the public. To this end, the ACS will continue to take the lead on behalf of this crucial national health policy concern. The campaign to bring the emergency and trauma care crisis to the public’s attention has begun to pick up momentum, thanks to the hard work at the IOM along with that of many trauma care innovators and advocates found at the College.

The author would like to thank Adrienne Roberts, Government Affairs Associate, Division of Advocacy and Health Policy, for her assistance with this article.

References


One of the major responsibilities of a major medical malpractice liability company is to help policyholders reduce risk. The risk management departments of many major medical professional liability insurers have become effective in realizing this goal by aggregating and analyzing their claims data to identify risk exposures that are particular to both practices and specialties. Corrective action takes the form of risk-specific suggestions that are presented as enduring materials, lectures, electronic programs, simulation training, and published studies. Physicians and other health care providers who follow these suggestions can mitigate their risk of involvement in litigation, increase patient safety, and realize premium savings.

Using medical malpractice closed claims data to reduce surgical risk and improve patient safety

by Barry M. Manuel, MD, FACS, Boston, MA, and Linda M. Greenwald, MS, RN, Boston, MA
The risk management department of ProMutual Group, the largest medical malpractice insurance company in the Northeast, is very active in the risk prevention arena. Members of the department routinely meet with physicians and other health care providers to assess clinical practice, determine strengths and needs, and help develop a strong risk management program. In addition, they routinely analyze closed claims data to determine specific and general trends and patterns. Results are shared with the company’s insured physicians. An example is a recently published ProMutual Group study, Failure to Diagnose: Putting the Pieces Together.*

**Closed claims data**

To determine the major risk areas in the seven medical specialties that account for more than half of the company’s closed claims and indemnity payments each year, in early 2006 the company’s risk management department performed an analysis of the 1,162 medical malpractice cases closed by the company in those specialties in the three-year period ending December 31, 2004. Cases involved 1,487 defendant physicians from the following specialties: family medicine, general surgery, internal medicine, obstetrics and gynecology, orthopaedic surgery, pediatrics, and radiology.

Most cases, or 67.6 percent, closed without payment, indicating either lack of pursuit of the case by the plaintiff or a jury finding in favor of the defendant physician. The remaining one-third, or 377 cases, closed with an aggregate indemnity of $153 million. Some were jury verdicts. The majority were settlements made in the absence of a jury trial. In addition, $41.4 million was paid to defend all cases.

The number of cases closed by specialty ranged from a low of 58 in pediatrics to a high of 309 in internal medicine. The lowest aggregate indemnity payment was $8 million in pediatrics; the highest, $40.6 million in internal medicine (see Table 1, this page). These figures are not indications of greater or lesser proclivity to negligence or litigation but more likely a reflection of the fact that the company insures more internists than physicians in any other specialty.

To assess the risk areas within each specialty, risk managers, working with consulting physicians, relied not on numbers but on the substance of the cases. They extracted data from and reviewed almost all cases that closed with payment and selected cases that closed without payment. One allegation emerged as a major trend across all specialties: failure to diagnose.

**Failure to diagnose**

Failure to diagnose was the principal allegation in 452, or 38.9 percent, of the cases in the study. A breakdown by specialty is shown in Table 2, on page 29. A total of 168 of these cases closed with an aggregate indemnity payment of almost $71 million. More than half that sum, or $37.8 million, was paid to close the cases that alleged failure to diagnose cancer.

The cancers that were responsible for the greatest numbers of cases and the highest indemnity payments are shown in Table 3 on page 29.

Most of the breast cancer cases were found in radiology (37 cases), obstetrics-gynecology (12 cases), internal medicine (nine cases), and general surgery (seven cases). The majority of

