ACS delegation visits Israel
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For decades, Fellows of the American College of Surgeons (ACS) have been engaged in humanitarian work, providing surgical care to underserved populations worldwide. In recent years, the ACS and the College of Surgeons of East, Central and Southern Africa (COSECSA) have been developing strategic partnerships to improve surgical education, address workforce shortages, and build a sustainable health care system. The most recent addition to these efforts has been the creation of an ACS-COSECSA Surgical Training Collaborative at Hawassa University, Ethiopia, which is set to start in January 2019.

**ACS-COSECSA collaborative activities**

In February 2016, the ACS Board of Regents had a retreat to develop strategies to address challenges in global surgical care. The Regents agreed to support efforts aimed at surgical workforce development in low-income countries, focusing initially on sub-Saharan Africa.

COSECSA is one of the sub-Saharan surgical colleges. This organization has approximately 2,000 members in 12 African countries, who serve a population of more than 350 million. COSECSA is responsible for the training and credentialing of surgeons.

Although several ACS Fellows have been actively working in the region, a formal initial discussion between ACS and COSECSA leadership occurred during a visit by Patricia L. Turner, MD, FACS, Director, ACS Division of Member Services, and Girma Tefera, MD, FACS, Medical Director, Operation Giving Back (OGB), in July 2016. Since then, based on COSECSA priorities, the ACS and COSECSA have engaged in several collaborative activities, including providing scholarships for graduating women residents, access to the ACS leadership training programs, access to limited educational resources, twinning of scientific journals, and recruitment of volunteers as external examiners and providers of surgical services at COSECSA training sites.

Academic global surgery programs and volunteer ACS Fellows have deployed to the region, providing training and clinical services. However, these initiatives have been poorly coordinated, with institutions working in silos, resulting in duplicative efforts and wasted resources. As more centers have launched global surgery programs, the problem has magnified.

To respond to these challenges, OGB’s Committee on Global Engagement recommended a pilot project to establish a centralized surgical training hub in sub-Saharan Africa where the quality of surgical training could be improved and the number of trainees could be scaled up.

**Pilot project**

A series of situational analysis surveys were sent to 30 African institutions; 16 responded. Of these, three were short listed and two underwent a site visit. Subsequently, Hawassa University—a 480-bed hospital that serves an area with nearly 18–20 million people—was chosen as the pilot site for the ACS-COSECSA Surgical Training Collaborative.

Departments of surgery at 13 U.S. hospitals with global surgery programs agreed to form a consortium and join hands to participate in this effort. A project planning meeting that included Hawassa University, the ACS, and the partner U.S. surgery departments met in July 2018 to develop shared goals and to devise a work plan for the coming years, focusing on ways to strengthen the education, clinical service, quality, and research infrastructure at Hawassa University. The ultimate goal of this project is to improve the quality of surgical training and increase the number of trainees. This endeavor opens up a great opportunity for U.S. residents and students to work and learn under supervision. We anticipate a year-round on-the-ground presence of U.S. faculty at Hawassa that will guarantee continuity of patient care and resident supervision.

**Education**

Hawassa uses a four-year residency curriculum, which is undergoing revisions but is accepted by COSECSA. The university has a small skills lab, primarily for medical students, that could be expanded to bring additional

EXECUTIVE DIRECTOR’S REPORT

Looking forward

by David B. Hoyt, MD, FACS
skills training opportunities. Although endoscopy services are not yet available, Hawassa anticipates having the appropriate resources in place in the coming year, and we believe this partnership will expedite the process. Other skills training in laparoscopy, ultrasound for surgeons courses, and Advanced Trauma Life Support® training will be introduced next year. We believe these additions will add tremendous value to the educational experience of U.S. residents.

Clinical service
Hawassa University Hospital is the referral hospital for the region. Of the hospital’s 480 beds, 54 are assigned for general surgery. The hospital admits approximately 11,000 patients per year, and approximately 117,000 are evaluated in the outpatient services. The hospital has 10 operating room (OR) tables, but only two are reserved for general surgery. The members of the U.S. consortia schools will be integrated completely into the clinical activities of the university hospital.

Quality
Hawassa has a quality office that focuses on academic and clinical, as well as national, initiatives. A basic discussion of morbidity and mortality takes place during morning meetings, but the hospital has no database to measure surgical outcomes at this time. This group has agreed to develop some measurable quality endpoints.
Research
Hawassa faculty members are expected to devote 25 percent of their time to research, as research and publications are part of the criterion for academic promotion. Nonetheless, Hawassa faculty members have difficulty advancing their careers because of a lack of publishing opportunities. Hence, in addition to developing a research methodology for training residents, the faculty would appreciate collaborative scientific research.

Work plan and next steps
Hawassa is an excellent choice for piloting this program, as it is a relatively large teaching institution with a sound resident training model in place. The existing didactic curriculum will be strengthened by choosing a common textbook. Through our collaborative, we intend to improve skills and simulation training, partner with industry to procure simulation tools, and offer other opportunities to transfer skills. We also intend to improve Hawassa’s distance learning opportunities by creating an infrastructure that will support telehealth platforms for educational and consultative purposes.

Each of the 13 U.S. participating institutions will use telepresence technology to lead and participate in grand rounds. Visiting faculty will deploy in dyads to ensure an optimal mix of skills, talent, and resources.

We anticipate using Optimal Resources for Surgical Quality and Safety (the red book) as the guide for quality improvement initiatives, and we will further assess whether the ACS might be able to provide Hawassa with access to one of our databases for use in outcomes research and quality improvement.

Other ACS resources that may be of benefit to Hawassa students and trainees include educational materials, the Advanced Surgical Skills for Exposure in Trauma course, and Trauma Evaluation and Management training.

Just the beginning
I’m very excited about this program and am proud that the ACS will be leading this effort to improve global access to surgical care. I believe, ultimately, the ACS-COSECSA Surgical Training Collaborative will be scalable and reproducible in other locations.

I want to thank Dr. Tefera, Dr. Turner, and 2017–2018 ACS President Barbara Lee Bass, MD, FACS, for their ongoing efforts to bring this initiative to fruition. I want to recognize the OGB Committee on Global Engagement led by ACS Regent Henri R. Ford, MD, MHA, FACS, FRCS, FAAP, for working diligently on this project. With the leadership of OGB, COSECSA, and Hawassa University, we are taking an important first step toward improving the lives of surgical patients around the world. ♦

If you have comments or suggestions about this or other issues, please send them to Dr. Hoyt at lookingforward@facs.org.
ACS delegation visits Israel

by Carolina Salcedo-Wasicek, MD, FACS; Lorrie A. Langdale, MD, FACS; Lillian S. Kao, MD, FACS; Shakirat Oyetunji, MD; Ernest A. Weymuller, MD, FACS; Cecilia Jimenez; and Carlos A. Pellegrini, MD, FACS, FRCSI(Hon), FRCS(Hon), FRCSEd(Hon)
A group of Fellows from the American College of Surgeons (ACS) visited Israel in April. The purpose of the trip was to learn about the development of surgery and the state of surgical services, the challenges and advances in the delivery of surgical and health care services, approaches to civilian and military trauma, and health care financing in Israel.

**GME**

Our first stop was in Tel Aviv, where we met with Yoram Kluger, MD, FACS, chair, division of surgery, Rambam Medical Center, Haifa, and president, Israeli Surgical Association (ISA), who described the graduate medical education (GME) structure in Israel. The Israeli National Health System is centrally regulated by the department of health, which requires, by law, that the population’s mandatory health care services be free to all. Taxes and major philanthropic donations support the public hospitals and smaller private facilities. There are no designated military hospitals. The largest public centers are in Tel Aviv, Haifa, Safed, and Jerusalem, where Israeli, Arab, and Druze physicians work side by side.

Acknowledging the influence of the ACS on surgical practice (including early recommendations for establishing a GME system and the modernization of surgical concepts), Dr. Kluger reviewed Israel’s GME structure for general surgery. A total of 30 residencies, most affiliated with hospitals rather than universities, are distributed throughout the country. Training is for six years, including six months of mandatory research, with examinations that occur at the midpoint and on completion of the program.

Qualification for fellowship training is a primary goal for residents. Many Israeli graduates seek fellowship training in the U.S. but find these opportunities difficult to obtain. Some in-country fellowships for trauma and colorectal specialization are well established, whereas fellowships in breast, metabolic (bariatric), and endocrine are in development. The ISA is responsible for accrediting general surgery residencies and fellowships, essentially combining the roles of the ACS, the Accreditation Council for Graduate Medical Education, and the American Board of Surgery into a single entity. Parallel accreditation for orthopaedics, urology, and otolaryngology training is overseen by the individual specialties.

Because of Israel’s mandatory armed forces service requirement, the average age of a first-year medical student is 24 years.
old, and the average age of a first-year resident is 29 years old. Approximately 25 percent of general surgery residents are women. The apprenticeship model for training is slowly shifting to a proficiency model, which will include milestones (certain skills that need to be attained at certain points in training), management courses for those surgeons who aspire to leadership positions, and assessment of interactive skills. Continuing medical education is not mandatory but is being implemented for practicing physicians.

Chaim Sheba Medical Center

Next we visited Chaim Sheba Medical Center in Tel Aviv, where we were greeted by Prof. Mordechai Gutman, MD, FACS, director of surgery; Prof. Aviram Nissan, MD, director of surgical oncology; Yoram Klein, MD, director of trauma and critical care surgery; Goldes Yuri, MD, deputy director, department of general surgery; David Goitein, MD, senior physician, surgical oncology department, and head, bariatric and metabolic surgery unit; and Danny Rosin, MD, FACS, department of general surgery and transplantation. Chaim Sheba Medical Center, or “Sheba Town” as it is commonly known, is the largest hospital in Israel and a tertiary referral center operated under the ministry of health. The facility has a hotel for out-of-town patients and their families, and two shopping malls. It houses 1,700 beds, 35 of which are in the intensive care unit (ICU). The surgical specialties practiced at Sheba Town include trauma, critical care, bariatrics, surgical oncology, hepatobiliary, and minimally invasive surgery.

For trauma and critical care, the hospital largely relies on telemedicine. It is the only medical center in Israel that has the capability to provide critical care via an audiovisual platform. Unfortunately, the demand for surgical critical care providers does not meet the availability of providers, so telemedicine is a critical component of care in Israel. The platform uses software that can be accessed via a laptop or a smartphone, and includes a high-definition camera and options for stethoscope, otoscope, and ultrasound capabilities. The platform also allows for services beyond critical care, including access to general surgery resources, specialty consultation for the military, pediatric critical care, as well as trauma consultation in remote areas. Medical records are kept electronically.

Sheba’s mass casualty preparedness plan is well structured, with coordination between the ministry of health and other hospitals. Because Israel has no military hospitals, all medical centers provide care to military personnel. The Ministry of Health supervises annual drills for trauma, toxicology, and
radiation casualties; natural disaster drills are not included. Chaim Sheba Medical Center is not currently fortified, but plans are under way to provide for underground relocation during missile attack of the following key areas: emergency department, operating room (OR), ICU, and maternity units.

In surgical oncology, Chaim Sheba Medical Center offers chemotherapy (intraarterial and intraperitoneal in addition to conventional chemo); immunotherapy (adaptive cell therapy, second only to the Rosenberg lab at the U.S. National Cancer Institute, Bethesda, MD); isotope therapy, including selective internal radiation therapy (also known as SIRT) and yttrium-90 (also known as Y-90); ablation therapy (including radiofrequency, microwave, irreversible electroporation, focused ultrasound); and radiation (intraoperative brachytherapy). The facility is also in the process of obtaining a mobile linear electron beam accelerator, which will merge magnetic resonance imaging (MRI) and ultrasound images for use intraoperatively. Health care providers at the Chaim Sheba Medical Center have done more than 600 HIPEC (hyperthermic intraperitoneal chemotherapy) cases, with a goal of 100-plus cases in 2018; cases include mesothelioma and colorectal cases. The facility also has a basic science research lab where researchers are investigating intracellular targets and are in the process of developing a peptide nucleic acid biomarker in colon cancer. Sheba has a peritoneal surface malignancies program where surgical teams from Israel and other countries are trained.

The department of surgery has nine surgeons on staff, and three are women. All surgeons take general surgery call regardless of their subspecialty. Sheba’s physicians are paid a salary, and the public hospital system in Israel is such that one of the four Israeli health maintenance organizations pays a flat fee per inpatient day per patient regardless of interventions or studies performed. There are 25 general surgery residents (with varying numbers in different postgraduate levels). The hospital has no formal surgical fellowship training programs; however, a pilot training program is under way for surgical oncology with the goal to develop a formal program, which would include a one-year training rotation through different hospitals in Israel and one year of training in surgical oncology at a U.S. center. The pilot training program has established collaborations between Chaim Sheba Medical Center and Albert Einstein Hospital and Mount Sinai hospitals in New York, NY, with goals to expand collaboration with other medical centers in the U.S. and Europe. Medical students from Tel Aviv University and St. George University, Nicosia, rotate through Sheba. Chaim Sheba Medical Center has one of the best simulation centers in the world.

Rambam Health Care campus
Prof. Amos Etzioni, MD, director, Ruth Rappaport Children’s Hospital, Haifa, provided us with a broad overview of the extensive Rambam Health Care campus, northern Israel’s largest medical campus, 40 kilometers from Israel’s border with Lebanon. Rambam Health Center is the referral center for 12 district hospitals, serving more than 2 million people. It has 960 hospital beds and 51 ambulatory center beds, and it employs more than 1,000 physicians and 1,600 nurses. The medical center provides
cutting-edge care, including more than 900 procedures conducted robotically per year. It also offers three-dimensional printing for craniofacial reconstructions and provides advanced brain therapeutics, such as MRI-guided focused ultrasound for essential tremor and Parkinson’s.

Gila Hyams, RN, MA, center director, Teaching Center for Trauma Systems, Emergency and Mass Casualty Events, and director, nursing, provided an overview of the trauma hospital system and mass casualty plan. Rambam Health Care is the largest Level I trauma center in Israel, treating approximately 800 severely injured trauma patients (with an injury severity score greater than 16) annually. Furthermore, given its location in northern Israel, Rambam has experienced firsthand the need to be prepared to operate while under attack. In the summer of 2006, during the second Lebanon war, Rambam treated 792 soldiers and 538 civilian casualties while under fire. Notably, more than 60 rockets struck within a half-mile radius of the hospital, and as a result of this experience, in 2009 hospital administrators commissioned the construction of an underground hospital.

In 2014, the Sammy Ofer Fortified Underground Emergency Hospital opened. In times of peace, the three-level parking garage houses 1,500 cars. However, the parking garage can be converted to a 2,000-bed hospital within 72 hours. This hospital is fortified against bombings and chemical warfare with thick walls and 12 doors with varying degrees of decontamination. The hospital houses ORs, delivery rooms, 35 ICU beds, and a full laboratory. Computed tomography (CT) and MRI equipment can be lowered down to the facility by a specially constructed elevator. The underground emergency hospital has its own water and electrical supply, as well as stockpiled food rations.

**Ziv Medical Center**

Tal Salomon, MD, chief of surgery; Alexander Braslasky, MD, head of the trauma unit; and David Fuchs, head nurse, trauma, gave the College delegation an overview of the Ziv Medical Center, Safed, which is located 19 miles from the Syria border and seven miles from the Lebanon border. The hospital plays a strategic role in delivering health care to the residents of northern Israel, which include Jews, Muslims, Christians, and Druze, as well as military personnel, United Nations (UN) peacekeepers, and Syrian civilians who cross the border in search of lifesaving procedures. Since the Syrian war began in 2011, approximately 500,000 people have died and more than 1.5 million have been wounded. Most Syrian medical personnel have departed the area, leaving the country with no structured medical care. A large portion of the trauma is orthopaedic, although surgeons at Ziv Medical Center also have treated extensive abdominal trauma patients who require multiple operations, prolonged ICU stays, and lengthy hospital admissions. The cost of this care is absorbed by the Israeli government or through charitable donations.

The challenges in treating Syrian patients are many, including language barriers, unaccompanied minors, and the possible presence of explosive devices in their clothing. To address these issues, the medical center has a Syrian-speaking social worker immediately present during the acute care of the patients, and a total body CT scan is performed on all injured patients arriving in the emergency room.

Ziv Medical Center’s multiethnic staff is on a war footing and the hospital has been struck by missiles in the past. Training includes massive casualty preparedness and the proper use of gas masks in the event of a chemical weapons attack. The hospital has
Technion-Israel Institute of Technology, from left: Dr. Jimenez, Ms. Jimenez, Dr. Salcedo-Wasicek, Dr. Langdale, Dr. Pellegrini, Professor Wolf, Dr. Townsend, Dr. Hoyt (behind), and Dr. Oyentunji

In front of the Jaffa Gate, from left: Dr. Oyentunji, Dr. Langdale, Dr. Kao, Dr. Townsend (behind), Ms. Townsend, Ms. Weymuller, Mr. Wasicek, Dr. Wasicek, Ms. Pellegrini, Dr. Weymuller (behind), Dr. Pellegrini, Ms. Russell, Ms. Jimenez, and Dr. Jimenez

underground capability and an auditorium that can be rapidly converted into an ICU for 200 patients.

The hospital started the Good Neighborhood Project at the end of 2016. Every two weeks, 25 children and their mothers are transported from Syria and are given basic health care, including vaccination, ophthalmology, and otolaryngology services.

Shaare Zedek Medical Center

Our last meeting in Israel was with Ofer Merin, MD, cardiothoracic surgeon, chief of the trauma unit, the ICU, and the ORs at Shaare Zedek Medical Center. Dr. Merin is also commander, Israeli Defense Force Mobile Field Hospital.

The Shaare Zedek Medical Center is a Level I trauma hospital with 1,000 beds. The hospital has a large obstetrics department, delivering approximately 20,000 babies a year. The medical center treats 3,000 trauma patients annually, mostly from motor vehicle accidents and terrorism. Dr. Merin explained that these patients typically present in waves. Victims of suicide bombers and bus bombs were common 15 years ago, whereas seven to eight years ago, cars driven into groups of people became a frequent means of terrorism. More recently, Dr. Merin and his colleagues have been treating victims of stabbings carried out by younger terrorists. These stabbings usually involve the upper body and cause major damage to the head, neck, and thorax. The problem is that the perpetrator is often stopped by the police using lethal force, and both the victim and the terrorist arrive at the trauma unit, where they have to prioritize the care given to both patients according to the severity of the injuries. Sometimes it is the perpetrator who will receive the most expedient care and require the most resources. This scenario is difficult for the victim, the family, and the health care workers. For this reason, the teams debrief after each incident to allow members to communicate their concerns and frustrations.

The Israeli Defense Force mobile field hospital has been deployed for international disasters. This team was present in Haiti in 2010 and was the first unit to have a functional OR within 72 hours of the earthquake. Approximately 200 health care workers treated more than 1,000 injured patients and performed 300 operations. At the end of the two-week deployment, they donated their equipment to the local physicians. The World Health Organization recognized the Israeli Defense Force Mobile Field Hospital for its work and awarded it the Type 3 score, the highest
rating that the UN uses to rate foreign medical assistance in times of disaster.

**Conclusion**

Our site visits served to demonstrate that although the people of Israel must constantly be prepared for warfare, they do not let this weaken their creative spirit or their technological progress. During our visit to the Technion–Israel Institute of Technology, Alon Wolf, PhD, associate professor, mechanical engineering, described many exciting projects at the institute, including the development of flexible, steerable scope technology and a three-dimensional printed hand prosthesis for children. Israel is at the forefront of entrepreneurial startups and this was demonstrated by Start.il, an organized group based in Tel Aviv that supports new startups.

With our charismatic guide Amir Orly, we learned about the history of Israel in the old port city of Jaffa, the Independence Hall, the ruins of Caesarea, the different quarters of the city of Jerusalem, and the ancient fortress of Masada. We were moved by Yad Vashem, Israel’s official memorial to the victims of the Holocaust, and we participated in the country’s Holocaust Remembrance Day with a two-minute silence across the nation to remember the 6 million Jews who were killed during World War II. We visited a kibbutz, the temples, and the Western Wall, floated in the Dead Sea, drove along the Sea of Galilee, shared Sabbath dinner with our gracious hosts Chaim and Simi Landau, and enjoyed the wonderful Israeli cuisine. But above all, we discovered a nation of strong, friendly, caring, generous people who are deeply proud of their health care system, as well as their country. ♦
The practice of using locum tenens physicians to cover an absence or a temporary clinical need spans multiple medical specialties—from dentistry, to primary care providers (PCPs), to surgeons. Locum tenens is a Latin phrase that means “to take the place of.” In modern parlance, the term refers to a health care provider working in a hospital, group practice, or clinic temporarily for a span of a few weeks to a couple of months. Today, locum tenens physicians are most commonly sought to cover for PCPs in rural practices, but surgical locum tenens coverage also is in great demand.

Locum tenens history
The practice of using locum tenens physicians has been around since the late 1970s. The first locum tenens physicians were placed into rural Utah practices where physicians had to leave their practices temporarily to receive Continuing Medical Education (CME) training. The Health Systems Research Institute (HSRI)—a not-for-profit organization formed by the University of Utah, the Intermountain Regional Medical Program, and the Robert Wood Johnson Foundation—was created to help rural communities attract and retain physicians. The HSRI offered a program called ROPE (Rural Outreach Physician Education) in an effort to bring physicians to the University of Utah for clinical updates and CME. Because of the limited number of health care providers in smaller rural towns, individual physicians often had difficulty finding coverage for their practices locally, so HSRI also helped provide temporary physician (locum tenens) coverage.

Nearly 40 years after this early Utah experience, locum tenens physicians have become an essential part of the health care workforce, with...
both private contractors and health care staffing companies focused on offering temporary service coverage across the U.S. At present, more than 40,000 physicians work as locum tenens providers.1

Accurate statistics regarding overall use of locum tenens physicians are difficult to accumulate, although larger agencies have conducted studies on the practice. The 2017 Survey of Temporary Physician Staffing Trends published by Staff Care, a health care staffing firm specializing in matching temporary physicians, found that 94 percent of the 206 hospital, medical group, and other health care facility respondents used temporary physicians in 2016, up from 91 percent in 2014 and 74 percent in 2012.2 In 2016, 10.8 percent of these physicians were surgeons.

Why surgeons pursue locum tenens opportunities

A 2016 survey conducted by the locum tenens agency CompHealth found that one in five physicians has worked as a locum tenens health care provider. The survey also revealed that physicians, on the whole, have a positive (55 percent) or neutral (42 percent) impression of locum tenens work. Survey participants noted a long list of reasons why physicians choose locum tenens positions, including supplementing core income, working an interim position while searching for a full-time position, or as a transition between full-time positions. Other factors include work schedule control; personal life transitions, including impending retirement; and the opportunity to expand experience through new cases or to work within a practice before signing a long-term contract. Some physicians find locum tenens positions attractive because they can see other parts of the country or world, including rural or underserved areas. Other survey participants found it stimulating to work in new environments, and noted that this type of work helped prevent monotony or burnout while reducing administrative burdens and providing more time for clinical care.3 For many surgeons, the opportunity to take time out of a busy or suboptimal practice to reflect and prioritize can be a welcome respite.

Need for an expanded surgical workforce

The growing need for general surgeons in the clinical workforce seems evident. From a population standpoint, the number of people older than age 65 is rising and expected to increase by up to 45 percent within the next 10 years. The complexity of medical issues in older patients also is increasing. Based on these projections, the Association of American Medical Colleges (AAMC) in 2016 estimated that 112,000 additional physicians of all types will be needed to maintain service levels. Given the static supply of surgeons completing training, the U.S. likely will have a shortage of roughly 25,200–33,200 general surgeons and surgical specialists by 2025.4 As an example of increasing specialty surgeon demand, E. Christopher Ellison, MD, FACS, chief, division of general surgery, and the Robert M. Zollinger Professor, Ohio State University, Columbus, at the 2017 Central Surgical Association meeting predicted that 9,000 new general surgeons will be required by 2035 to provide surgical cancer care.

In addition to a growing deficit in the number of trained surgeons, maldistribution of the surgical workforce relative to surgical care needs reduces access to surgical care. Between 2006 and 2011 (the last years studied by the AAMC), 155 rural counties and 38 urban counties experienced a drop in general surgery coverage, a trend illustrated in maps published online by the ACS Health Policy Research Institute. Another 898 counties, 29 percent of the total counties in 48 states, do not have a general surgeon.5,6 The increasing number of rural and urban counties that are losing general surgeons or report having no general surgeons is a worrisome trend.7

Attracting and maintaining general surgeons within the workforce is critical. A stable and well-supported surgical locum tenens community seems to be one important option to engage surgeons who might otherwise temporarily or permanently leave the workforce. Hospitals and private practices, especially those in rural areas, recognize that locum tenens physicians are one important option that provides coverage for their surgeons for paid time off, illness, family/parental leave, or for vacation or other absences from the office.
Ajit K. Sachdeva, MD, FACS, FRCSC, Director, ACS Division of Education, has recognized the role that locum tenens surgeons play in disseminating different perspectives and skills to practices where they provide coverage. Given workforce limitations in general and specialty surgery, locum tenens practice should be viewed as an acceptable and essential component of surgical care.8

Challenges faced by locum tenens surgeons and host sites

A locum tenens position offers a number of potential advantages: financial (potential to earn full-time salary working part-time hours with hourly pay for overtime), less administrative burdens, an opportunity to travel, support for career/employment transitions, and employment flexibility. However, the limitations of a temporary practice can be significant: lack of continuity with patients and unfamiliarity with local practice, clinic, and hospital operations; limited support and back-up; and potentially having to work with an unfamiliar electronic health record. Long-term career goals can be undermined with too many short-term positions. Other deterrents for these temporary roles: the locum tenens surgeon may be viewed as an outsider and miss opportunities to be mentored and offered valuable career-advancing opportunities. They also may be assigned a higher proportion of high-risk patients.

Locum tenens agencies can have variable and sometimes challenging relationships with their contracted physicians. Agencies vary in terms of their awareness of contracted physicians’ knowledge base and skill set, level of accountability, and credentialing. Some agencies are physician-led, whereas others follow a more traditional, for-profit staffing business model. Staffing association standards focus primarily on business practices and clients, not physician capabilities, conduct, or support.9

From the standpoint of the host site, the transient and inconsistent nature of locum tenens coverage may adversely affect quality initiatives. Locum tenens surgeons may find it difficult to contribute meaningfully to quality and outcome metrics. Anecdotes abound regarding negative outcomes that are, at least in part, attributed to the surgeon, agency, or site failing to fully vet each other or to provide clear, upfront delineation of duties. Examples include:

• Adult specialty surgeons called upon to care for pediatric trauma patients
• Scheduling index or complex procedures without necessary short- or long-term follow-up
• Lack of full-time specialty surgeons with all coverage supplied by rotating locum tenens with limited individual opportunity for ongoing quality programs or long-term patient follow-up
• Patient/site abandonment when complications arise
• Negative patient outcomes attributed to poor surgical judgment
• Failure to comply with institutional policies and procedures

Our patients believe that every physician they encounter at an institution will be capable, credentialed, professional, and operating within their legal and technical scope of practice. They assume that a locum tenens physician is providing substantially the same care as the physician they are replacing. A study published in 2017 noted no increased mortality among Medicare patients treated by locum tenens internists in 2009−2014, but did show a significant increase in mean hospital length of stay and overall Part B spending.10

ACS policy guidelines for locum tenens surgeons

The ACS Board of Governors Surgical Care Delivery Workgroup and the Advisory Council for Rural Surgery have coauthored an ACS policy Statement on Maintaining Surgical Access with a Locum Tenens
Surgeon that includes guidelines and standards for the appointment and assessment of locum tenens surgeons. This statement was approved by the Board of Regents at the ACS Clinical Congress 2017 meeting.11 This statement is aimed at protecting the interests of both the locum tenens surgeon and the host practice/institution. Although the guidelines suggested in this statement do not replace existing regulatory and hospital credentialing processes or state licensure requirements, they do provide a framework for facilitating ongoing high-quality surgical care by a locum tenens surgeon.

According to the ACS statement, the locum tenens surgeon must have the appropriate state medical license and be certified, in the exam process, and/or no more than six years out from satisfactory completion of Accreditation Council for Graduate Medical Education-accredited training to practice in the surgical specialty or subspecialty for which he or she is being hired. Locum tenens surgeons must be in good standing with their accreditation boards and should participate in required ongoing Maintenance of Certification. It is essential that locum tenens surgeons also satisfy the credentialing process mandated by the host practice and hospital, including background checks for previous criminal activity. The surgeon applying for these positions must be transparent regarding any pending or ongoing investigation into his or her standard of care.

To ensure an appropriate level of expertise, each locum tenens surgeon should maintain a log of his or her surgical experience and a list of references for review by the host practice/institution. The ACS Surgeon Specific Registry (SSR) is an online option that satisfies this type of documentation. This tool also can generate site-specific reports detailing an individual surgeon’s activity. To ensure that continuity of patient care is maintained, the surgeon must commit to provide adequate handoffs of all patient care activities resulting from his or her tenure on the service to host practice surgeon(s), not to another locum tenens surgeon. This recommendation is important to avoid the stigma of “itinerant surgery.” A standardized agreed-upon format for information exchange should be developed, preferably in person, with adequate overlap of coverage to handle emergencies. The Agency for Healthcare Research and Quality Team Strategies and Tools to Enhance Performance and Patient Safety (also known as TeamSTEPPS) algorithm offers excellent guidance in developing such professional communication.12

The host practice group must develop an established procedure for patient handoffs, transition of postoperative care, and long-term follow-up of patients seen and managed by the locum tenens surgeon. If available, an advanced practice provider associated with the host practice can provide support and assist the locum tenens surgeon in onboarding and practice management while also helping to provide continuity of care for long-term patients. The hospital and host practice should offer other necessary tools for successful entry into the locum tenens position, including but not limited to the following:

- A comprehensive orientation to the facility
- Introductions to OR/inpatient/office staff; clarification of the availability and training of surgical first assistants
- OR preference list management
- Shadowing of practice partners and proctoring as needed
- Adequate training in, and 24/7 access to, assistance for the hospital electronic medical record, emergency department, radiology, and laboratory systems

The hospital and host practice should coordinate coverage of all expenses related to locum tenens physician credentialing, contracting, and compensation. If self-insuring, the hospital and host practice should provide adequate occurrence liability coverage with a defined period of “tail coverage.” The hospital and host practice should provide the locum tenens surgeon and agency with a fair evaluation of his or her performance and have a mechanism for due process review if the surgeon feels that the evaluation is unjust.
also should be developed for the surgeon to have the ability, without retribution, to provide an honest critique of their experience to the host institution and practice. This review will enhance system improvement efforts, especially for the next locum tenens surgeon recruited to that practice.

The agency representing the locum tenens surgeon is responsible for managing and coordinating the locum tenens surgeon’s employment. In delivering a temporary professional replacement that is often mission-critical, it is imperative that the surgeons they represent meet training, experience, and professional affiliation criteria (for example, membership in the ACS) necessary to offer high-quality surgical care. Individual performance, available practice, and institutional practitioner quality measures, as well as measures of both patient and practice satisfaction, should be maintained by the agency for a defined period and subject to periodic review by the locum tenens surgeon. Individual surgeon performance, quality, and satisfaction measures maintained and disclosed to hiring institutions by the agency should be spelled out in contract language between the agency and the locum tenens surgeon, and securely stored and protected as privileged information. These performance metrics should be fairly representative of his or her practice, transparent and readily accessible to the individual locum tenens surgeon for comment, personal performance assessment, and performance improvement.

In addition to the locum tenens best practices information and research outlined in this article, we believe that with development of the ACS policy statement addressing temporary physician staff members, the College assumes a leadership role in defining standards for successful engagement of a locum tenens surgeon.

REFERENCES


Drug shortages: The invisible epidemic

by Kaylene Barrera, MD; Christopher McNicoll, MD, MPH, MS; and Naveen Sangji, MD, MPH

HIGHLIGHTS
- Discusses the effect of Hurricane Maria on the availability of pharmaceuticals and supplies such as small-volume IV saline bags
- Summarizes the contributing factors to the overall drug shortage problem
- Describes the role of GPOs and manufacturers in preventing medication shortages

On Wednesday, September 20, 2017, Hurricane Maria made landfall in Puerto Rico and brought with it flash flooding so severe it eliminated the island’s power grid.¹ Causing devastating loss of life and more than $100 million in property damage, Hurricane Maria also affected the $40 billion pharmaceutical industry, which brought drug manufacturing to the island in the late 1970s for tax breaks and lower wages not available in the mainland U.S.²³ In the aftermath of this Federal Emergency Management Agency (FEMA)-declared major disaster, pharmaceutical factories, like other businesses in Puerto Rico, faced severe difficulty obtaining diesel fuel to power their plants.⁴⁵ With phone lines also down, companies like Boston Scientific ran ads on the radio requesting their employees to report on their status.⁶ Hurricane Maria also had a rippling effect on the mainland, specifically in hospitals where intravenous (IV) saline became in short supply in the months following the storm, affecting the ability of medical personnel to administer fluids and a range of IV medications. Pharmacy shipments of IV fluids from Puerto Rico to mainland hospitals became sporadic and often were delayed by weeks.²⁷

The drug shortages following Hurricane Maria received national attention, but, the fact is, these shortages have been a persistent problem for the last 15 years, with more than 100 vital medications affected annually.⁸ Although new shortages have generally decreased, the number of ongoing drug shortages...
remains high. Manufacturing problems contribute to nearly a quarter of these shortages; however, more than 50 percent are in short supply for unknown reasons.\textsuperscript{9,10} This dilemma affects the quality of patient care and the health care market. Many of the antibiotics and critical care medications that surgeons and intensivists use daily are frequently unavailable due to shortages. A shortage may not necessarily change the treatment plan or outcome for a particular patient, but the consequences of this ongoing epidemic are noticeable in many health care settings.

**Impact on patient care**

Drug shortages touch patients in two major ways: relegating physicians to order alternative therapies that may be of inferior quality and effectiveness, and thereby increasing the risk of adverse effects and unforeseen complications. At present, data are limited to case reports, case series, and survey data.