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<tr>
<th>Specialty</th>
<th>Total</th>
<th>Closed with payment</th>
<th>Indemnity payment</th>
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<tbody>
<tr>
<td>Family medicine</td>
<td>140</td>
<td>44</td>
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</tr>
<tr>
<td>General surgery</td>
<td>180</td>
<td>55</td>
<td>19,628,000</td>
</tr>
<tr>
<td>Internal medicine</td>
<td>309</td>
<td>105</td>
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<td>Obstetrics-gynecology</td>
<td>191</td>
<td>74</td>
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<tr>
<td>Orthopaedic surgery</td>
<td>165</td>
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</tr>
<tr>
<td>Pediatrics</td>
<td>58</td>
<td>17</td>
<td>8,026,000</td>
</tr>
<tr>
<td>Radiology</td>
<td>119</td>
<td>37</td>
<td>15,963,000</td>
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the colorectal cancer cases were clustered in internal medicine (28 cases) and family medicine (nine cases). One-third of the 36 cases of failure to diagnose within general surgery involved cancer. Four of these cases, including three breast cancer cases and one involving lung cancer, closed with an aggregate indemnity payment of $1.1 million.

The issues in some of the cancer cases were specialty-specific. For example, many of the breast cancer cases alleging negligence on the part of radiologists involved the misreading of mammograms, several cases involved physicians’ failure to follow up on the negative mammogram of a symptomatic patient, and at least two of the surgical cases involved failure to perform an excisional biopsy. In most instances, however, the problems were more general and related to cases in all specialties. These problems were as follows:

- Failure to have or to adhere to a cancer screening protocol
- Failure to include cancer in the differential diagnosis
- Inadequate follow-up

In an attempt to stem the number of cases alleging delay in the diagnosis of or failure to diagnose cancer, the company’s risk management department offers specific suggestions not only to primary care physicians but also to specialty physicians who become the primary care physician for one or more patients (see box, page 30).

**Cancer cases in surgery**

In one of the surgical cases included in the Failure to Diagnose study, the surgeon was faulted by defense experts for not having performed annual cancer screening. In a medical malpractice case, the surgeon or other specialist who acts as a primary care physician for a patient will be held to the standard of care required of the primary care physician, most assuredly with respect to cancer screening. This means the surgeon who assumes the role of a primary care physician for one or more patients must develop a cancer screening protocol and use it for all of his or her primary care patients. Rather than assume that another physician will perform cancer screening, the surgeon should ask the patient who will order or perform a mammogram, Pap smear, fecal occult blood test, colonoscopy, prostate-specific antigen, or other screening test, and document the conversation.

Another issue specific to surgeons with respect to diagnosing cancer is selecting the correct diagnostic procedure. In several cases in the study, defendant surgeons were faulted by defense experts for performing or settling for the results of

| Table 2: Failure to diagnose cases as a percentage of total closed claims by specialty |
|---------------------------------------------|-------------|
| Family medicine                           | 54.3%       |
| General surgery                           | 20.0        |
| Internal medicine                         | 51.5        |
| Obstetrics-gynecology                      | 15.0        |
| Orthopaedic surgery                       | 15.8        |
| Pediatrics                                | 63.8        |
| Radiology                                 | 74.8        |

<table>
<thead>
<tr>
<th>Table 3: Failure to diagnose cancer cases</th>
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<tbody>
<tr>
<td>Total</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>Breast 69</td>
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<tr>
<td>Colorectal 42</td>
</tr>
<tr>
<td>Lung 22</td>
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<tr>
<td>Prostate 12</td>
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Dr. Manuel is associate dean and professor of surgery at Boston University School of Medicine, a consultant to the ACS Regents’ Committee on Patient Safety and Professional Liability, and chairman of ProMutual Group, Boston, MA.
inadequate biopsies when the patient’s clinical presentation required more. Physician experts reviewing the medical records for ProMutual Group wrote in their report:

The presence of suspicious cells seen on a needle aspiration biopsy needed further evaluation. The two core biopsies alone do not represent an adequate evaluation of the concerned area. Given the discrepancies between the [fine needle aspiration] and the core biopsies, it was necessary for the patient to have additional tissue sampling done.

An enlarging mass in a 36-year-old patient must be considered breast cancer until proven otherwise.... The negative biopsy should have led to another procedure.

The standard of care required that a directed biopsy be performed when there is a finding of a nodule on ultrasound.

**Negligent surgery cases**

Cases alleging failure to diagnose were neither as numerous nor as costly in general surgery as they were in the primary care specialties and radiology. Only 36 of the 180 surgical cases alleged failure to diagnose. Almost double that number, or 70 cases, alleged negligent surgery. The largest single event involved laparoscopic cholecystectomy, an issue in the company’s surgical cases for the past 10 years. The overriding injury was a clipped, transected, punctured, or otherwise injured bile duct. Defense experts who reviewed the cases acknowledged that such injuries are an intrinsic risk of the procedure. However, they held defendant surgeons accountable for some or all of the following:

- Inadequate informed consent
- Improper technique
- Failure to convert to an open procedure when the anatomy was not clear
- Delay in diagnosing a ductal injury
- Improper repair of an injured duct

- Inadequate documentation

**Conclusion**

Failure to diagnose and negligent surgery are the two most significant allegations made against general surgeons in ProMutual Group’s medical malpractice lawsuits. The company’s ability to analyze the cases in its large data bank, determine exactly what went wrong, identify trends, and then develop risk management programs has helped other physicians learn and profit from their colleagues’ experience. Medical malpractice insurance companies are uniquely positioned and have strong incentives to provide this important function.

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**Ms. Greenwald** is editor of Risk Management Publications, ProMutual Group, Boston, MA.
Surgical lifestyles

Surgeon melds music and medicine

by Karen Stein, Associate Editor
The impact of music on individuals is so highly personal that it would be impossible to express what music universally means. One generally accepted statement about music’s effect, however, is that it greatly reduces stress, whether passively listening to it or actively playing it.

Such is the case for Matthew Indeck, MD, FACS, a surgeon and keyboardist. As director of general surgery, director of surgery at GMG Wilkes-Barre, and vice-chairman of the division of surgery at the Geisinger Health System in Wilkes-Barre, PA, Dr. Indeck views music as an outlet for stress. “It can take my mind off headaches day to day, as I can totally isolate myself in the music,” he said.

A classically trained pianist who identifies Greg Rolie, the original keyboardist for the rock group Santana, and Lee Michaels as his main rock and roll influences, Dr. Indeck began lessons at age seven and played in rock bands throughout high school and college. Although Dr. Indeck had continued to play as a hobby, he had put band playing behind him until a night he was on call two years ago, when a conversation about rock and roll bands between him and a hospitalist, the lead singer of a band that had been considering adding a keyboardist to the mix, led to an invitation to audition.

**The band**

Dr. Indeck’s band, Six Drink Minimum (or “Six DM” when performing in more upscale venues), plays rock songs from the 1960s to the 2000s and has a groupie following of friends, neighbors, nurses, physicians, and hospital staff.

Dr. Indeck said he enjoys all the selections the band plays, as the band has tremendous breadth and range. However, he specifically referred to their cover of “Moondance” by Van Morrison as a personal favorite. “We converted the song to a jazzier version. Each player has a riff, and the singer kills it,” he said. “We do a lot of improvising with the songs we cover, but ‘Moondance’ in particular stands out for me.”

The band continually updates its repertoire to encompass a wider breadth of songs. Occasionally they will play a medley of four or five songs by one group—for example, they have performed medleys of music by the Rolling Stones, Santana, the Pretenders, and Tom Petty. “The more we play in front of the public,” he said, “the better and tighter we get.”

In addition to playing keyboards, Dr. Indeck sings backup vocals for some songs and does a talking bit when the band performs “Love Shack” by the B-52s. The band plays venues such as weddings, holiday parties, picnic parties, and church receptions—no seedy nightclubs yet. Dr. Indeck joked. A recent gig at a country club generated much interest among the audience, Dr. Indeck said, and Six Drink Minimum has been asked to donate their time to play a gig to an auction benefiting Children’s Miracle Network.

**Balancing vocation with avocation**

Dr. Indeck says that although it’s not easy to balance his surgical life with his musical life, he has learned to accommodate both in his schedule. A benefit to playing electronic keyboards is that he can plug in headphones and practice at night on the keyboards, which are kept in the basement, so as not to disturb his wife.

Because the members of Six Drink Minimum have families in addition to their demanding careers, most practices take place on Sunday evenings, the most convenient time for all. They normally get together for two-hour sessions. The actual gigs are scheduled far in advance so that everyone can plan around family events and call schedules.

The key to successfully organizing the group, Dr. Indeck said, is that everyone thoroughly enjoys being in the band and performing. His bandmates are an awesome group of people, he said, adding, “For eight people to spend that much time together and enjoy it says a lot.”