In the wake of Hurricane Maria, the shortage of small-volume IV saline bags, particularly 50 mL and 100 mL sizes, has been notable. Inconspicuous at first glance, these bags are vital to the delivery of medications like antibiotics and electrolyte replacements such as potassium chloride.\textsuperscript{11} Providers have needed to alter usual protocols to work around this shortage, by administering drugs via IV pushes or transitioning to 500 mL and 1000 mL bags. Administering doses via IV push requires staff to provide a slow push for up to five minutes rather than a longer drip. Individual nurses, pharmacists, and other health care professionals need to be educated on how to alter their usual medication delivery practices. An organization of hospital pharmacists—the American Society of Health-System Pharmacists (ASHP)—has taken the initiative to inform staff on recommended steps to follow due to the shortage of small-volume parenteral solutions. Together with efforts contributed by the University of Utah, Salt Lake City, these organizations have created a resource for providers and pharmacies seeking to adapt to this shortage.\textsuperscript{12}

The IV fluids shortage that occurred after Hurricane Maria also forced the federal government to change the way it regulates these products. For example, the U.S. Food and Drug Administration (FDA) organized importation of supplies from other countries and allowed extending expiration dates to compensate for the shortage.\textsuperscript{11}

Although no official reports of IV bag shortage-related patient complications have been issued, drug shortage-related adverse events have been reported. One recent example was associated with drug substitution. Injectable sodium bicarbonate is a vital and versatile drug used in critical scenarios such as cardiac arrest or in the management of acidosis. It also is used as a base for medication suspension. In one instance, injectable sodium bicarbonate was unavailable, and a pharmacist suspended the common antacid omeprazole using a powdered sodium bicarbonate alternative. Baclofen was mistaken for bicarbonate and resulted in a severe baclofen overdose in an infant, which led to seizures, respiratory distress, and flaccid paralysis.\textsuperscript{13}

Sometimes, a drug in short supply is still available, though the dosage form may be limited. One example is when hydralazine was available only as a 10 mg tablet in 2010. This situation posed a significant challenge for patients who take up to 400 mg/day. Patients were forced to count out 40 tablets to get the correct dose. Though the tablet form of hydralazine is now readily available, the injection form that is needed for severe high blood pressure remains on the shortage list.\textsuperscript{14}

Even before the IV fluid shortage, the drug shortage epidemic has altered the care of surgical patients in the operative and perioperative settings. When propofol availability became limited, methohexital was sometimes substituted, leading to increased postoperative nausea in patients who were undergoing elective operations at outpatient surgery centers.\textsuperscript{15} At one institution, a shortage of aminocaproic acid, a drug used to decrease bleeding during cardiac surgery, resulted in providers restricting its use to only
TABLE 1. PARTIAL LIST OF DRUG SHORTAGES AS OF SEPTEMBER 2018

- Ampicillin and sulbactam injection
- Bupivacaine injection
- Bupivacaine with epinephrine injection
- Calcium chloride injection
- Calcium gluconate injection
- Cefazolin injection
- Cefepime injection
- Cefotaxime injection
- Ceftriaxone sodium injection
- Clindamycin injection
- Ciprofloxacin oral/injection
- Diltiazem injection
- Dobutamine injection
- Dopamine hydrochloride injection
- Enoxaparin injection
- Epinephrine injection
- Fentanyl injection
- Fluconazole injection
- Hydromorphone injection
- Heparin injection
- Hydralazine injection
- Indocyanine green
- Ketamine injection
- Ketaorlac injection
- Labetalol injection
- Lactated Ringer's injection
- Levetiracetam injection
- Lidocaine injection
- Lidocaine with epinephrine injection
- Lorazepam oral/injection
- Mafenide acetate powder
- Magnesium sulfate injection
- Methylen Blue
- Morphine injection
- Octreotide injection
- Piperacillin and tazobactam injection
- Potassium chloride injection
- Sodium chloride 0.9 percent injection large and small bags; 10 mL, 20 mL, 50 mL vials
- Sodium bicarbonate injection
- Sodium phosphate injection
- Vancomycin hydrochloride injection

Source: American Society of Health System Pharmacists

TABLE 2. CAUSES OF DRUG SHORTAGES

<table>
<thead>
<tr>
<th>Increase in demand (5 percent)</th>
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<tbody>
<tr>
<td>Loss of manufacturing site (2 percent)</td>
</tr>
<tr>
<td>Discontinuation (2 percent)</td>
</tr>
<tr>
<td>Quality: Delays/capacity (27 percent)</td>
</tr>
<tr>
<td>Quality: Manufacturing issues (37 percent)</td>
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<tr>
<td></td>
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<tr>
<td>Raw material issues (27 percent)</td>
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<tr>
<td>Additional causes</td>
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Source: U.S. Food and Drug Administration

the highest risk patients.16 Formulations of pain medications also are affected by drug shortages, which has led to overdoses of drugs like fentanyl and ketamine.17 Patient surveys on the topic of drug shortages show that most patients undergoing elective surgery would want to know if a drug they needed was in short supply, and would prefer to delay an operation if it would affect their care.18

Unfortunately, drugs used in surgical patient care are commonly in short supply, and many of them are used in critical settings. A recent study found that more than half of the listed medications on the shortages list were for acute care drugs, with 70 percent being injection drug products.19 The FDA and the ASHP both track drug shortages online, with 194 drugs in short supply listed on the ASHP website as of September 14, 2018 (see Table 1, this page).14,20

At the bedside, physicians often are frustrated by the restricted medication-prescribing ability created by drug shortages. Sharing this burden are hospital pharmacists, infectious disease specialists, and intensivists, who consequently must make complex prescribing decisions with limited information. Maintaining an adequate inventory in the middle of drug shortages is a difficult task, leading some providers and organizations to stock up in anticipation of a shortage, which increases costs and risks wasted inventory.
Forces driving drug shortages

Ensuring quality can sometimes be costly. Drugs commonly used for decades became unavailable as a consequence of the FDA’s 2006 Unapproved Drugs Initiative (UDI). The objective of the UDI was to target older drugs that were in use before FDA approval in an effort to certify that these medications fulfilled present-day standards. Though the goal of the UDI was to promote safety, it unintentionally increased drug prices and shortages. Under this initiative, companies could get approval for common, previously generic drugs and obtain temporary exclusivity. In 2012, Par Pharmaceutical used existing literature to obtain FDA approval for vasopressin, a drug that had been in use for almost a century. The average wholesale price increased from $4.27 to $138.40 in November 2016, leading some hospitals to limit their stock of vasopressin. Similarly, 90 percent of the drugs newly approved since the UDI were approved not on the basis of new clinical data, but on existing literature. Following the UDI, drug shortages increased, and the length of shortage also significantly rose to 217 days two years after implementation, from 31 days prior to the UDI.

In addition, increased regulations have resulted in the unexpected closure of production facilities. For example in 2012, Sandoz, a Canadian division of Novartis, suspended production of several sterile injectable drugs after an FDA inspection. The FDA raised concerns about drug sterility and purity, which reduced the availability of several generic drugs, many of which had no available alternatives.

Furthermore, poor quality control measures and failed inspections have led to mass recalls. Hospira, a leading producer of sterile injectable drugs, was purchased by Pfizer Inc. in September 2015, and its plants have been plagued with quality issues. In particular, the McPherson plant in Kansas received a warning letter from the FDA in February 2017 highlighting several issues, including cardboard contamination of vancomycin and several instances of poor aseptic technique.

Additionally, raw material supply can pose a complicated problem. Heparin, a drug commonly used

REFERENCES

continued on next page
Although the IV fluid shortages in U.S. hospitals in the aftermath of Hurricane Maria have brought this epidemic the attention it deserves, drug shortages have been a long-standing problem and are an ongoing issue.

REFERENCES, CONTINUED


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shortages annually. Some measures that the FDA takes to reduce shortages include expediting the inspection process, working with the Drug Enforcement Administration to regulate controlled substances, and improving communication and tracking through the Drug Shortage Data System. Additionally, up-to-date information can be provided via a smartphone application and blog to connect with the public.

The 2014 Drug Shortages Summit in Washington, DC, brought together leaders of professional organizations, manufacturers, hospital associations, and government entities to discuss “efforts to address the quality, regulatory, and economic issues that may underlie drug shortages and also identified new potential solutions that merit further consideration.” Similar efforts need to be put in place to identify the causes of drug shortages and prevent them from occurring. The FDA also should weigh the benefits of importing critical medications during times of severe shortages.

Conclusion
Drug shortages pose a significant problem for all patients. Although the IV fluid shortages in U.S. hospitals in the aftermath of Hurricane Maria have brought this epidemic the attention it deserves, drug shortages have been a long-standing problem and are an ongoing issue. Continued efforts and support at the federal level, as well as from manufacturers and GPOs, are needed to prevent shortages of vital medications. Additionally, increasing education and awareness for the prescriber, pharmacist, and nurse may help prevent adverse events related to substitutions.

REFERENCES, CONTINUED
Stop the Bleed® remains one of the most active programs for both the Committee on Trauma (COT) and the Division of Advocacy and Health Policy (DAHP). At press time, more than 335,000 people had learned bleeding control techniques through the national Stop the Bleed program (approximately 315,000 in the U.S. and 20,000 in other countries), with more receiving instruction every day. Throughout 2018, the American College of Surgeons (ACS) has worked with Fellows throughout the U.S. and in our nation’s capital to teach Stop the Bleed to legislators and congressional staff. In addition to potentially saving lives, providing Stop the Bleed training for congressional offices and state legislatures has helped to focus the public’s attention on this vital program. The following is a summary of ACS Stop the Bleed advocacy efforts on the state and federal level.

Members of Congress: In-office training

In 2017, the ACS hosted large-scale trainings on Capitol Hill for both members of Congress and congressional staffers. These efforts included a training in October 2017 that featured an appearance from Rep. Steve Scalise (R-LA), House Majority Whip.
Representative Scalise sustained a gunshot injury in June 2017, and bleeding control techniques are credited with helping to save his life. Reps. Roger Marshall, MD (R-KS), and Rodney Davis (R-IL) also participated in the October 2017 event. Upon completion of their training, Representatives Marshall and Davis voiced their support for the Stop the Bleed program on the floor of the House of Representatives and urged their colleagues to help raise awareness of the program and to participate in hemorrhage control training.

In 2018, the ACS’ advocacy approach has focused on training individual members of Congress and their staff in their offices in both Washington, DC, and/or in their district. This approach has resulted in a more personal training experience and has allowed Members of Congress and key committee staffers to gain firsthand knowledge about the Stop the Bleed program. At press time, the ACS has hosted Stop the Bleed trainings in 2018 for the following members of Congress and committees/groups:

- Rep. Bill Flores (R-TX)
- Rep. Raul Ruiz, MD (D-CA)
- Sen. Bill Cassidy, MD (R-LA)
- Staff on the Senate Homeland Security and Government Affairs Committee
- Senate Sergeant at Arms
- House Sergeant at Arms


Military briefing
In July, the ACS hosted a Capitol Hill briefing featuring a panel of experts on military surgical care, including John H. Armstrong, MD, FACS; CAPT Eric Elster, MD, FACS, USN; COL Frederick Lough, MD, FACS; and Arthur Kellerman, MD, MPH. The panelists focused on themes from the recent publication Out of the Crucible: How the U.S. Military Transformed Combat Casualty Care in Iraq and Afghanistan and the role military-civilian trauma partnerships play in maintaining trauma care readiness. The panel highlighted how the prolonged conflicts during Operation Iraqi Freedom and Operation Enduring Freedom saw an unprecedented improvement in military combat casualty care and the creation of the Joint Trauma System (JTS), designed to facilitate the development and dissemination of best trauma practices across the Department of Defense. A key lesson learned from military health care has been the positive impact tourniquets can have on injured patients suffering from severe bleeding. Bleeding control techniques are not only saving lives in the military theater, they are also empowering civilians to become immediate responders and to help save lives.

Appropriations report language
The ACS worked with members of the Senate Appropriations Committee to successfully include language illustrating the importance of Stop the Bleed in the Senate Appropriations Legislative Branch Appropriations Committee Report (S. Rept. 115-274) for fiscal year 2019. The language included in the report underscores the importance of Stop the Bleed training and urges the Sergeant at Arms to work with the Office of the Attending Physician to assist in offering Stop the Bleed training to all congressional staff, both in Washington, DC, and in district offices.* Report language
At this time, several ACS chapters are taking steps to support the introduction of new legislation requiring that bleeding control kits be installed in public places or schools.

is included with Appropriations legislation to guide the administration and departments in support of the Committee’s priorities.

**National Stop the Bleed Day**

As the College celebrated the first annual National Stop the Bleed Day on March 31, several state legislatures and members of Congress marked the occasion with formal resolutions and congressional statements.

**Congressional statements for the record**

Sens. Ron Johnson (R-WI), Chairman of the Senate Homeland Security and Governmental Affairs Committee, and Richard Blumenthal (D-CT) issued statements in the Senate for the Congressional Record affirming the importance of bleeding control training for National Stop the Bleed Day, and Reps. Raul Ruiz, MD (D-CA), and Buddy Carter (R-GA) issued statements in the House of Representatives.

At the state level, Alabama, Georgia, Louisiana, New York, Utah, and Wisconsin passed resolutions recognizing the importance of the Stop the Bleed program, and each of these states (with the exception of Louisiana and Georgia) recognized March 31 as their state Stop the Bleed Day to coincide with the national Stop the Bleed Day. The legislatures in Georgia and Louisiana declared their state Stop the Bleed Day to coincide with the ACS State Chapter lobby days taking place in their states.

**2018 Stop the Bleed state activities**

In 2018, 17 ACS chapters included Stop the Bleed trainings as part of their state chapter lobby days—Alabama, Arkansas, California, Connecticut, Florida, Georgia, Kansas, Louisiana, Massachusetts, Michigan, North Carolina, Oregon, Tennessee, North and South Texas, Virginia, and Washington. By organizing a Stop the Bleed training program, chapters can educate legislators and staff on how to respond to a severe bleeding injury and build relationships with elected officials in order to discuss other important health care public policy issues. The Georgia, Kansas, Louisiana, and Tennessee Chapters donated bleeding control kits to be installed in their respective state capitols. Georgia, Kansas, and Louisiana donated two wall-mounted bleeding control stations for the House and Senate chambers in their respective states, while Tennessee donated eight individual kits to be added to the capitol’s existing AED (automated external defibrillator) stations.

Before the start of the 2018 state legislative sessions, the College released a bleeding control state legislative tool kit that can be found on the State Advocacy Resources page of the College’s website intended for use by state legislators. This tool kit provides resources including model legislation, sample talking points, sample letters to legislators, sample action alerts, and samples of documents used by other chapters to assist Fellows in advocating for legislation that would lead to the installation of bleeding control kits in public places. Efforts by ACS Fellows resulted in the introduction of such legislation in Massachusetts, Missouri, and North Carolina, while a bill in California was carried over from 2017 to 2018.

The Massachusetts bill, the Trauma Response Preparedness Act, H.D. 4327, received strong support from the state ACS chapter. Working with Rep. Shawn Dooley (R), the chapter helped advocate for passage of the legislation and initiated an Action Alert when Representative Dooley attempted to add the legislation as an amendment to the state’s budget bill. Unfortunately, the budget amendment ultimately failed. However, on August 9, 2018, Representative Dooley and ACS Fellow Lisa Ferzoco, MD, FACS, met with Jim Peyser, Massachusetts Secretary of Education, to discuss potential funding for bleeding control kits in the state’s public schools using surplus budget funding earmarked for school safety.
In North Carolina, the legislature approved public funding for a pilot program for Transylvania County to install bleeding control kits in county schools and to train school personnel. The North Carolina pilot program, launched August 15, included training teachers in the techniques to properly use the bleeding control kits. The sponsor of the pilot, Rep. Cody Hensen (R), has indicated plans to support legislation to expand the program statewide.

Legislation in California was introduced in 2017 and subsequently carried over to 2018, which mandates the installation of bleeding control kits in public places. The California bill did not pass by the end of legislative session. A similar bill in Missouri also failed to pass prior to adjournment of the legislature. And in South Carolina, a bill requiring bleeding control kits in public schools was introduced shortly after the shooting in Parkland, FL, but unfortunately did not pass before the end of session.

At this time, several ACS chapters are taking steps to support the introduction of new legislation requiring that bleeding control kits be installed in public places or schools. Specifically, legislators in Louisiana, Oklahoma, Tennessee, and Texas plan to introduce bills during the 2019 session.

The importance of advocacy
On a daily basis, Congress, policymakers, and state legislatures make decisions that have the potential to affect the surgical profession. To have a robust, effective advocacy program, it is essential that all surgeons and Fellows of the ACS join together with a united voice to engage congressional leaders and public officials in support of patients and surgical priorities.

As the Stop the Bleed program continues to grow, ACS members will play an important role in helping to disseminate the program into their local communities and engaging with their state/federal officials about Stop the Bleed events and activities.

If you would like to participate in Stop the Bleed advocacy efforts, contact DAHP staff at ahp@facs.org or 202-337-2701.

The ACS DAHP suggests the following activities to support the Stop the Bleed program:

- Attend the Leadership & Advocacy Summit, March 30–April 2, 2019, in Washington, DC

- Learn more, take action, and explore tools and resources available to surgeon-advocates online at facs.org/surgeonsvoice, in addition to engaging via social media (@SurgeonsVoice)

- Host your federal/state legislators at your facility/practice and engage in the following:
  - Site visits
  - Facility tours
  - Stop the Bleed training courses

- Meet with members of Congress in your home district or in Washington, DC

The DAHP is available to assist with these efforts and can help prepare you for a successful meeting, event, or facility tour.

Acknowledgments
The authors would like to recognize Jon Sutton, ACS Manager of State Affairs, Division of Advocacy and Health Policy, and Christian Johnson, ACS State Affairs Associate, Division of Advocacy and Health Policy, for their contributions to this article.
Every year, the Advocacy and Issues Committee of the Resident and Associate Society of the American College of Surgeons (RAS-ACS) hosts a symposium at Clinical Congress. The focus of the symposium is a current and controversial topic in surgery that affects residents and surgical education. After much deliberation, the committee has chosen Physician Extenders in Academic Surgery: Integrated Partner or Parallel Player? as this year’s theme.

The first physician assistants’ class graduated in the 1960s and was called to serve in a setting lacking primary care physicians with concurrent expanding health care coverage demands. A rapid evolution ensued, and today, physician extenders (PEs) are present in medical and surgical specialties across the U.S., performing many roles within each of those specialties. Different specialties are finding distinct ways of incorporating PEs, but challenges remain for successfully integrating these roles into surgery. The main focus of concern for residents is how best to use PEs without decreasing clinical exposure, learning opportunities, and, ultimately, the surgical education experience. Two main ways of including PEs in surgical education are as an integrated partner or a parallel player.
Integrated partner
With PEs serving as integrated partners, residents, attendings, and patients all benefit. Since the dawn of physician work hour limits, residents have increasingly been expected to perform administrative clinical tasks while maximizing time in the operating room (OR) and absorbing clinical knowledge. The role of PEs in assuming noneducational responsibilities enables residents to use their restricted time more effectively in a manner that preserves the quality of surgical education, allowing seniors to complete more operative cases and providing junior colleagues the opportunity to join them for critical learning opportunities.

It is well documented that PEs improve the efficiency and productivity of hospital-based residency programs. They decrease patients’ length of stay and resident workload, increase resident sleep time, and improve operating times without affecting patient morbidity or mortality. These roles may even result in cost savings. Beyond the educational opportunities for residents working in an integrated model, consistency in patient care is optimized, as PEs develop knowledge of individual attending preferences and are typically readily available in emergencies, unlike many scrubbed or post-call residents. It is beneficial for young physicians to understand PEs’ breadth of knowledge, what they’re capable of, and how they can best be used in a complex team environment. Ultimately, PEs are likely to become a permanent fixture in the surgical world. It is important to acquaint young physicians with PEs early in their training to better integrate them into the health care team.

Parallel player
The goal of a PE in the setting of a surgical residency should be to allow residents greater opportunity to pursue education, be it in the OR or in direct patient contact, by serving as a parallel player. There is an argument that the increasing reliance on PEs is entirely a monetary consideration—that is, they offer a cheaper way to perform the duties that a physician normally performs. Increasing red tape, administrative burden, and business modeling of medicine have led to PEs serving as “replacements for doctors.” There is an increasing practice of integrating PEs into the OR instead of having them serve as parallel players in taking care of floor patients. In the OR, the PE allows surgeons to bill more for the same case, be more efficient, and avoid the burden of teaching obligations. PEs, when not parallel players separate from residents, can also take away from the resident clinical experience outside of the OR. These missed learning opportunities could include anything from PEs performing bedside procedures or line access in the unit to making decisions about patient care.

Historically, teaching services have abided by a linear hierarchy, with attending physicians supported by a team comprised of the chief resident or fellow overseeing junior residents and interns. The introduction of midlevel providers modifies this structure, creating a system where a purely vertical hierarchy in knowledge and experience no longer exists, confusing roles and expectations. This hierarchal change has the potential to result in communication problems, as patient care information may be relayed to PEs, bypassing the resident, and potentially affecting patient care and patient safety. The role of PEs in health care is invaluable, but their role in residency may need to be limited.

The RAS-ACS Advocacy and Issues Committee sent out a call for essays on the topic of PEs in academic surgery and it received numerous responses from surgical residents all across the country. The first-place winners were Reema Mallick, MD, an Associate Member who just completed a transition to practice fellowship at Geisinger Medical Center, Danville, PA, and Elizabeth Consky, DDS, MD, oral and maxillofacial surgery resident, postgraduate year-5, Emory University, Atlanta, GA. The resident essay contest winners were invited to present at the symposium at Clinical Congress 2018, along with moderator Kyla Terhune, MD, MBA, FACS, and panelists Anthony Kim, MD, MS, FACS; Brian Yorkgitis, DO, FACS; and Rita D’Aoust, PhD.

Following are the second-place entries on the topic.
As an intern, I have seen the wide-ranging effects of nonphysician providers (NPPs) firsthand. NPPs have afforded me many advantages this year, including decreased administrative workload and increased exposure to the operating room (OR). I have turned to them for everything from clinical questions to supervision and assistance for minor procedures. As my intern year draws to a close, I am deeply appreciative of the guidance and support they have provided. However, I also have witnessed significant downsides to their presence in residency training. If we do not carefully define our role as residents, we risk becoming the accessory “parallel players” in patient care.

NPPs have been in practice for more than two decades, with their workforce increasing significantly following the introduction of the 80-hour workweek in 2003. They filled a critical void at a time when the culture of residency was undergoing necessary changes. Their scope of practice varies widely from simple documentation and discharge needs to assisting in the OR. Case studies of early implementation touted NPPs as promising partners. Residents reported decreased workload and increased OR time. Improved continuity of
I cannot help but worry that I am not sufficiently learning and preparing for eventual independent management of patients. Each small decision that I am denied the opportunity to make is a lost opportunity to refine my clinical judgment. Care also has been noted. Residents can rotate through services over the course of several months and for that reason may be less familiar with the complexities of patients requiring multiple hospitalizations in their perioperative course. However, conflicts also arose. NPPs and residents disagree on the hierarchy of responsibility, with 90.5 percent of residents (n = 66) ranking NPPs at an intern level or below and 67.8 percent of NPPs (n = 28), stating their position in the chain of command to be at the senior/chief resident or attending level. Confusion about the division of responsibilities and problems in communication between junior residents and NPPs also became evident.

With the proliferation of NPPs on almost every clinical service, varied effects on the education of surgical residents—effects that are sometimes less than positive—are becoming clear. A recent survey of 279 faculty academic surgeons from across the country reveals the high educational cost of reduced resident workload. Faculty respondents to the survey cite concerns about resident experience with preoperative and postoperative care, with 50 percent agreeing that NPP coverage reduces resident exposure to valuable educational opportunities. In the old model, all nursing concerns were funneled through one person, and the team plans were enacted through one person. Although this system creates a high workload for that individual, it ensured that steps didn’t get overlooked or missed because of miscommunication. With the diffusion of responsibility and without established lines of communication, it can be difficult to keep up with nursing concerns that went to the NPPs first or updates from various consultant teams.

I cannot help but worry that I am not sufficiently learning and preparing for eventual independent management of patients. Each small decision that I am denied the opportunity to make is a lost opportunity to refine my clinical judgment. For the same reason that we log operative cases, numbers matter. Seeing patient number 100 with tachycardia and hypotension in the immediate postoperative period is different than seeing number 50. Each of those small clinical decisions—determining whether I should bolus for low urine output, place a Foley after multiple failed void attempts, or drop a nasogastric tube in a patient with a largely distended abdomen—allows me to develop astute clinical decision-making skills. If I cannot systematically evaluate the “small” problems of surgical perioperative care, how can I develop confidence and competence to make the larger decisions surrounding the trajectory of surgical patient care?

The faculty survey also noted disruptions in team dynamics that sideline the residents. Rather than relying on and teaching the residents their patient care preferences, senior attendings turn to NPPs to get the job done. In fact, 77 percent of academic faculty report rounding without residents, which effectively releases residents from direct patient care responsibilities. As residents who rotate on and off services, it is difficult to compete with the expertise of NPPs who never leave the service. That level of familiarity cannot be overcome in a four-to-eight-week rotation, especially when residents have minimal opportunities to take care of the patients on the floor because day-to-day responsibilities are delegated to the NPPs.

Resident surveys regarding their experiences with NPPs have generated mixed responses. Surveys ranging from single institution to nationally administered have demonstrated that residents report a lighter workload and less operative interruptions with NPPs on service. Most studies report that residents view NPPs as a benefit, and residents will even advocate in some instances for adding NPPs. However, do residents really understand what is best for their education? When the resident responses are compared with the responses from the attending survey, a chasm in opinion emerges, with residents reporting that NPPs have little impact on their education and the faculty describing significant gaps.

The truth is likely somewhere in the middle, but perceived improvements in the educational value of a service by residents do not necessarily equate to true
improvements in resident education. We know there are problems with our current educational structure, with the widespread concern that graduating residents may lack the confidence to enter independent practice, necessitating the creation of fellowships such as the American College of Surgeons Mastery in General Surgery program.

Furthermore, the effect of this systematic shift in floor responsibility may extend to the OR. It has been reported that intraoperative autonomy decisions are framed by perceptions of resident capacity in managing patients on the floor. If residents are no longer accountable for the care of the patients on the floor and cannot demonstrate clinical judgment in that venue, what does that portend for autonomy acquisition in our operative experience?

Ultimately, further investigation is warranted to determine if the detriments to resident education can be overcome. Setting clear expectations about the responsibilities of the team members, collaborating regarding patient decisions, and using group texting are all ways in which I have seen functional teams provide excellent patient care in spite of these challenges this year.

We, as trainees, risk being the casualties of this new system. The looming danger of becoming bystanders in patient care is real if we are unable to effectively define our own roles within the team. We can also take responsibility for identifying ways to make the relationship between residents and NPPs constructive for both patient care and education. Clear delineation of team members’ roles, direct collaboration on patient care decision, and improved communication can benefit our patients and our learning opportunities.

I became a surgeon not only to perform operations that can save and improve patients’ lives, but also for the responsibility and ownership that comes with being trusted to operate on another human being. With this privilege comes great responsibility, but I refuse to relinquish this characteristic that defines my practice and inspiration in medicine. The care of my future patients depends on it.

REFERENCES

Physician extenders:
Integrated members of surgical teams

by Jessica Taylor, MD
APPs play an important role on surgical teams when helping with resident workload and allowing them to attend designated activities. The benefit also is seen in enhanced patient care while residents are participating in these educational conferences.

In the 1960s, the first physician assistants (PAs) class graduated from Duke University, Durham, NC. The concept of PAs was first established in response to the lack of primary care physicians and the need to expand health care coverage. The origin of this profession lends support to the idea that physician extenders (PEs) are integrated members of surgical teams. PEs are used in medical and surgical specialties across the U.S., and they perform many roles within each of those specialties.

Surgical residency involves learning the many aspects of patient care. The process of caring for patients includes, but is not limited to, evaluating patients pre- and postoperatively, placing appropriate orders to facilitate care, writing progress notes and discharge summaries, and assisting with operative procedures. These tasks are delegated to residents as well as PEs. Although both types of health care professionals perform these duties, residents also are responsible for achieving myriad educational objectives. In fact, PEs have become an integral part of surgical teams and help facilitate resident education in several respects.

Learning to care for critically ill patients is an important part of surgical education. Many surgical intensive care units (ICUs) employ PEs. A 2015 survey of 354 surgical residents showed that 48.4 percent of the respondents report that PEs have a positive impact on their ICU experience. Many residents report that advanced practitioner providers (APPs) not only decrease their workload, but also provide teaching and enhanced patient care. In these settings, residents perceive an educational benefit from having PEs in the hospital. APPs offer instruction in ICU protocols while assisting in patient care. Having PEs also allows for continuity of care. When residents transition off service after a month rotation, APPs remain in the same patient care area and continue following patients. PEs in this setting serve a dual purpose by providing continuity of care and resident education.

In 2009, a study was published showing that PEs are being hired for general surgery teaching services with the intention of helping enhance resident education. This study specifically mentions that PEs are most often used to perform histories and physicals, see consults, and assist in the operating room.

One could argue that APPs are taking educational opportunities from residents by performing these tasks. The counter-argument is that the implementation of the 80-hour workweek has forced surgical residents to master the art of efficiency by completing a portion of these same service duties and attending educational conferences to meet Accreditation Council for Graduate Medical Education requirements for their residency programs.

Residents receive a large portion of their education through clinical practice and service; however, the educational benefits of conferences and lectures must not be overlooked. APPs play an important role on surgical teams when helping with resident workload and allowing them to attend designated activities. The benefit also is seen in enhanced patient care while residents are participating in these educational conferences. In addition to improved patient care observed by others, Stahlfeld and colleagues reported improved scores on the American Board of Surgery In-Training Examination for some residents with the addition of PEs. With the use of APPs, residents have more time to read and learn the surgical curriculum that is tested by the American Board of Surgery.

Surgical residents should embrace the concept of providing team-based care because it is vital to quality patient care. An environment that supports the use of PEs also is important for resident education. Buch and colleagues surveyed surgical residents and APPs at an academic medical center to evaluate the general experience between the two groups. The study’s results showed that residents and PEs at this facility have a collegial relationship. Both groups agree that PEs have a positive impact on resident educational experience.
through direct clinical teaching. The presence of PEs also provides the opportunity for residents to learn how to care for patients in a multidisciplinary fashion. Not all surgical teaching services have PEs, but there is a high probability that another service that frequently interacts with residents may have these providers. Thus, it is important that residents learn how to communicate and work with APPs from other specialties in order to provide high-quality patient care.

Surgical education involves the integration and balance of service-related duties with attending didactic conferences. The use of PEs is not only imperative for patient care, but residents have the opportunity to learn directly from these team members. As surgical education continues to evolve, residency programs that employ PEs will have an advantage that is reflected in the educational achievements of their future residents.

REFERENCES

Charles James Carrico, MD, FACS, whom everyone knew as “Jim,” was the epitome of an academic surgeon. Following the completion of his surgical residency at the University of Texas (UT) Southwestern Medical Center, Dallas, he fulfilled his military obligation at the U.S. Navy Hospital in San Diego, CA, where he was actively involved in research and was instrumental in establishing the Shock and Resuscitation Program. Returning to Dallas he became a leader in the trauma program at UT Southwestern until he moved to Seattle, WA, with his chairman, G. Tom Shires, MD, FACS (a Past-President of the American College of Surgeons [ACS]), when Dr. Shires accepted the chairmanship of the department of surgery at the University of Washington (UW) and Jim became the chief of surgery at Harborview Medical Center.

Over the course of the next 16 years, Dr. Carrico was a prolific researcher and publisher, eventually becoming the chairman of the department of surgery (1983–1990) at Harborview. During these years, he continued to inspire young faculty members to add surgical investigation to their clinical and teaching skills. Following his successful chairmanship at UW, he was lured back to Dallas to accept the chairmanship of the department of surgery at UT Southwestern, a position he held for the next 10 years.

Jim was a triple threat, respected by his colleagues for his technical skills, by his students and residents for his educational contributions, and by all of the surgical community as a researcher. He was the stimulus for many young surgeons to become actively involved in surgical investigation, and many of these surgeons identify him as their mentor. Nothing gave Jim greater pleasure than seeing protégés become successful as surgical investigators. Dr. Carrico was a major supporter of the ACS, having served on many committees, including as Chair of the Board of Regents and President-Elect of the College at the time of his death in July 2002.

continued on page 44
## TABLE 1. CARRICO CHAMPIONS

<table>
<thead>
<tr>
<th>Carrico Champion</th>
<th>Born</th>
<th>University</th>
<th>Medical school</th>
<th>Residency</th>
<th>Fellowship</th>
<th>Mentors</th>
<th>Chairperson</th>
<th>Current position</th>
<th>Family (spouse and children)</th>
</tr>
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</table>
| Jeffrey L. Johnson, MD, FACS | Iowa City, IA     | Cornell University (CU), Ithaca, NY; University of Chicago (UC), IL | George Washington University (GWU), Washington, DC | University of Colorado (UCOL), Boulder | NIH:                                | Charles Clapp, PhD (BU)  
Keith Lillemoe, MD, FACS (JH)  
Tim Buchman, MD, FACS (JH)  
Mike Mulholland, MD, FACS (UMi)  
Barbara Lee Bass, MD, FACS (UMd) | Dr. Harken, Lazar Greenfield, MD | Trauma medical director, Henry Ford Hospital, Detroit, MI | Erica Johnson; Colin 26, Charlotte 23, Margot 21, Jan 20, Oliver 9, Clara 7 |
| Douglas J. Turner, MD, FACS | Media, PA         | Bucknell University (BU), Lewisburg, PA   | Johns Hopkins University (JH), Baltimore, MD | UMi            | NIH:                                | Robert Case, MD (CU)  
Adrian Kantrowitz, MD, FACS (CU)  
Jean Kantrowitz (CU)  
Louis D’Alecy, MD, FACS (UMi)  
Gerald Zelenock, MD, FACS (UMi)  
Robert Bartlett, MD, FACS (UMi) | Lazar Greenfield, MD | Chief of surgery, Baltimore Veterans Affairs Medical Center, MD | Jennifer Turner, physician’s assistant; Elizabeth 6, Luke 4 |
| Mark R. Hemmila, MD, FACS | Royal Oak, MI     | University of Rochester (UR), NY; Columbia University (CU), New York, NY | University of Michigan (UMi), Ann Arbor | UMI            | NIH:                                | Michael Myckatyn, MD (father)  
Carol-Ann Courneya, PhD (UBC)  
Dan Rurak (UBC)  
Hilton Ling, MB MCh, FRCS, FRCSc (UBC)  
Anthony Selbian (UBC)  
Susan Mackinnon, MD, FACS (WU) | Timothy Eberlein, MD | Professor of surgery; trauma medical director; director, Michigan Quality Trauma Improvement Program; researcher, trauma/critical care, UMi | Allison Ogden, MD, FACS, chair, clinical ear, nose, and throat department, WU |
| Terence M. Myckatyn, MD, FACS | Vancouver, BC     | University of British Columbia (UBC), Vancouver | UBC                  | University of Pittsburgh (UP), PA: | NIH:                                | David Winchester, MD, FACS (NU)  
Richard Simmons, MD, FACS (UP)  
Tim Bellar, MD (UP)  
Edith Tzeng, MD, FACS (UP) | George Foster, MD, FACS | Director, breast reconstruction and cosmetic surgery, division of plastic and reconstructive surgery, WU | Noel Zuckerbraun, MD, MPH, associate professor of pediatrics, Children’s Hospital of Pittsburgh, PA; Zoe 13, Ryan 10 |
| Brian S. Zuckerbraun, MD, FACS | New York, NY      | Northwestern University (NU), Chicago, IL | NU                  | University of Louisville (UL), KY: | NIH:                                | James Hoth, MD (father)  
Ben Rush, MD, FACS (LSU)  
Jesse Meredith, MD (WFU)  
Mike Chang, MD (WFU)  
J. David Richardson, MD, FACS (UL)  
William Cheddle, MD (UL) | J. Wayne Meredith, MD, FACS | Trauma medical director; researcher, section of molecular medicine, WFU | Alicia Hoth, critical care registered nurse |
| J. Jason Hoth, MD | Baton Rouge, LA   | Louisiana State University (LSU), Baton Rouge, LA | UBC                  | Wake Forest University (WFU), Winston-Salem, NC | NIH:                                | James Hoth, MD (father)  
Ben Rush, MD, FACS (LSU)  
Jesse Meredith, MD (WFU)  
Mike Chang, MD (WFU)  
J. David Richardson, MD, FACS (UL)  
William Cheddle, MD (UL) | J. Wayne Meredith, MD, FACS | Trauma medical director; researcher, section of molecular medicine, WFU | Alicia Hoth, critical care registered nurse |

**Notes:**
- **Mentors:** Art Trask, MD, FACS (GWU)
  - Alden Harken, MD, FACS (UCOL)
  - Gene Moore, MD (UCOL)
- **Chairperson:** Dr. Harken
- **Current position:** Trauma medical director, Henry Ford Hospital, Detroit, MI
- **Family (spouse and children):** Erica Johnson; Colin 26, Charlotte 23, Margot 21, Jan 20, Oliver 9, Clara 7
The award and its champions
The ACS established the C. James Carrico, MD, FACS, Faculty Research Fellowship for the Study of Trauma and Critical Care in Jim’s honor. The ACS selection committee for the Carrico award has done an outstanding job. Each recipient of this award has become a successful academic surgeon, applying both their technical skills and their creative acumen to be prolific authors contributing to scientific publications. All six Carrico Champions also have been invited lecturers and successful in obtaining financial support for their ongoing surgical research. Besides being involved in ongoing research activities, they have maintained busy clinical roles within their departments and have been actively involved in teaching surgical students, surgical residents, and surgical fellows.