In reference to the impact of a hobby that is demanding on his personal time, he added, “Hopefully the practices aren’t interfering too much with family activities. So far no one has said anything. In fact, my wife’s only complaint is that we like to dance, and now that I’m playing with the band, I’m not available to dance with her.”

**Physician-musicians**

Dr. Indeck believes that his interest in becoming a surgeon and playing music were informed by being mechanically minded and using his hands to solve problems. Though surgery is finite—see a patient, formulate a plan, operate—there is always
something new to discover, he said, similar to the band’s improvisation when playing the songs that people might already know. Furthermore, he said, like music, surgery has a rhythm to it.

Dr. Indeck doesn’t normally volunteer to patients that he is in a rock band, though some already know and have asked him about it. However, if he sees a patient who is in a band, he might trade information as a conversation piece.

Many surgeons and other physicians have musical interests, Dr. Indeck said. Six Drink Minimum, for example, is composed of four physicians (a surgeon, a hospitalist, a neurologist, and a dermatologist) as well as three college professors (sisters who Dr. Indeck says are “unbelievable singers”) and an engineer (a professional musician who in his youth played for the rock band Kansas). Although it may be difficult to schedule practice time, none of the band members has any ambitions to be a professional musician. “We should change our name to ‘Keep Your Day Job,’” Dr. Indeck joked.

Many physicians find that they learn much more than just composition from pursuing musical interests outside of the medical setting. People skills and greater social awareness are among the lessons physicians learn through playing music. Others say that learning to communicate with other musicians through playing helps to inform effective patient interaction. Dr. Indeck agrees, adding that such communication teaches a person to truly listen to others.

**Rock star**

Though Six Drink Minimum has not yet received any press, Dr. Indeck himself has been in the news. In 1996, when Dr. Indeck was the trauma director at Geisinger, he performed surgery on Irina Scherbo, wife of Russian gymnast Vitaly Scherbo, who had crashed her car into a telephone pole on an icy road in State College, PA, and had come to the emergency room “in severe hemorrhagic shock with not much chance of survival.” Dr. Indeck performed a splenectomy and repaired fractures and lacerations in her liver. In addition, a case in which he treated someone who had been stabbed in the neck with a javelin was featured on a recent cable television show about amazing injuries.

Dr. Indeck has no plans to give up surgery for rock and roll, though he doesn’t rule out the possibility of concentrating more on music in the future. “When I retire, I would consider pursuing music as a bigger focus in my life,” he said, adding with a laugh, “if I can still lift the keyboards.”

**References**


On December 14, 2006, the Program for Accreditation of Education Institutes added three more institutions to the rapidly growing family of level I ACS-Accredited Education Institutes (see listing, page 35). This was the second set of accreditation decisions made by the Accreditation Review Committee (see committee roster on page 35) based on the review of the completed applications and surveyors’ reports. At the end of 2006, the College had accredited 10 education institutes. Nine institutions recently requested applications. Interest in the program remains strong.

The program was officially unveiled at the 2005 ACS Clinical Congress in San Francisco, CA. The vision of the ACS-Accredited Education Institutes is to create a network of ACS-approved regional education institutes that offer practicing surgeons, surgical residents, medical students, and members of the surgical team a spectrum of educational opportunities, including those that address acquisition and maintenance of skills and focus on new procedures and emerging technologies.

The College is committed to providing ACS-Accredited Education Institutes with opportunities to develop new curricula and share their experiences. Collaborative education research and development will also be pursued. The College will be hosting a meeting of the Directors of the ACS accredited education institutes.
New ACS-accredited education institutes, December 2006

Center for Medical Education & Innovation at Riverside Methodist Hospital
*Columbus, OH*

University of Toronto Surgical Skills Centre at Mount Sinai Hospital
*Toronto, ON*

William Beaumont Hospital
*Royal Oak, MI*

ACS Program for Accreditation of Education Institutes

Accreditation Review Committees

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**Staff:**
Ajit K. Sachdeva, MD, FACS, FRCSC, *Chicago, IL*
Kathleen A. Johnson, EdM, *Chicago, IL*
Maura C. Boyle, MA, *Chicago, IL*