All six Carrico Champions have identified the important role that the Carrico award served in their professional development as academic surgeons. They describe how the Carrico award was a critical stimulus in their successful careers as academic surgeons and provided “traction” to obtain subsequent funding through a wide variety of local, regional, and national grants.

The ACS Foundation was instrumental in identifying the need for support of the Carrico award to these Champions. The Foundation emphasized that the Carrico fellowship provided the seed money to set up research laboratories for the awardees and to convince their department chairs that they were serious researchers who needed protected time to bring their creative projects to fruition. Based on their understanding of the importance of the Carrico award for future young academic surgeons, each of these Carrico Champions has made a commitment to become a major donor to the ACS Foundation in support of the continuance of the Carrico award.

Carrico Champion projects
Information about the current Carrico Champions appears in Table 1, page 43. Their research projects are as follows:

- Jeffrey L. Johnson, MD, FACS, 2001–2003: The Genome and the Mechanisms by which Kinetic Variance, Like Single Nucleotide Polymorphisms, Affect the Cellular Response to Insult
- Mark R. Hemmila, MD, FACS, 2004–2005: The Role of Lipopolysaccharide Binding Proteins in the Pathogenesis of Bacterial Pneumonia
- Brian S. Zuckerbraun, MD, FACS, 2006–2008: The Use of Carbon Monoxide to Prevent Circulatory Collapse from Hemorrhage
- J. Jason Hoth, MD, 2007–2009: Regulation of Lung Injury by Toll-Like Receptors After Pulmonary Contusion

For more information about the Carrico Champions and the Carrico award, contact the ACS Foundation at shollett@facs.org.
Appendicitis is one of the most common causes of urgent abdominal surgery among children. In the U.S., approximately 53,000 children undergo appendectomy each year for acute appendicitis.1,2 Despite substantial research and vigorous debate, no consensus has been reached on the optimal postoperative management of these children. Therefore, the approach to postoperative care varies widely among pediatric surgeons, presenting an opportunity for quality improvement (QI) endeavors.3,4 Appendectomy is a targeted procedure for the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP®) Pediatric Project, with readily available institution-specific and national statistics. Following the first year of participation, the University of California Davis (UC Davis) Children’s Hospital, Sacramento, was identified among the highest quartile for length of stay for pediatric patients undergoing appendectomy, despite having a lower postoperative complication rate than other institutions.

UC Davis patients had an average length of stay of 3.6 days versus 2.6 days nationally. This disparity was more pronounced for patients with complicated appendicitis, who had an average length of stay of 6.5 days in contrast to 4.7 days nationally. Because the prolonged average length of hospitalization could not be attributed to postoperative complications, the most likely contributors were variability in postoperative management and inconsistent criteria for discharge.

Context of the QI activity
The UC Davis Medical Center is a tertiary referral center with a large catchment area that includes parts of northern California, southern Oregon, Nevada, and Idaho. It also serves as the primary teaching hospital for the UC Davis Medical School, with a range of residency and fellowship programs. The adjoining UC Davis Children’s Hospital offers comprehensive pediatric care, is the region’s only ACS-verified Level I pediatric trauma center, and is the only ACS-verified Level I Children’s Surgery Center on the West Coast. During the year prior to the implementation of this initiative (July 2015 to June 2016), 128 children underwent appendectomy for acute appendicitis; 58 (42 percent) were found to have complicated appendicitis.

The UC Davis office of graduate medical education encourages QI endeavors, particularly multidisciplinary and interdepartmental projects, and offers grant funding through a competitive application process. Grant recipients are provided both financial and technical support to assist implementation. Intermittent updates are required to ensure progress is being made.

Planning and development process
Clinical practice guidelines have been described at other institutions, and their use, in general, has been endorsed by the American Pediatric Surgical Association.5 Guidelines used at several other institutions were obtained and a literature review performed to inform the development of a unique, local clinical practice guideline. The directors of pediatric antimicrobial stewardship provided recommendations for the postoperative antibiotic regimen, taking into consideration the local antibiogram.

A first draft of the local clinical practice guideline was presented along with local performance metrics to the pediatric surgery department during a weekly departmental meeting. The lead research fellow met with each pediatric surgeon in one-on-one meetings to elicit detailed concerns and
discuss potential alternatives to specific elements. The guideline was revised based on the accumulated feedback and subsequently received unanimous approval. The final approved guideline defined complicated appendicitis by specific intraoperative findings, established clear discharge criteria, and specified the postoperative antibiotic regimen (see Figure 1, this page).

**Description of the QI activity**

Once the clinical practice guideline was approved, it was disseminated by e-mail to all members of the pediatric surgery team, including surgeons, residents, nurse practitioners, and pharmacists. Laminated “badge buddy” cards of the guideline were distributed. The guideline was also posted in each of the resident work rooms and call rooms. An e-mail explaining the project and its background, along with the current iteration of the guideline, was sent to rotating residents a few days before the start of each rotation. Surgeons, rotating residents, and nurse practitioners were primarily responsible for ensuring that the guideline was followed.

The first iteration of the guideline was implemented November 1, 2016, and was periodically updated following the Plan-Do-Study-Act model. Data for all pediatric patients undergoing appendectomy were collected retrospectively from the electronic health record. Data points of interest included the following:

- Patient demographics
- Transfer status
- Diagnostic modality
- Length of stay
- Procedure performed (open versus laparoscopic)
Operating surgeon

Intraoperative findings (simple versus complicated appendicitis)

Pathology results

Intraoperative culture results (if applicable)

Peripherally inserted central catheter placement

Total parenteral nutrition use

Complete blood count results before discharge (if applicable)

Antibiotics prescribed at discharge

Duration of antibiotics (intravenous, oral, and total)

Compliance with the guideline

Infectious complications

Emergency room (ER) visits

Readmissions

30-day follow-up

Children who underwent interval and incidental appendectomies were excluded from further analysis.

The lead research fellow analyzed patient data every three months to assess key outcomes, specifically length of stay and complication rates. Results were presented at the weekly pediatric surgery department meeting and potential changes proposed. Changes were approved by consensus and a new iteration of the guideline released every four months, allowing a month between study periods to assess outcomes and discuss changes (see Figure 2, this page).

Resources used and skills needed

The UC Davis pediatric surgery department is composed of nine pediatric surgeons, including a mix of academic and private practitioners, three to four rotating general surgery residents, and one to two dedicated nurse practitioners. The pediatric infectious disease department was also involved in clinical practice guidelines development. One general surgery research fellow oversaw the development, implementation, data collection, and periodic analysis of the project.

Costs were minimal, limited to printing and laminating for distribution of each iteration of the guideline. Funding was provided through a grant from the UC Davis office of graduate medical education.

Results

Over the 12 months following implementation, the length of stay for all children undergoing appendectomy for acute appendicitis decreased from an average of 3.6 days to 2.6 days. For children with complicated appendicitis, the average length of stay decreased from 6.5 days to 5.4 days. Compliance with the guideline was high and observed in more than 93 percent of patients despite introduction of a new iteration every four months (see Table 1, page 48).

Importantly, rates of postoperative complications, including infectious complications, ER visits, and readmissions, did not increase after implementation.

No major setbacks were encountered, which is likely attributable to buy-in from each pediatric surgeon during development of the guideline.

As mentioned previously, direct cost related to implementation of this project was minimal. Cost data for the index hospitalization was
TABLE 1.
COMPLIANCE WITH THE CLINICAL PRACTICE GUIDELINE AFTER IMPLEMENTATION

<table>
<thead>
<tr>
<th></th>
<th>Iteration 1</th>
<th>Iteration 2</th>
<th>Iteration 3</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>97.6%</td>
<td>92.7%</td>
<td>94.6%</td>
<td>93.9%</td>
</tr>
</tbody>
</table>

Lessons learned
To implement this QI project, it was important to identify a dedicated project lead to ensure timely guideline distribution and periodic analysis, as well as a surgeon champion to provide project support. Presentation of performance metrics, particularly areas of poor performance and national statistics, led to increased motivation. Inclusion of all involved parties during guideline development was likely a crucial component for postimplementation compliance, as practice patterns prior to implementation were highly variable.

A high rate of compliance was maintained through monthly reminders for new rotating residents, as well as updates to the surgeons every three months regarding outcomes and potential changes.

Distributed copies of the guideline should be numbered or dated to ensure easy identification of the newest iteration when changes are made. Alternatively, older versions could be collected and destroyed with each new release.

Acknowledgment
The author would like to acknowledge the mentorship of Payam Saadai, MD, and Shinjiro Hirose, MD, FACS, during development and implementation of this project.

REFERENCES
A critical access hospital (CAH) provides access to health care in an area of the nation where these services might otherwise be difficult to obtain. Most CAHs are in rural areas of the U.S. General surgeons, through billing generated for their services, play an essential role in maintaining the financial viability of CAHs.

The development of CAHs
Until 1983, the Health Care Financing Administration (HCFA, now the Centers for Medicare & Medicaid Services [CMS]) reimbursed hospitals for patient care using a cost-based payment system. It was in that year that HCFA introduced the Inpatient Prospective Payment System (IPPS). Under this system, hospitals are reimbursed based on the payment weight assigned to specific diagnosis-related groups. Many small and rural hospitals developed serious financial issues following the implementation of the IPPS, with more than 400 small and rural hospitals closing. To keep hospitals open in rural areas that had no other hospitals nearby, CAHs were created through legislation included in the Balanced Budget Act (BBA) of 1997.1 The BBA authorized states to establish a State Flex Program under which certain facilities that participate in Medicare could become CAHs. CMS has a list of criteria that must be met for a hospital to be certified as a CAH, which includes the following:2

- Have no more than 25 inpatient beds that may also be used for swing bed services. A swing bed can be used for either acute care or postacute care that is equivalent to skilled nursing facility care.
- Be located in a rural area or must meet specifications under a special provision that allows qualified hospitals in urban areas to be treated as rural.
- Be located more than 35 miles from any hospital or other CAH or located more than 15 miles from any hospital or CAH in an area with mountainous terrain or only secondary roads. Prior to 2006, if a hospital did not meet these distance criteria, the hospital could still be designated as a CAH if the state in which it is located determined that the hospital was a “necessary provider” of health care services to residents of that area.
- Furnish 24-hour emergency care services seven days a week.
- Have an annual average length of stay of 96 hours or less per patient for acute care (not including swing bed services).
- Be located in a state that has established a rural health plan for the State Flex Program.

Location of CAHs
The U.S. has 5,534 hospitals,3 1,348 (24 percent) of which are CAHs (see Figure 1, page 50).4

Financial implications of CAHs
CAHs are reimbursed differently than non-CAHs. CMS reimburses CAHs with the following criteria:2,5

- Pay for most inpatient services provided to Medicare patients at 101 percent of reasonable costs.
- Pay for most outpatient services provided to Medicare patients at 101 percent of reasonable costs under the Standard Payment Method. For outpatient services, a hospital may choose the Optional Payment Method. Under this method, if a physician or practitioner reassigns their billing

Critical access hospitals continue to provide vital services to rural patients

by Mark W. Puls, MD, FACS

DISPATCHES FROM RURAL SURGEONS

NOV 2018 BULLETIN American College of Surgeons
rights to the CAH, the CAH can be paid for facility services at 101 percent of reasonable costs and for physician or nonphysician professional services at 115 percent of the allowable amount.

- Reimbursement is not subject to the IPPS.

- Reimbursement is not subject to the Hospital Outpatient Prospective Payment System.

- May receive 101 percent of reasonable costs for clinical lab services provided to Medicare patients.

CAHs also may receive financial help through federal programs to assist with the following activities:6,7

- Funding to construct, expand, or improve rural health care facilities and CAHs, which can be obtained through grants and loans through the U.S. Department of Agriculture’s Community Facilities Loan and Grant Program

- Reduced-cost pharmaceuticals, which can be made accessible to rural communities through the Patient Protection and Affordable Care Act, which allows CAHs to participate in the 340B program

What is the ACS doing to assist CAHs?

The ACS Advisory Council for Rural Surgery (ACRS), which was formed in 2012, is tasked with identifying, investigating, and rectifying the challenges of rural surgical practice. Being aware of any issues that might affect the ability of CAHs to provide care for patients in rural communities is certainly a priority for the ACRS.

The ACS Division of Advocacy and Health Policy (DAHP) has been actively monitoring the

REFERENCES


To keep hospitals open in rural areas that had no other hospitals nearby, CAHs were created through legislation included in the BBA of 1997.

interpretation and enforcement of CMS’ CAH 96-hour rule. As stated previously, CAHs are required to have an annual average length of stay of 96 hours or less per Medicare patient for acute care. This mandate has changed somewhat over time. The CAH 96-hour rule in the BBA of 1997 imposed both a condition of participation and a condition of payment for CAHs, requiring that all Medicare patients be discharged or transferred within 96 hours.¹

To allow CAHs more flexibility in the types of patients they could treat, Congress modified the condition of participation in 1999 by making the 96-hour limit an annual average rather than a requirement for each Medicare patient.⁶ CAHs then began treating any patients they could as long as they could stay within the annual average length of stay of 96 hours per patient. The condition of payment portion of the BBA, however, was not similarly modified. The law still stated that a CAH hospital would only receive payment from CMS for a Medicare patient who had a length of stay of less than 96 hours. This discrepancy between the 1997 and the 1999 legislation went unrecognized for years.

When CMS instituted its Two-Midnight Rule for inpatient hospitalization in 2013, the agency realized that the 96-hour rule regarding the condition of payment was not being enforced.⁹ CAHs then became concerned that they might not receive CMS payment for any Medicare patients who stayed longer than 96 hours, which would greatly influence the type of patients who could receive care in a CAH.

Recognizing the threat to CAHs should the 96-hour rule be enforced for each patient rather than as an annual average, the ACS DAHP became very active in advocating for the 96-hour rule as written in the 1999 law. Several attempts to pass legislation that would repeal the 1997 condition of payment rule have failed. Last year, CMS finalized a proposal in the IPPS rule to make enforcement of the CAH 96-hour rule a low priority. Although CMS is not enforcing the law regarding conditions of payment, the law remains in place. The ACS supports legislation introduced by Rep. Adrian Smith (R-NE) the Critical Access Hospital Relief Act, H.R. 5507, which would repeal the 96-hour certification requirement.¹⁰

Conclusion

Many rural areas in the U.S. are critically dependent on their local hospitals to provide access to health care. In terms of reimbursement from CMS, there are definite financial benefits for CAHs. It’s clear that the creation of CAHs has been an important component of ensuring that access to health care is available in all U.S. patient populations.

REFERENCES, CONTINUED


Just before the sun began its slow descent below the horizon on April 22, 1915, thousands of German soldiers simultaneously twisted the knobs on metal cylinders containing chlorine gas. They released a rolling cloud that tumbled across “no man’s land” and into the unprepared trenches of the British Expeditionary Force defending the line at Ypres, France. Thousands died. In this first use of modern chemical warfare, all the advantages lay with the attacker. The British had no gas masks, their physicians did not know how to treat gas-related casualties, and their hospital infrastructure was not equipped to handle the strain of thousands of new patients. While the German military offensive floundered, medically Ypres was a disaster for the British and French. Over the next three years, warring countries worked to develop multi-tiered responses to the threat of chemical weapons.