Dr. Pellegrini is Henry N. Harkins Professor and chair, department of surgery, University of Washington, Seattle, and a member of the Board of Regents.
Starting with claims for services on January 1, Medicare began paying a trauma activation fee under the outpatient prospective payment system (OPPS) to hospitals with a trauma center and participating in a trauma system. (Emergency departments are paid under the OPPS.) The Centers for Medicare & Medicaid Services (CMS) decided to pay hospitals a trauma activation fee for outpatients because an analysis of claims data showed a greater cost for critical care with trauma activation than without. However, CMS said that fewer than 2 percent of all hospitals that billed for critical care also billed a trauma revenue code. Medicare has paid for trauma activation for inpatients since 2002.

The trauma activation fee will be paid to the hospital if all of the following criteria are met:

- The trauma center has been verified by the College or licensed or designated by the state or local government as being a trauma center.
- A prehospital notification is made to the trauma center, based on triage information from prehospital caregivers. The caregivers must meet the field triage criteria set by the College or state or local government. Payment may also be made for interhospital transfers, provided the trauma center receives information about the trauma before the arrival of the patient.
- Trauma team activation, or notification of key hospital personnel, must occur based on receipt of triage information.
- The hospital provides critical care services and bills for Current Procedural Terminology* code 99291, Critical Care, evaluation and management of the critically ill or critically injured patient; first 30-74 minutes.

No trauma activation fee is payable for patients who arrive without a prehospital notification.

In addition to reporting code 99291, Critical Care, evaluation and management of the critically ill or critically injured patient; first 30-74

minutes, the hospital needs to report Healthcare Common Procedure Coding System (HCPCS) code G0390, Trauma response team activation associated with hospital critical care service. The case is assigned to two Ambulatory Patient Class

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*All specific references to CPT (Current Procedural Terminology) terminology and phraseology are © 2006 American Medical Association. All rights reserved.
College announces Clinical Scholars Program

The American College of Surgeons is offering a two-year fellowship in outcomes research. The ACS has one position every year for a surgical resident who has completed two or three clinical years of training and is a U.S. citizen. The areas of possible research include surgical oncology (National Cancer Data Base), surgical quality improvement (National Surgical Quality Improvement Project), trauma (National Trauma Data Bank®), and a variety of other possibilities that can be based on the applicant’s interests (guideline development, accreditation programs, health policy).

The primary goal of the Clinical Outcomes Research Fellowship is to help prepare a surgical resident for a career in academic surgery through formal training in clinical research. The fellowship consists of research in one or more of the areas mentioned previously and completion of the Masters of Science in Clinical Investigation (MSCI) program through Northwestern University’s Schools of Medicine and Public Health in Chicago, IL.

The selected fellow will participate in resident educational activities through Northwestern University’s department of surgery. The research fellow would also be able to participate in the College’s various educational programs. In addition, the fellow would indirectly promote the College through productive clinical research, presentations at national meetings, and high-quality publications.

Depending on the area of interest selected, an internal mentor will be assigned through the ACS. The research fellow will meet with this mentor regularly. It is highly recommended that the fellow also receive mentorship from his or her institution. As mentorship is one of the most important aspects of the training program, having guidance from multiple individuals from varied backgrounds will provide the best opportunity for success. If a dedicated mentor from the institutional base cannot be identified, the ACS will assist in identifying an additional local mentor from Northwestern. In addition, an ACS staff statistician and project analysts will be invaluable resources for the Clinical Outcomes Research Fellow.

The MSCI program is designed for physicians with an interest in conducting clinical research. The coursework focuses on biostatistics, epidemiology, decision analysis, clinical trial design, paper and grant writing, peer-reviewing principles, and clinical research ethics. Further information on the program is available at http://www.clinicalinvestigation.northwestern.edu/. If a selected fellow has already completed an equivalent program, he or she may be exempt from the MSCI requirement. In addition, the selected fellow will attend the following courses: ACS Outcomes Research Course, Young Surgical Investigators Course, and Clinical Trials Course.

The selected fellow will be provided office space, a computer, and supplies needed to conduct research. The fellow also will be given a laptop computer. The fellow’s annual salary will be $50,000. Full benefits will also be provided. Housing will be the responsibility of the research fellow, but there are multiple residential buildings surrounding the ACS headquarters.

**Timeline for position, starting July 1, 2008**

For more information, visit http://www.facs.org/ropc/clinicalscholars.html

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<td>Application process opens</td>
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<td>Application deadline</td>
<td>July 15</td>
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<td>Interview notification</td>
<td>August 15</td>
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<td>Interview process</td>
<td>At 2007 Clinical Congress in New Orleans, LA, in October</td>
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<td>Notification of appointment</td>
<td>November 1 (in time to prepare and submit application for NIH Loan Repayment Program)</td>
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The ninth annual Connecticut Trauma Conference will be held March 29–30 at the Foxwoods Resort and Conference Center in Ledyard, CT. This conference will provide a forum in which complex and controversial issues affecting care of the trauma patient are presented and discussed by nationally recognized experts in all aspects of trauma care. The meeting’s goal is to provide insight into issues and problems related to the optimal care of the trauma patient.

This year’s conference focuses on ethical and sociological issues surrounding end-of-life decision-making in trauma care, injury prevention, the civilian/military interface in prehospital trauma care, and rehabilitation of the amputee, as well as perplexing management problems in cardiac and pediatric trauma surgery. Participants will be provided with a comprehensive overview of new techniques and technologies available to health care practitioners responsible for caring for the trauma patient. Diagnostic, resuscitative, and management interventions for traumatic injuries will be examined.

Course objectives include the following:
- Review and discuss present concepts of management in the areas of cardiac and thoracic trauma
- Review and discuss the roles of hospitals, trauma centers, trauma systems, and the public in injury and trauma prevention programs
- Examine the civilian and military prehospital/trauma care systems and determine the optimal mix of both
- Examine the complex ethical and psychosocial issues of end-of-life care in trauma care
- Discuss and review the past, present, and future for the rehabilitation of spinal cord injury patients and amputees
- Examine current concepts in pediatric trauma care

For more information, contact Ronald I. Gross, MD, FACS, Chair, ACS Connecticut Committee on Trauma, Hartford Hospital, 80 Seymour St., Hartford, CT 06102; tel. 860/545-4187; or e-mail rgross@harthosp.org.

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Trauma conference to be held in Connecticut
Specialty board reports to be published on Web portal

Each year, the boards of the 10 surgical specialties recognized by the American Board of Medical Specialties compose reports that are presented to the ACS Board of Regents.

For several years, a condensed version of these reports have been published in the Bulletin—typically in the March and April issues—to keep Fellows and other interested readers informed of the changes and developments occurring within these groups, specifically the boards of colon and rectal surgery, neurological surgery, obstetrics and gynecology, ophthalmology, orthopaedic surgery, otolaryngology, plastic surgery, surgery, thoracic surgery, and urology.

Beginning with the 2007 volume, however, these reports will no longer appear in the Bulletin. Instead, at the recommendation of the Advisory Council Chairs, the reports will be accessible via the Web portal at www.efacs.org within the specialty communities.

RESIDENCY ASSIST PAGE

The Residency Assist Page of the American College of Surgeons offers a medium for program directors to acquire updates and advice on topics relevant to their needs as administrators and teachers.

Our goal is to offer practical information and approaches from summaries of published articles, invited editorials, and specific descriptions of lessons learned from program directors’ successful and not-so-successful strategies. Through the development of the Residency Assist Page, the ACS intends to support program directors and faculty by providing helpful information for addressing the challenges associated with administering state-of-the-art residency education.

www.facs.org/education/rap

For additional information, please contact Linda Stewart at lstewart@facs.org, or tel. 312/202-5354.
Fellows in the news

The Medical College at the University of Toledo has given its 2006 Alumni Community Award to Darrick E. Antell, MD, FACS, a 1981 graduate. In addition to his development activities for various national and regional organizations, Dr. Antell—a plastic surgeon from Greenwich, CT—was honored for his volunteer surgical work in Ecuador, Mexico, and Haiti.

In December 2006, Glenn Geelhoed, MD, FACS, of Washington, DC, received an honorary doctor of science degree from the University of Toledo (OH) in recognition for his outstanding work as a scholar and medical missionary.