**U.S. advances technology and treatment**

Since the U.S. did not enter World War I until 1917, it benefitted from the lessons learned by the French and...
The U.S. Army Medical Department (AMEDD) created a Chemical Warfare Service (CWS) to develop protective equipment, which allowed its physicians to focus on treatment.1,2 The CWS created an array of technologies to protect soldiers. Initially forced to adopt British small-box respirators when early American gas masks proved ineffective, the U.S. invested in a massive research effort, eventually deploying the Kops-Tissot-Monroe mask that became standard issue. The U.S. ultimately produced more than 5 million gas masks.2,4

The Army also devised numerous detectors that variously alarmed, beeped, and changed color in the presence of poison gas.3,4 Although it was recognized that North American snails frantically waved their tentacles when exposed to gas, this technique did not prove to be a practical warning device.5

Once in Europe, AMEDD adopted the French “Z” system of evacuation, assigning one hospital per division to specialize in the...
Interestingly, after the war, a diverse group of military officers, physicians, and veterans organizations such as the American Legion campaigned for increased use of chemical weapons in future conflicts, vociferously arguing that they were more humane and less lethal than traditional armaments.

care of chemical weapons victims (see Figure 1, page 52). AMEDD also deployed mobile decontamination units, which could cleanse 24 men every three minutes. When the men stripped to shower, medical officers examined their skin for evidence of gas exposure, triaging individuals who needed further care at specialized facilities (see Figure 2, page 53).

While extensive research delineated the pathophysiology of chemical weapons, therapeutic options remained few in number and largely ineffective. Physicians prioritized minimizing exposure, keeping casualties warm, providing pain control, and allowing them rest. The literature proposed innumerable salves to ameliorate the skin burns caused by mustard gas, but none proved especially beneficial. Physicians did try using Dakin’s solution to wash off mustard gas residue but found petroleum equally effective and readily available on the battlefield.

The pulmonary effects of chemical warfare proved the most lethal (see Figure 3, page 53). Gases caused severe edema and killed the cells lining the respiratory tract, leaving necrotic tissue to slough off and fill the lungs. In an era before antibiotics, and in a population weakened by the exposure, malnutrition, and influenza so prevalent on 1918 battlefields, patients developed pneumonia and congestive heart failure and died. Resorting to an ancient therapy, physicians bled patients, believing the phlebotomy would reduce the strain on the heart and help the body absorb secretions from the lungs. Inhalation oxygen therapy was used infrequently, improperly (at least in retrospect), and provided little benefit.

Interestingly, after the war, a diverse group of military officers, physicians, and veterans organizations such as the American Legion campaigned for increased use of chemical weapons in future conflicts, vociferously arguing that they were more humane and less lethal than traditional armaments. Largely for strategic reasons, armies in World War II did not deploy poison gas against each other, although the Axis Powers did use it to murder civilians in concentration camps across Europe and in prisoner-of-war camps in Asia.

REFERENCES

Examining rapid response system treatments in the elderly patient population

by Carlos A. Pellegrini, MD, FACS, FRCSI(Hon), FRCS(Hon), FRCSEd(Hon)

Rapid response system (RRS) calls are designed to identify and respond to seriously ill patients in acute hospital settings. Older patients, particularly those individuals nearing the end of their lives, may require care that includes intense treatment options—some of which happen after RRS calls are activated. But is this type of treatment beneficial to elderly patients in all circumstances? A study in the September 2018 issue of *The Joint Commission Journal on Quality and Patient Safety* examines the issue and measures the cost of hospitalization for older end-of-life inpatients subject to an RRS call.

About the study
A study conducted at a teaching hospital in Sydney, Australia, sought to identify who benefits from aggressive RRS treatment near the end of life. The cohort study—led by Magnolia Cardona, PhD, MPH, associate professor, health systems research and translation, Centre for Research in Evidence-Based Practice, Bond University and Gold Coast Hospital and Health Service, Queensland, Australia, and colleagues—evaluated 733 adult inpatients for a three-month period, before and after their last-placed RRS call. The researchers also conducted a subgroup analysis of patients ages 80 and older. The authors uncovered the following findings:

- 8.9 percent of patients had a preexisting not-for-resuscitation (NFR) or not-for-RRS order, and none of these patients survived for three months.
- Patients without an NFR or not-for-RRS order had a three-month survival probability of 71 percent.
- Compared with survivors, RRS recipients who died were more likely to be:
  - Older
  - Admitted to a medical ward
  - Have a larger mean number of admissions before the RRS

The average cost of hospitalization for patients ages 80 years and older transferred to the intensive care unit (ICU) was higher than for those not requiring treatment in the ICU.

Findings
The authors concluded that the study strongly indicates that for patients 80 years of age or older with hospital admissions in the past three months and a history of two or more hospital admissions and an existing NFR or not-for-RRS order, “Clinicians could step back and consider drawing the line for aggressive/non-beneficial, futile management, as death in these cases is inevitable.”

From a surgical standpoint, a study published in a 2013 issue of *Health and Quality of Life Outcomes*—“Effects of a rapid response system on quality of life: A prospective cohort study in surgical patients before and after implementing a rapid response system,” by Friede Simmes, RN, MScN, and colleagues—sought to assess an RRS call’s effect on a surgical patient’s health-related quality of life (HRQoL) at three and six months postoperation. The authors of this study assert quality of life outcomes “reflect a patient’s health perspective and are relevant to better understand and improve health care expenditure and resource utilisation,” and they hypothesized that an RRS system would “positively influence a patient’s quality of life.”

The study measured the responses of surgical patients before the operation, as well as at three and six months postoperatively. Patients
The authors of this study assert quality of life outcomes “reflect a patient’s health perspective and are relevant to better understand and improve health care expenditure and resource utilisation,” and they hypothesized that an RRS system would “positively influence a patient’s quality of life.”

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Disclaimer
The thoughts and opinions expressed in this column are solely those of Dr. Pellegrini and do not necessarily reflect those of The Joint Commission or the American College of Surgeons.
Fixing the cage:  
Rib fixation of flail chest

by Richard J. Fantus, MD, FACS, and Victoria Schlanser, DO

Surgical rib fixation has resurfaced as a treatment for patients with multiple rib fractures or who have a flail segment injury pattern (a chest wall deformity that contains at least two fractures per rib in at least three consecutive ribs) that fail to respond to medical management. As with other fractures of the human skeleton, realigning the broken bones and fixing them to each other improves function, decreases pain, and aids in healing of the fracture.

An evolving procedure
Rib fixation dates back to 1927, when Jones and Jaslow designed rather bizarre contraptions consisting of hooks and forceps drilled into the ribs with attached weights, creating a suspension system to reduce and fixate broken ribs. This trend-setting external fixation technique has been revised multiple times up until the mid-1990s, when the fixation devices were internalized. The modern technique of rib fixation uses the principle of placing plates, screws, and wires to hold the broken rib in place after reduction of the fracture.1

The literature supporting rib fixation lacks large prospective randomized trials that would lead to evidence-based criteria for determining which patients derive the best benefit from surgical stabilization and the resultant long-term outcomes associated with the procedure. A research group at Denver Health, CO, published a comprehensive approach to management of rib fractures in 2015 and provided recommendations for the indications and contraindications of this procedure. Candidates for surgical fixation included patients who have acute respiratory failure requiring mechanical ventilation, uncontrolled pain, and anticipated chronic pain impairment of pulmonary mechanics.2

DeMoya and colleagues added recommendations to include the number of fractures in a flail segment greater than or equal to five and the degree of rib displacement. Patients for whom rib fixation was contraindicated include individuals with active infections (bacteremia, chest wall, or pleural space infections), poor operative candidates, and those individuals who would not benefit from the procedure (patients who require extended ventilation, such as individuals with severe brain injury).2,4 As documented in a consensus guideline in 2017, stabilization is technically easier within 72 hours of injury secondary to difficulty in reducing fractures after callus formation.5

Frequency
To examine the occurrence of patients with flail chest and rib fixation in the National Trauma Data Bank (NTDB®) research admission year 2016, medical records were searched using the International Classification of Diseases, 10th Revision Clinical Modification codes. Specifically searched were records that contained a diagnosis code of S22.5 (flail chest) and a procedure code of 21811 (open treatment of rib fracture(s) one to three ribs), 21812 (open treatment of rib fractures four to six ribs), or 21813 (open treatment of rib fractures seven or more ribs). A total of 739 records were found, 715 of which contained a discharge status, including 353 patients discharged to home, 228 to acute care/rehab, 115 to skilled nursing facilities; 19 died (see Figure 1, page 58). Of these patients, 76 percent were...
male, on average 54.8 years of age, had an average hospital length of stay of 17.5 days, an intensive care unit length of stay of 11.7 days, an average injury severity score of 22.5, and were on the ventilator for an average of 10.3 days. Of those tested, 30 percent (154 out of 507) tested positive for alcohol.

The mainstay treatment for most skeletal fractures involves analgesics, rest, and immobilization/fixation. It would seem counterintuitive to allow a fracture site to move with every breath one takes and expect rapid healing and a prompt return to activities of daily life. More research is needed to see why ribs have been treated nonoperatively and contrary to these basic principles for decades. Fixing the cage may take on a greater role in the treatment of rib fractures during the next few decades.

Throughout the year, trauma data are highlighted through brief reports that are published monthly in the Bulletin. The NTDB Annual Report can be found on the American College of Surgeons website as a PDF file at facs.org/ntdb. In addition, the website includes information about how to obtain NTDB data for more detailed study. If you are interested in submitting your trauma center’s data, contact Melanie L. Neal, Manager, NTDB at mneal@facs.org. ♦

Acknowledgment
Statistical support for this column was provided by Ryan Murphy, Data Analyst, NTDB.

REFERENCES
Ronald V. Maier, MD, FACS, FRCSEd(Hon), FCSHK(Hon) installed as 2018–2019 ACS President

Ronald. V. Maier, MD, FACS, FRCSEd(Hon), FCSHK(Hon), the Jane and Donald D. Trunkey Endowed Chair in Trauma Surgery; vice-chairman, department of surgery; and professor of surgery, University of Washington School of Medicine, Seattle, was installed as the 99th President of the American College of Surgeons (ACS) at Convocation, October 21, at the Boston Convention & Exhibition Center, MA. The First and Second Vice-Presidents also were installed as well.

Dr. Maier is highly esteemed for his contributions to trauma surgery, surgical research, and surgical education. In addition to his positions at the University of Washington, he is director, Northwest Regional Trauma Center; and surgeon-in-chief and co-director, surgical intensive care unit (SICU), Harborview Medical Center, Seattle. He also is associate medical staff, University of Washington Medical Center and Seattle Cancer Care Alliance.

Prior to his current positions at the University of Washington School of Medicine, he was assistant professor (1981–1984) and then associate professor of surgery (1984–1990). At Harborview Medical Center, he previously served as associate director, SICU (1981–1983); director, SICU (1983–2001); acting chief of trauma, Northwest Regional Trauma Center; and acting chief of surgery (1992–1994).

A Fellow of the College since 1984, Dr. Maier served as the First Vice-President of the ACS (2015–2016). He has played an active role on several key committees, most notably the Committee on Trauma (COT). He chaired the COT’s Ad Hoc Committee on Prevention (1992–2002) after serving as a member of the committee for three years (1989–1992). He also served on the COT Performance Improvement Committee (1994–2004), Trauma System Committee (1994–2004), Regional Committee Organization (1990–2000), and Publications Committee (1988–2004). He was COT State Chair (1987–1990) and Chair, Region X (1990–1996). Dr. Maier has served on the Program Committee as a Consultant (2007–2017), Vice-Chair (2004–2005), and Member (2001–2007). He has served on the Committee on Emerging Surgical Technology and Education (member, 2001; senior member, 2001–2003); the Committee for the Forum on Fundamental Surgical Problems (1991–1994); and the Member Services Liaison Committee (2015–2016). At present, Dr. Maier is a member of the Board of the American College of Surgeons Professional Association Political Action Committee (ACSPA-SurgeonsPAC).

In addition to the ACS, Dr. Maier has held leadership positions in a number of professional associations, serving as president of the Society of University Surgeons, Shock Society, American Association for the Surgery of Trauma, Surgical Infection Society, International Surgical Society, International Association of Trauma Surgery and Intensive Care, the Halsted Society, the North American Trauma Association, and immediate past-president, American Surgical Association. He is a past-director (1996–2004) and past-chair (2003–2004), American Board of Surgery.

Among his many honors, Dr. Maier is a recipient of the Distinguished Alumnus Award, department of surgery, University of Washington; Lifetime Achievement Award in Trauma Resuscitation for outstanding contributions in trauma science, American Heart Association; Dr. Rodman E. Sheen and Thomas G. Sheen Award for
Dr. Maier is highly esteemed for his contributions to trauma surgery, surgical research, and surgical education.

outstanding contributions to the medical profession; Lifetime Service Award, International Association for Trauma Surgery and Intensive Care; the Scientific Achievement Award, the Shock Society; the Flance-Karl Award for seminal contributions in basic laboratory research with clinical surgery applications, American Surgical Association; the Parker J. Palmer Courage to Teach Award, Accreditation Council for Graduate Medical Education; and the Surgeons’ Award for Service to Safety, National Safety Council.

He delivered both the Fitts Oration in Trauma at the American Association for the Surgery of Trauma in 2017, and the Scudder Oration in Trauma at the ACS Clinical Congress in 2013.

He received the Medal for Lifetime Achievement for published work that has made the most notable and useful contribution to surgical science, International Society of Surgery/Société Internationale de Chirurgie (ISS/SIC); and the World Society of Emergency Surgery Orazio Campione Prize in 2017.

Dr. Maier also is a member of the Gold Humanism Honors Society, and has been an elected Fellow of the American Association for the Advancement of Science since 1995 for his research on molecular signaling during proinflammatory innate immunity.

Dr. Maier serves on the editorial boards of several prestigious journals, including World Journal of Surgery, World Journal of Emergency Surgery, Injury, and European Journal of Trauma and Emergency Surgery. He is associate editor of SHOCK and the Journal of Trauma and Acute Care Surgery. Since 1995, Dr. Maier has been a visiting professor or named lecturer on 41 occasions and has delivered more than 400 lectures on trauma, critical care medicine, and surgical immunology. He has written more than 370 peer-reviewed articles and contributed chapters to 70 books and eight textbooks. Dr. Maier has been funded continuously by the National Institutes of Health (NIH) since 1981, totaling more than $20 million in grants, and has been a member and Chair of the NIH Surgery, Anesthesiology and Trauma Study Section.

Vice-Presidents
Mark C. Weissler, MD, FACS, Past-Chair of the ACS Board of Regents (2014−2015) was installed as the First Vice-President-Elect. An otolaryngologist-head and neck surgeon, Dr. Weissler is the Joseph P. Riddle Distinguished Professor, department of otolaryngology–head and neck surgery, and chief, division of head and neck surgery, University of North Carolina (UNC) School of Medicine, Chapel Hill.

An ACS Fellow since 1989, Dr. Weissler is a former ACS Regent (2006−2015), serving as Vice-Chair of the Board
An ACS Fellow since 1989, Dr. Weissler is a former ACS Regent (2006–2015), serving as Vice-Chair of the Board of Regents for two years (2012–2014) and Chair for one year (2014–2015).

He has served on the ACS Board of Governors (2002–2007) and in other leadership capacities for the College, including the Committee on Ethics (Chair, 2011–2013, Consultant, 2013–present, Member, 2009–2011); Chair, Central Judiciary Committee (2011–2012); member and Past-Chair, Advisory Council for Otolaryngology–Head and Neck Surgery (2002–present); and President, North Carolina Chapter of the ACS (2002–2003). He has been a member of the ACS Scholarships Committee (2007–2013); Comprehensive Communications Committee (2008–2017); the Health Information Technology Committee (2011–2017); the Program Committee (Liaison, 2011–2013); and the Health Policy and Advocacy Group (Ex-Offico, 2014–2015).

In addition, Dr. Weissler is one of 16 directors of the American Board of Otolaryngology-Head and Neck Surgery (2012–present), former chair of the membership committee of the American Laryngological Association (2012–2014), and a member of numerous other medical and surgical associations.

Dr. Weissler’s practice at UNC focuses on the multidisciplinary treatment of head and neck neoplasia, laser head and neck surgery, and laryngeal/tracheal stenosis. He was a co-investigator on the Carolina Head and Neck Cancer Epidemiology Study (CHANCE)—a population-based, case-control study of head and neck cancer in a 46-county region of North Carolina. The study evaluated the relationship between polymorphisms of diverse genes that, in combination with exposure to tobacco and alcohol, modify the risk of head and neck cancer. Data and tissue samples from that multiyear study are still being used today. His recent work has focused on new treatment paradigms for human papillomavirus-associated oropharyngeal cancer.

Dr. Weissler is a member of the Editorial Board of ACS Surgery News (2007–present), was a case report associate editor for Otolaryngology–Head and Neck Surgery (2009–2012), and is a reviewer for numerous otolaryngology–head and neck surgery journals.

A 1980 summa cum laude graduate of Boston University School of Medicine, a six-year medical program, Dr. Weissler completed two years of general surgery residency at Massachusetts General Hospital, Harvard University, in 1982, and a residency in otolaryngology at Massachusetts Eye and Ear Infirmary, Harvard University, Boston, in 1985, followed by a fellowship in head and neck oncologic surgery at the University of Cincinnati, OH (1985–1986).

The Second Vice-President-Elect is Phillip R. Caropreso, MD, FACS, a general surgeon from Keokuk, IA. A committed rural surgeon, Dr. Caropreso has practiced in Mason City, IA (1976–1998); Keokuk, IA (1998–2005); and Carthage, IL (2005–2013). Academic positions have included serving on the teaching faculty, family practice residency, North Iowa Medical Center, Mason City; adjunct clinical professor of surgery, University of Iowa, Iowa City; and director, general surgery rotation, North Iowa Medical Center.

A Fellow of the ACS since 1979, Dr. Caropreso has been active at the local and national level. He was Chair, Iowa State COT (2002–2008); President of the Iowa Chapter (2004); and ACS Governor (2006–2012), serving on the Board of Governors Committee on Surgical Practices. He has served on the Advisory Council for Rural Surgery (member, 2012–2014, Vice-Chair,
2014−2016); Advisory Council for General Surgery (Liaison, 2014−2016); and the Advisory Council Chairs (2014−2016). He has been a member of the Comprehensive Communications Committee (2011−2014), the Coalition for Quality Geriatric Surgery, and of the COT Trauma Systems Consultation and Disaster and Mass Casualty Management Committees. He has led numerous Advanced Trauma Life Support® and Advanced Trauma Operative Management courses and served as an ACS COT Verification, Review, and Consultation Surveyor.

Among his honors, Dr. Caropreso received the ACS COT Millenium Commitment Award in 2000, the ACS Certificate of Recognition for his service as Web Portal Editor (2014), and the ACS Caropreso Rural Surgery Distinguished Service Award (2014).

Dr. Caropreso graduated cum laude from Seton Hall University, South Orange, NJ, and earned his medical degree at State University of New York, Health Science Center, Syracuse, in 1972. He completed his surgical training in 1976 at Polyclinic Hospital, Harrisburg, PA. ◆

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Honorary Fellowship in the American College of Surgeons was awarded to 12 prominent surgeons from around the world at the October 21 Convocation at Clinical Congress 2018 in Boston, MA. The granting of Honorary Fellowships is one of the highlights of Clinical Congress; this year’s recipients were as follows.

Roger M. Greenhalgh, MD, MChir, FRCS, is emeritus professor of surgery and head of the Vascular Surgery Research Group, Imperial College, London, U.K. Dr. Greenhalgh’s most significant contributions have been in promoting level one evidence in vascular surgery practice. He has led more than a dozen trials, many of which are prospective randomized studies in the field of aneurysm management, helping to shape our understanding of the natural history and treatment options for aortic aneurysms and forming the basis of many practice guidelines.

John M. Hutson, AO, BS, MD(Melb), MD(Monash), DSc(Melb), FRACS, FAAP(Hon), FCAPS(Hon), is chair, paediatric surgery, University of Melbourne; consultant paediatric urologist, The Royal Children’s Hospital; and joint group leader, surgical research group, Murdoch Children’s Research Institute, Melbourne, Australia. Dr. Hutson is known worldwide for his basic and clinical research on the reproductive and intestinal tracts. He has advanced our understanding of undescended testis, disorders of sexual differentiation, and colonic dysmotility. His research has been extensively funded by the National Health and Research Council of Australia and through a number of trusts and private donations.

Jakob Izbicki, MD, PhD, FACS, FRCS(Hon), is chairman, department of general, visceral, and thoracic surgery, University of Hamburg, Germany. He is a prolific author, contributing more than 540 important scientific manuscripts to the peer-reviewed literature. His research has been broad within all fields of surgical oncology. He was a leading authority in pancreatic surgery and has been recognized for this expertise throughout the world. The son of Holocaust survivors, Professor Izbicki is proud of the fact that he became the first Jewish professor and chair of a department of surgery in Germany since the 1930s.

Daniel Jaeck, MD, PhD, FRCS(Hon), is professor emeritus of surgery, University of Strasbourg, and past-chairman of surgery and chief of hepatobiliary and pancreatic surgery, Hautepierre Hospital, Strasbourg, France. Professor Jaeck has written more than 400 publications, including important studies on multimodality treatment of colorectal liver metastases and a large series reporting his group’s experience with complex hepatobiliary and pancreatic procedures. He helped establish the liver transplantation program at the Hautepierre Hospital and has been at the forefront in auxiliary partial orthotopic liver transplantation.

Lars Å. Lidgren, MD, PhD, FRCS(Hon), is senior professor, department of orthopaedics, clinical sciences, Lund University, Sweden. Professor Lidgren was the first to publish a randomized study on systemic antibiotic prophylactics in joint replacement. He invented several methods for treating bone, joint, and prosthetic infections and published the first clinical study on hip arthroscopy. He founded the Bone and Joint Decade, which the World Health Organization launched in 2000 and is endorsed by 63 governments, and now chairs the collaborative’s International Steering Committee.

Takeshi Miyano, MD, PhD, FACS, is the former professor and head, department of pediatric surgery, vice-director and managing director, Juntendo University Hospital, Tokyo, Japan. He recently retired as the director of Juntendo University Nerima Hospital. He is recognized internationally for his major contributions in surgery and surgical education in pediatric surgery, pediatric urology, and minimally invasive surgery. Professor Miyano helped introduce the field of

Honorary Fellowship in the ACS awarded to 12 prominent surgeons
pediatric urology in Japan and was a founder of the Japanese Society of Pediatric Urology.

**Franco Mosca, MD, PhD, FACS, FRCSEd(Hon), ASA(Hon), Polish Association of Surgeons(Hon),** is professor emeritus of general surgery, University of Pisa, Italy. He previously served as professor and chairman of surgery at that institution, transforming the department of surgery into a sophisticated academic quaternary unit of excellence in oncologic, vascular, and transplantation surgery with a state-of-the-art surgical unit housing advanced operating rooms and intensive care unit facilities. He also established a parenteral alimentation service and advanced surgical endoscopic and ultrasound diagnostic and therapeutic services.

**Anthony R. Mundy, MS, PhD(Hon), FRCP, FRCS,** is professor of urology, University of London at Royal Free and University College London School of Medicine, and medical director, University College London Hospital’s National Health Service Foundation Trust, U.K. He has written hundreds of scientific publications and books in the field of urological reconstruction, helping to set standards of surgical practice worldwide. He has traveled the world contributing to many developing nations by training and teaching local surgeons methods of reconstructing complex urological conditions.

**Akimasa Nakao, MD, PhD, FACS,** is professor emeritus, Nagoya University, and president, Nagoya Central Hospital, Japan. Dr. Nakao’s chief focus has been on cancer with special expertise in tumor markers, cancer immunohistology, and cancer genetics and centered particularly on treatment approaches to hepatobiliary and pancreatic malignancies. His efforts have produced many advances for the more accurate diagnosis of pancreatic cancer and for associated treatment strategies. Early in his career, he developed a portal vein bypass technique using an antithrombogenic catheter, further advancing pancreaticoduodenectomy as a safe operation.

**Samir Rasslan, MD, Dr(hc), FACS,** is professor of general and trauma surgery and chairman, department of surgery, University of São Paulo Medical School, Brazil, and director, general and emergency surgical services, Hospital das Clínicas, São Paulo. Under his leadership, the surgical residency program at São Paulo University School of Medicine became one of the most sought after in Latin America. Professor Rasslan has been one of the finest international ambassadors of surgery in Latin America and is highly regarded for his ability to build bridges between surgeons from the U.S. and Latin America.

**Tania Maria Sih, MD, PhD,** is professor of pediatric otolaryngology, Medical School University of São Paulo. Perhaps most notable is Dr. Sih’s dedication to the advancement of high-quality pediatric otolaryngologic care around the globe. She has been a leader in the International Federation of Otorhinolaryngologic Societies, the International Society of Otitis Media, and a liaison to the American Society of Pediatric Otolaryngology, the European Society of Pediatric Otorhinolaryngology, and the Asia-Pacific Pediatric Otolaryngology Group; she is a charter member of the Pediatric Ear Nose and Throat Association of Africa.

**Selman Uranues, MD, Dr(hc), FACS,** is professor and head, clinical division for general surgery and section for surgical research, Medical University of Graz, Austria. Dr. Uranues is an internationally recognized expert in minimally invasive surgery, as well as visceral traumatology and acute care surgery. Dr. Uranues was the first president of the European Society of Trauma and Emergency Surgery after the merger of two European associations—an effort he co-initiated. He is past-president of the International Association for Trauma Surgery and Intensive Care, and is a member of the board of directors of the World Coalition for Trauma Care. ♦
Prof. Roger Greenhalgh is a vascular surgeon from London, U.K. He is recognized internationally for his major contributions to education, training, and research in vascular surgery. He is emeritus professor of surgery at the Imperial College in London and head of its Vascular Surgery Research Group.

Professor Greenhalgh was educated at Cambridge University and at St. Thomas Hospital in London. He spent a year in the U.S. in Boston, MA, and Denver, CO. He has served as department head, and later as dean, of Charing Cross and Westminster Medical School, London. He played critical roles in the formation and governance of the European Board of Surgery, and the European Board of Vascular Surgery, as well as the European Society for Vascular Surgery and the *Journal of Vascular Surgery*. He championed the new pathway for vascular surgery training in the U.K. and started the Charing Cross Symposium, one of the best-attended vascular symposia in the world, which this year celebrated its 40th anniversary. He has received 30 international honorary memberships, prizes, and awards, and, most recently, an International Lifetime Achievement Award from the Society for Vascular Surgery. He has published more than 400 manuscripts and books.

Professor Greenhalgh’s most significant contributions were in promoting level one evidence in vascular surgery practice. He led more than a dozen trials, many of these in prospective randomized studies, in the field of aneurysm management. The U.K. Small Aneurysm Trial, EVAR [endovascular aneurysm repair]1, EVAR2, and IMPROVE [Immediate Management of the Patient with Rupture: Open Versus Endovascular repair] have shaped our understanding of the natural history and treatment options for aortic aneurysms and form the basis of many societal practice guidelines.

Professor Greenhalgh is a distinguished surgeon, educator, scientist, friend, and colleague. He has been the mentor and inspiration for a whole generation of vascular leaders in Europe and richly deserves honorary fellowship in our American College of Surgeons. The U.S. vascular community extends its congratulations to Dr. Greenhalgh, his wife Karin, and his children, Stephen and Christina, for this singular honor.

Citation for Prof. Roger M. Greenhalgh, MD, MChir, FRCS

by Michel S. Makaroun, MD, FACS
Prof. John M. Hutson is chair of paediatric surgery at the University of Melbourne (UMelb), Australia, where he has practiced pediatric surgery since 1984 and has a leadership role at the Murdoch Children’s Research Institute. Educated at Monash Medical School, his extensive research training included study with Patricia Donahoe, MD, FACS, at Massachusetts General Hospital, Boston. Professor Hutson has three doctorates—MD, UMelb; MD, Monash; and DSc, UMelb—in sexual development. He was honored as an Officer of the Order of Australia in 2007, an award established to recognize Australian citizens and other persons for achievement or meritorious service.

Professor Hutson is known worldwide for his basic and clinical research on the reproductive and intestinal tracts. He has advanced our understanding of undescended testis, disorders of sexual differentiation, and colonic dysmotility. His research has been extensively funded by the National Health and Research Council of Australia, and a number of trusts and private donations. Professor Hutson’s passion and enthusiasm to “figure things out” and improve patient care is infectious. He has been extremely productive in investigative science, including the supervision of at least 81 students for advanced degrees, and 329 publications in peer-reviewed journals. He has been an invited speaker at 169 seminars and an overseas guest at 81 additional venues. He has won numerous prizes and awards during his professional life. He continues to travel internationally, where he provides on-site teaching and lectures, particularly in Asia.

Together with his wife, Susan, the personal mentorship of his four now successful and grown children served as a model for success in his professional life; his students and residents were extensions of his family and were all made to feel welcome and embraced for their individual intellect and contributions. Professor Hutson has acted as an intellectual ambassador who has always been willing to share his knowledge and insight in an interdisciplinary and collegial manner. ♦

Citation for
Prof. John M. Hutson, AO, BS, MD(Melb), MD(Monash), DSc(Melb), FRACS, FAAP(Hon), FCAPS(Hon)

by Mary E. Fallat, MD, FACS
Prof. Jakob Izbicki is a general, visceral, and thoracic surgeon from Hamburg, Germany. Professor Izbicki has been chairman, department of general, visceral, and thoracic surgery, University of Hamburg, since 1998. He has been a prolific author, having contributed more than 540 important scientific manuscripts to the peer-reviewed literature. His important research has been broad within all fields of surgical oncology; hepatic, pancreatic, biliary, and transplantation surgery; colorectal and visceral surgery; thoracic surgery; and esophageal surgery. He is a leading authority in pancreatic surgery and has been recognized for this expertise throughout the world.

Professor Izbicki is a diligent researcher, an astute clinician, a superlative academician, and a renowned educator. His capabilities have been recognized by his leadership roles in 13 professional societies, including past-president of the prestigious European Surgical Association. Further testimony to his broad knowledge is the fact that he is a regular reviewer for 27 scientific journals and a member of the editorial boards of an additional 12 journals.

The vast majority of Professor Izbicki’s more than 540 publications are in high-impact factor journals, including Journal of Clinical Oncology, New England Journal of Medicine, Journal of the American Medical Association, Hepatogastroenterology, Annals of Thoracic Surgery, Oncology, and British Journal of Surgery. He has mentored countless surgeons from around the world, both at his home institution in Hamburg and while traveling the globe imparting his knowledge.

Professor Izbicki holds 18 academic and honorary appointments, including honorary fellowship in the Royal College of Surgeons of Edinburgh. He is recognized by all of his peers as an innovator and consensus builder. In addition to all of his many academic accolades and very well-deserved recognition awards by his peers, Jakob is exceptionally proud of his heritage. He is the son of Polish Holocaust survivors. His father was incarcerated in the Auschwitz concentration camp at the age of 13 and liberated by the Allied forces at the age of 17. His mother had been hidden by a family in Czechoslovakia until the end of the war. Born in Poland, his parents moved to Germany, where he was raised as a proud German citizen. In 1994, at the age of 38, Jakob is proud of the fact that he became the first Jewish professor and chair of a department of surgery in Germany since the 1930s. His unique heritage has made him an incredibly compassionate, caring, and empathetic surgeon. ♦

Citation for
Prof. Jakob Izbicki, MD, PhD, FACS, FRCSEd(Hon)

by Steven D. Wexner, MD, PhD(Hon), FACS, FRCS, FRCSEd(Hon), FRCSI(Hon)
Citation for
Prof. Daniel Jaeck, MD, PhD, FRCS(Hon)

by Craig A. Miller, MD, FACS

Prof. Daniel Jaeck is professor emeritus of surgery, University of Strasbourg, France. His achievements in research, patient care, and education place him in the highest rank of European surgeons.

Born in Mulhouse, France, in 1943, Professor Jaeck attended college and medical school at Strasbourg. Upon completion of residency at the University Hospital of Strasbourg in 1974, Professor Jaeck was appointed assistant professor at the University of Louis Pasteur. He then spent four years at Mahosot University Hospital in Vientiane, Laos. Returning to Strasbourg in 1978, Professor Jaeck was named chief of digestive and endocrine surgery and professor in 1984. He then trained in the U.S. in liver transplantation under Thomas Starzl, MD, PhD, FACS, and Christoph Broelsch, MD, FACS. In 1990, Professor Jaeck became chairman of surgery and chief of hepatobiliary and pancreatic surgery, Hautepierre Hospital. He has been professor emeritus since 2011.

Professor Jaeck has written more than 400 publications, including important studies on multi-modality treatment of colorectal liver metastases and large series reporting his group’s experience with complex hepatobiliary and pancreatic procedures. He helped establish the liver transplantation program at the Hautepierre Hospital and has been at the forefront in auxiliary partial orthotopic liver transplantation.

Professor Jaeck has been elected honorary member of the Royal College of Surgeons (England), Deutsche Gesellschaft fur Chirurgie (Germany), Japan Surgical Society, and many others. He is an Officer of the French Legion of Honor, L’Ordre National du Mérite, and L’Ordre des Palmes Académiques. He has served as President of the French National Academy of Surgery, the European Surgical Association, and the French Congress of Surgery.

Personally, Professor Jaeck is noted for his kindness, generosity, and humility. As Professor Henri Bismuth, MD, FACS(Hon), has noted, “He is surely the exact person in France who deserves the most to be honored by a nomination as Honorary Fellow of the American College of Surgeons.”
Citation for
Prof. Lars Å Lidgren, MD, PhD, FRCS(Hon)
by Bruce D. Browner, MD, MHCM, FACS, FAOA

Prof. Lars Å Lidgren, a general orthopaedic surgeon, was born in the northern mountains of Sweden in 1943. After military service in the cavalry, he studied statistics before entering medical school, graduating from Lund University in 1971. In 1973, he received a PhD with his thesis, “Post-Operative Wound Infections in Orthopaedic Surgery.” In 1975, he received specialist credentials and briefly worked in Balgrist Orthopaedic Clinic, Zurich, Switzerland. In 1987, he was appointed professor of orthopaedics at Lund University. From 1990 onward, he served for 25 years as departmental head in Lund, a world-renowned orthopaedic center.

In 1973, Professor Lidgren was the first to publish a randomized study on systemic antibiotic prophylactics in joint replacement. He invented several methods for treating bone, joint, and prosthetic infections and published the first clinical study on hip arthroscopy.

Professor Lidgren has more than 400 publications, including articles in Nature and BMJ. He has published extensively on national registries and biomaterials. An independent analysis in 2014 ranked Professor Lidgren as number one in terms of most granted patents in southern Sweden.

Professor Lidgren is an honorary member of several major societies, among them the Royal College of Surgeons, British Orthopaedic Association, American Academy of Orthopaedic Surgeons, European Federation of National Associations of Orthopaedics and Traumatology (EFORT), International Consortium of Orthopaedic Registries, Nordic Orthopaedic Federation, and Alpha Omega. He has been the director of the Swedish National Musculoskeletal Competence Centre, Swedish Arthroplasty Register, and the World Health Organization (WHO) Collaborating Centre for Evidence-Based Care in Musculoskeletal Disorders.