Leo A. Gordon, MD, FACS, a general surgeon from Los Angeles, CA, was honored at the Cedars-Sinai Medical Center alumni meeting in December 2006 (see photo, this page). A member of the medical staff since 1979, Dr. Gordon was honored for his service, commitment, and overall excellence, as well as his contributions to teaching and mentoring.

The Southeastern Society of Plastic and Reconstructive Surgeons has honored Michael E. Jabaley, MD, FACS, of Florence, MS, with its 2006 Pickrell Award. Named for the late Kenneth L. Pickrell, former chairman of the division of plastic surgery at Duke University, this award is presented to a plastic surgeon who closely exemplifies Dr. Pickrell in his or her commitment to plastic surgery education. An educator for 20 years, Dr. Jabaley is currently clinical professor of plastic and orthopaedic surgery at University of Mississippi Medical Center.

The Regional Emergency Medical Services (EMS) Council of New York City honored Walter F. Pizzi, MD, FACS, in November 2006 with its Tribute to a Visionary for his 30 years of dedicated service to the improvement of EMS (see photo, this page). Dr. Pizzi, the original organizer of this group, had been...
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sifications (APC), APC 0618, *Critical Care with Trauma Response*, which has a national unadjusted payment rate of $494.54, and APC 0617, *Critical Care*, which has a national unadjusted payment rate of $405.04. When critical care is provided without trauma activation, the hospital should report code 99291 and receive payment for APC 0617, *Critical Care*, only. (According to Medicare, the hospital should also report code 99292, *Critical Care, evaluation and management of the critically ill or critically injured patient; each additional 30 minutes, if appropriate but no separate payment will be made.*

If the patient is admitted to the hospital from the emergency room, the trauma activation charge goes into the hospital charges submitted and is reimbursed if the patient is categorized as a diagnosis-related group outlier.

A recent article by Fortune et al showed that by using the trauma activation code for inpatients, one hospital averaged a $735 payment per trauma patient.* Trauma surgeons can use the information in this article to help hospitals to report trauma activation on their claims and therefore increase revenue for trauma patient care.

Operation Giving Back

Volunteer opportunities available

The Operation Giving Back (OGB) database is continually expanding with new volunteer opportunities, including those with the following agencies:

- Since 1969, the Foundation for International Education in Neurological Surgery (FIENS) has provided professional support through training and education to neurosurgery wards around the world. FIENS accomplishes its primary mission—to address the critical lack of trained neurosurgeons globally—through 17 partner sites in Central America, South America, Africa, and Asia.

- Chesapeake Care Clinic, located in Chesapeake, VA, provides health care services to employed individuals who cannot afford health care or insurance. To carry out this mission, the clinic relies on actively practicing and retired ophthalmologists, otolaryngologists, neurosurgeons, and urologists, as well as cardiothoracic, plastic, vascular, colorectal, and general surgeons to volunteer their time and talents. Interested physicians are required to have a current Virginia medical license and privileges at one of the Chesapeake-area hospitals.

OGB provides surgical volunteers with a wealth of information, including details on volunteer-related liability issues in each of the 50 states. Located in the Resource Center found on the main toolbar of the OGB Web site, the Liability Issues page provides an interactive U.S. map with tailored information on each state’s volunteer and limited licenses, liability laws for volunteer physicians, recently passed legislation, and provisions of the Good Samaritan statues during emergency situations. Visit OGB at www.operationgivingback.facs.org to learn more.
A look at The Joint Commission

Tort reform and the OR

Surgeons have a large interest in the reformation of the medical liability system in the U.S. According to Atul Gawande, MD, FACS, statistics suggest the strong likelihood that every surgeon will be named in a lawsuit during his or her career.*

The medical liability system and its impact on patient care are addressed by The Joint Commission Public Policy Initiative in a white paper entitled, Health Care at the Crossroads: Strategies for Improving the Medical Liability System and Preventing Patient Injury. Released in February 2005, this paper is a call to action for those who influence, develop, or carry out policies that can lead the way to reforming the medical liability system in the U.S.

The paper outlines the following three strategies and includes subsequent recommendations for pursuing reform.

• Pursue patient safety initiatives that prevent medical injury
• Promote open communication between patients and practitioners
• Create an injury compensation system that is patient centered and serves the common good

The paper concludes that a federal cap on noneconomic damages would have the potential to slow the rise in liability premiums. However, a cap on damages would not alter the inherent unfairness of the existing tort system to patients and physicians.

The ultimate goal is to make health care as safe as it can be while also assuring appropriate redress for patients when it is warranted, according to the white paper.

The paper defines a vision for tort resolution and injury prevention, which includes the following components:

• All health care organizations acculturate patient safety—making it a precondition of all other priorities—with the goal of reducing incidences of malpractice.
• When a medical error occurs, the injured patient is promptly informed of the error and receives an apology, and analysis of the error informs the prevention of such error in the future.
• An early offer of compensation for losses is promptly provided to the patient.
• If a claim of injury remains in dispute, an alternative dispute mechanism is employed to bring the claim to a swift, fair and efficient resolution.

Health Care at the Crossroads: Strategies for Improving the Medical Liability System and Preventing Patient Injury can be viewed in its entirety on The Joint Commission Web site at www.jointcommission.org under the “Public Policy” tab located at the top of the page.

Trauma meetings calendar

The following continuing medical education courses in trauma are co-sponsored by the American College of Surgeons Committee on Trauma and Regional Committees:

• Trauma, Critical Care, & Acute Care Surgery—2007, March 26–28, Las Vegas, NV.
• Trauma, Critical Care, & Acute Care Surgery 2007—Point/Counterpoint XXVI, June 4–6, Atlantic City, NJ.
• Advances in Trauma, December 7–8, Kansas City, MO.

Complete course information can be viewed online (as it becomes available) on the American College of Surgeons Web site at: http://www.facs.org/trauma/cme/traumtgs.html, or contact the Trauma Office at 312/202-5342.
NTDB® data points

My girdle is killing me

by Richard J. Fantus, MD, FACS, Chicago, IL

In the February Bulletin, this column examined pelvic fractures that resulted from blunt force trauma and commented on their propensity for associated injuries. Since these mechanisms of injury are often severe, it is not surprising that other portions of the axial skeleton attached to the pelvic girdle are susceptible to being injured. Of significant concern is the spinal column along with the spinal cord. Injuries to these structures, if not fatal, can be devastating, often resulting in prolonged hospitalization and an increased need for rehabilitation services.

In order to examine the occurrence of these injuries in the National Trauma Data Bank®, in the International Classification of Diseases, Ninth Revision, Clinical Modification codes for pelvic fractures 808.0 through 808.5, 808.8, and 808.9 were used. The codes for cervical through lumbar spinal fracture or spinal cord injury 805.01-805.5 and 806.10-806.5 were then utilized to identify the records of pelvic fractures with associated spinal fracture or spinal cord injury. This resulted in 12,363 records. Of these, 5,761 were discharged to home, 4,173 to acute care/rehabilitation, 448 to nursing homes, and there were 1,229 deaths (9.9%). This group of patients was composed of 60 percent men, with an average age of 42 years, an average length of hospital stay of 14.5 days, and an average injury severity score of 24.86. There were 50,392 records of pelvic fractures without spinal fracture or spinal cord injury that resulted in 3,335 deaths (6.6%). This represents a 1.5-fold increase in mortality for the group of pelvic fractures with associated spinal fracture or spinal injury. These data are depicted in the graph on this page.

Spinal fracture or spinal cord injury was found in 20 percent of the records of blunt pelvic fractures. These resulted in a higher mortality, a greater length of hospital stay, and fewer patients discharged to home when compared with pelvic fractures without associated spinal fracture or spinal cord injury. Blunt force trauma to the skeleton resulting in fracture to the pelvic girdle, along with spinal fracture/injury, is truly one way of explaining the phrase, “My girdle is killing me.”

Throughout the year, this column will provide brief monthly reports. The full NTDB Annual Report Version 6.0 is available on the ACS Web site as a PDF file and a PowerPoint presentation at http://www.ntdb.org.

If you are interested in submitting your trauma center’s data, contact Melanie L. Neal, Manager, NTDB, at mneal@facs.org.