Professor Lidgren is a founding member of several European organisations—EFORT, European Orthopaedic Research Society, and European Bone & Joint Infection Society. In 1998, he initiated and then for 10 years led the worldwide Bone and Joint Decade 2000–2010, officially supported by the United Nations in 1999, launched by the WHO in January 2000, and endorsed by 63 governments. It is a unique ongoing cooperation between professional and patient organizations raising the awareness of emerging bone and joint conditions resulting from the “age quake” and the epidemic of road injuries. ♦
Prof. Takeshi Miyano is a pediatric surgeon from Tokyo, Japan. He is the former professor and head of the department of pediatric surgery, vice-director (2001) and then managing director (2002) of Juntendo University Hospital until 2006, and he recently retired as the Director of Juntendo University Nerima Hospital. He is recognized internationally for his major contributions in surgery and surgical education in pediatric surgery, pediatric urology, and minimally invasive surgery. Professor Miyano is a native of Japan and obtained his medical education and general and pediatric surgery training from Juntendo University in Tokyo. Professor Miyano’s chairman and mentor was Prof. Keijero Suruga, MD, who is one of the founders of pediatric surgery in Japan. Following his training at Juntendo University Hospital, he spent one year at the University of Liverpool, Alder Hey Children’s Hospital, U.K., as a fellow in pediatric urology.

Professor Miyano’s major contributions to the surgical care of children include not only Japan, but the whole of Asia and the entire world. He initiated the field of pediatric urology in Japan and was one of the founders of the Japanese Society of Pediatric Urology. He played a similar role in introducing pediatric surgery and pediatric urology in Asia during the early development of these specialties. Professor Miyano also became interested in the application of minimally invasive surgery to children during its early development in the western world in the mid-1990s. He was a pioneer in bringing this technology to Japan and other Asian countries and is one of the founders of the International Pediatric Endosurgery Group. These accomplishments helped close the gap in pediatric surgery training and education between Asia and the western world. During Professor Miyano’s career, he trained many residents, and 13 currently are pediatric surgery division chiefs at major pediatric surgery centers in Japan.

He has been a prolific writer, with more than 310 peer-reviewed publications focused on pediatric surgical care and clinical outcomes research, and he has given many named lectures throughout the world. Professor Miyano has served as president of seven national and international pediatric surgical specialty associations.

Because of his contributions to the surgical care of children, the American College of Surgeons is pleased to recognize Professor Miyano as an Honorary Fellow.
**Citation for**

*Prof. Franco Mosca, MD, FACS, FRCSEd(Hon), ASA(Hon), Polish Association of Surgeons(Hon)*

by Fabrizio Michelassi, MD, FACS

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**Prof. Franco Mosca** became professor and chairman of surgery at the University of Pisa, Italy, in 1986, and single-handedly transformed the department of surgery into a highly advanced and sophisticated academic quaternary unit of excellence in oncologic, vascular, and transplantation surgery.

Early in his career, Professor Mosca dedicated himself to improving the hospital facilities, creating a state-of-the-art surgical unit with advanced operating rooms and intensive care unit facilities. Simultaneously, he started a parenteral alimentation service and advanced surgical endoscopic and ultrasound diagnostic and therapeutic services, based on his belief that surgeons cannot delegate these important diagnostic and therapeutic techniques to others if we want to obtain the best outcomes. This formed the basis for a successful constellation of new surgical programs—a program for surgical treatment of portal hypertension, a vascular surgery program, and a liver transplant program, which became the busiest transplant surgery program in Italy. He also expanded gastrointestinal oncologic surgery to include advanced pancreatic and hepatobiliary surgery and embraced laparoscopic surgery.

Professor Mosca paid equal attention to the development of a strong academic unit with clinical outcomes research and device innovation. The development of the clinical outcomes research came first, as a byproduct of the expansion of the clinical services. Then, based on his interest in novel techniques, Professor Mosca formed collaborative ties with the department of biomedical engineering of the University of Pisa. This led to the development of new tools for laparoscopy (miniaturized instruments) and endoscopy (a prototype mobile retrograde capsule colonoscopy). More recently, this collaboration has matured into a Center for Advanced Surgery dedicated to skills training and research in computer-guided surgery. This center is now accredited by the American College of Surgeons as a Comprehensive Education Institute.

Professor Mosca is an outstanding and visionary surgical leader and one of the most respected and influential European surgeons. ♦
Citation for
Prof. Anthony R. Mundy, MS, PhD(Hon), FRCP, FRCS

by Jack W. McAninch, MD, FACS, FRCSEng(Hon)

Prof. Anthony R. Mundy is a urologist from London, U.K. He is currently professor of urology at the University of London at Royal Free and University College London School of Medicine. He serves as the medical director of the University College London Hospital National Health Service Trust.

Professor Mundy graduated in 1971 from St. Mary’s Hospital Medical School and completed his urological training at Guy’s Hospital. He became a Fellow of the Royal College of Surgeons of England in 1975 and currently is consultant surgeon at St. Peter’s Hospital, London.

He has established himself as a leader in numerous societies, including the Royal College of Surgeons, where he has served as chairman of their research board, Hunterian Orator, Moynihan lecturer, and Vicary lecturer, as well as other important positions. He is past-president of the British Association of Urological Surgeons and recipient of the St. Peter’s Medal.

His hundreds of scientific publications and numerous book publications in the field of urological reconstruction have helped to set standards of surgical practice worldwide. As an outstanding surgeon, he is asked to speak and demonstrate his surgical skills worldwide. He has traveled the world contributing to many developing nations by training and teaching local surgeons methods of reconstructing complex urological conditions. His international contribution has resulted in his selection of honorary fellowship and membership in numerous prominent organizations.

He is highly respected for his research and contributions to the literature. Professor Mundy’s discoveries have advanced the field of urological surgery in major ways, particularly in reconstructive surgery. He is considered one of the world’s most talented and creative reconstructive urological surgeons.

I am privileged to present Professor Mundy for Honorary Fellowship in the American College of Surgeons.
The Japanese culture offers much to be admired. Courtesy, efficiency, diligence, competence, precision, and productivity are but a few of these attributes. Our field of surgery is continually enhanced by Japanese surgeons. We honor Prof. Akimasa Nakao with an American College of Surgeons Honorary Fellowship to recognize his many contributions as a surgical leader.

Professor Nakao, a native of Ena, Japan, was educated and trained in the Nagoya University Hospital system, joining the faculty in 1980. He spent several years at the University of Pittsburgh, PA, developing his skills in liver transplantation, returning to Nagoya University and rising to full professorship and chief of gastroenterological surgery in 1999. His broad interests encompass the field but focused on cancer with special expertise in tumor markers, cancer immunohistology, and cancer genetics, and centered particularly on treatment approaches to hepatobiliary and pancreatic malignancies. His efforts have produced many advances for the more accurate diagnosis of pancreatic cancer and for associated treatment strategies. Early in his career, he developed a portal vein bypass technique using an antithrombogenic catheter, further enhancing pancreaticoduodenectomy as a safe operative procedure. He also developed pancreatic head resection with supplemental duodenectomy and other function-preserving surgical procedures. His portal vein bypass technique enabled safe portal vein resection/reconstruction for patients with portal vein invasion. Continued evolution of these techniques expanded opportunities in this area of surgery and advanced Nagoya University Hospital to the number one position in Japan for hepatobiliary and pancreatic cancer treatment.

As Professor Nakao’s reputation has grown, both national and international recognition has followed. His antithrombogenic catheter/portal vein bypass was viewed as an historic achievement, receiving the AOKI Award in 2008. His publications include 20 book chapters and 554 international journal articles. He was President of the Japan Surgical Society and the Japan Pancreas Society in 2010. He has been seminal in the creation of pancreatic treatment guidelines. He has retired from Nagoya University and presently serves as director, Nagoya Central Hospital of the Central Japan Railway.
Prof. Samir Rasslan, a Fellow of the American College of Surgeons (ACS) since 1980, is a senior professor in the department of surgery at the University of São Paulo, Brazil. Until 2014, he was also director of general and emergency surgical services for the Hospital das Clínicas, the most important hospital in São Paulo with the largest trauma center in one of the largest cities in the world.

Professor Rasslan graduated from Santa Casa Medical School and trained in general surgery at Santa Casa Hospital in São Paulo. He joined the faculty of his alma mater and rose through the ranks to become professor of surgery, director of the section of biliary and pancreatic diseases, and director of emergency services. His interest and work in the education and training of residents led to his appointment at the University of São Paulo as director of the residency program and his rise to department chair from 2009 to 2013. Under his leadership, the surgical residency of this hospital became one of the most sought after in Latin America throughout his surgical career.

Beyond education, Professor Rasslan’s most important contributions are to the care of trauma patients. His passion for this field has led to an extraordinary record of publications covering all aspects of trauma and acute and critical care surgery. While director of the ACS Advanced Trauma Life Support® Course, he organized 94 courses that provided training to surgeons in his country and around the world.

He has been Governor of the Brazilian ACS Chapter and President of both the Brazilian College of Surgeons and the Panamerican Trauma Society. He is a member of the Brazilian Academy of Medicine and the Superior Council of the Brazilian College of Surgeons. Widely regarded as a master surgeon, Professor Rasslan has been one of the finest international ambassadors of surgery in Latin America throughout his surgical career.

Professor Rasslan is appreciated by his colleagues in the ACS for his scientific contributions, leadership, integrity, and friendship, and for his ability to build bridges between surgeons in the U.S. and Latin America. ♦
**Citation for Prof. Tania Maria Sih, MD, PhD**

by Mark C. Weissler, MD, FACS

**Prof. Tania Sih**, professor of pediatric otolaryngology at the Medical School University of São Paulo, Brazil, is truly a multinational scholar and educator. Dr. Sih was born in Porto Alegre, Brazil, in 1948. She received her medical degree from the University of São Paulo in 1973 and completed a residency in otolaryngology there in 1977. She received additional training in pediatric otolaryngology at the Academy of Medicine in Warsaw, Poland; the Children’s Hospital of Pittsburgh, PA; and in Kyoto, Japan. She received her PhD at the Medical School University of São Paulo in 1986.

Professor Sih was a postdoctoral researcher in microbiology at the Centers for Disease Control, Atlanta, GA, from 1990 to 1995 and has served on multiple national and international societies and is currently on the editorial boards of multiple scientific journals. She is the recipient of many awards, including the Honor Awards of Brazil and Peru. She has authored more than 50 scientific publications and has written or edited more than 35 books or chapters in 10 different languages.

Perhaps most notable is Dr. Sih’s dedication to the advancement of high-quality pediatric otolaryngologic care across the globe. She has been a leader in the International Federation of Otorhinolaryngology Societies and the International Society for Otitis Media; a liaison to the American Society of Pediatric Otolaryngology, the European Society of Pediatric Otorhinolaryngology, and the Asia-Pacific Pediatric Otolaryngology Group; and a charter member of the Pediatric Ear Nose and Throat Association of Africa. She currently serves as the general secretary of the Interamerican Association of Pediatric Otorhinolaryngology.

Professor Sih has been an international educator and ambassador for pediatric otolaryngology and has been instrumental in organizing more than 100 symposia, congresses, and courses pertaining to pediatric otolaryngology in more than 50 countries around the world. ♦
Prof. Selman Uranues is the professor and head of the clinical division for general surgery and the section for surgical research at the Medical University of Graz, Austria. A native of Istanbul, Turkey, Professor Uranues started his medical career as an assistant professor of surgery at the Karl-Frazens University of Graz in 1991 and became professor and head at the Medical University of Graz in 1996. In 2000, he spent time in the division of trauma at the Hospital of the University of Pennsylvania, Philadelphia, as a Fulbright Professor, and in 2005–2006 he was the director of research at the division of laparoscopic surgery at the Lehigh Valley Hospital and Penn State University, Allentown, PA.

In a rare combination of talent, Professor Uranues has become an international leader in two fields that are typically separate: trauma surgery and laparoscopic surgery. He was the president of the European Society for Trauma and Emergency Surgery in 2008 and the president of the International Association for Trauma Surgery and Intensive Care in 2011. He also has been the congress president and the chair of multiple committees of the European Association for Endoscopic Surgery. In 1993, he became the president of the Austrian Society for Surgical Research.

Beyond his numerous contributions to the surgical literature in peer-review publications, book chapters, and books, Professor Uranues is a renowned educator. He has developed a number of outstanding trauma and laparoscopic courses, as well as arguably the best structured emergency surgery course worldwide. His commitment to education serves as a model for future academic surgeons.
Heidi Nelson, MD, FACS, named Medical Director of ACS Cancer Programs

The American College of Surgeons (ACS) recently announced that Heidi Nelson, MD, FACS, a colorectal surgeon from Rochester, MN, will be joining the ACS Division of Research and Optimal Patient Care (DROPC) as Medical Director, Cancer Programs, succeeding David P. Winchester, MD, FACS, as he transitions from the position he has served in for more than 30 years. Dr. Nelson comes to the ACS from her position as chair, and vice-chair for research, department of surgery, Mayo Clinic, as well as professor of surgery, Mayo Clinic College of Medicine and Science, Rochester. She has master’s faculty privileges in clinical and translation science at the Mayo Clinic Graduate School of Biomedical Sciences and the Mayo Clinic College of Medicine and Science. Dr. Nelson received a bachelor’s degree from Western Washington University, Bellingham, and her medical degree from the University of Washington School of Medicine, Seattle. She completed an internship and residency in general surgery at Oregon Health & Science University, Portland, where she also served as an American Cancer Society Fellow. She then went to the Mayo Clinic College of Medicine and Science, where she was a colon and rectal surgery fellow and completed a research fellowship. Dr. Nelson returned to the University of Washington, where she was a Leo Hirsch Traveling Fellow.

Dr. Nelson has received numerous awards and held membership in many professional organizations, including the American Society of Colon and Rectal Surgeons (ASCRS), the Mayo Clinic Board of Governors, the Society of Surgical Oncology, and the Association of Women Surgeons, among others.

Research activities
As the Fred C. Andersen Professor for the Mayo Foundation and a consultant for Mayo Clinic’s division of colon and rectal surgery, Dr. Nelson is internationally renowned for her research in the field of colon and rectal cancer. The goal of her research activities has been to improve the duration and quality of life for these patients. These efforts have helped to reduce the impact of surgery on patients with early-stage disease through the safe introduction of laparoscopic and minimally invasive surgical approaches. Her work also has helped to reduce the cancer burden in patients with locally advanced and recurrent rectal cancer through studies examining the role of complex operations and intraoperative radiation therapy. Dr. Nelson’s work has been funded by the National Institutes of Health, the American Cancer Society, the ASCRS, and many other organizations.

In addition to her clinical activities, she has led the Center for Individualized Medicine Microbiome Program at the Mayo Clinic, where she conducts, presents, and publishes research on the human microbiome and its connection to health and disease.

Leadership
Dr. Nelson brings a wealth of experience from leading others and establishing results-oriented teams. She has mentored trainees and investigators and has served...
Dr. Nelson brings a wealth of experience from leading others and establishing results-oriented teams. She has mentored trainees and investigators and has served as an editor and publisher for high-impact journals. She also has been extensively involved with the ACS throughout her career. Dr. Nelson started working with the ACS in September on an initial part-time basis, overlapping with Dr. Winchester to ensure a smooth transition and continuity of leadership. “The American College of Surgeons is excited about Dr. Nelson joining our Executive Leadership Team. Her research acumen and leadership in the cancer care community are well known and widely respected. Her addition to our team will benefit our members, our relationships with cancer care organizations, and the patients whom we serve,” said ACS Executive Director David B. Hoyt, MD, FACS. ♦

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It begins with a process

Optimal Resources for Surgical Quality and Safety

- Case review and peer review
- Credentialing and privileging
- Databases and registries
- Clinical practice guidelines

It begins here
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Inspiring Quality:
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160 years

It begins with a process

Optimal Resources for Surgical Quality and Safety

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It begins here
facs.org/redbook
The American College of Surgeons (ACS) presented the Dr. Mary Edwards Walker Inspiring Women in Surgery Award to Yeu-Tsu Margaret Lee, MD, FACS, at the Convocation at Clinical Congress 2018 in Boston, MA. This award was established by the ACS Women in Surgery Committee (WiSC) and is presented annually at the Clinical Congress to recognize an individual’s significant contributions to the advancement of women in surgery.

Dr. Lee is from Honolulu, HI, and was born in Xian, China, in 1936. During her childhood, four of her siblings died from illness, motivating Dr. Lee to become a physician. Her family was forced to flee to Taiwan after the Chinese Civil War, and she immigrated to the U.S. in 1955, graduated from Harvard Medical School, Boston, in 1961, and has worked as a general surgeon and a surgical oncologist for more than 50 years. In the early 1980s, she was a tenured associate professor of surgery, University of Southern California (USC), Los Angeles, and head physician, Los Angeles County-USC Medical Center, but chose to pursue a different path.

In 1983, Dr. Lee moved to Hawaii, worked at Tripler Army Medical Center, Honolulu, as chief, surgical oncology section of general surgical services, and joined the U.S. Army Corps. She was deployed to Iraq during Operation Desert Storm and treated many U.S. soldiers as well as Iraqi prisoners of war. She served on a team of surgeons that performed more than 125 operations in a 400-bed hospital in northern Saudi Arabia. Dr. Lee received several accolades in the military, including an “A” Proficiency Designator from the Army Medical Department and a Certificate of Achievement. After retiring from the Army as a colonel, she became professor of surgery, University of Hawaii at Manoa, Honolulu, where she was the only woman surgeon for most of her career.

Dr. Lee has participated in medical missions to Ghana, Honduras, Cambodia, Laos, the Philippines, and other underserved countries. She has made many international trips to promote friendship and medical exchanges. Notably, in 1995, she was the leader of a Women Surgeons Delegation to Russia and Romania. The trip was a Citizen Ambassador Program sponsored by People to People International, which was established by President Dwight D. Eisenhower.

From 2000 to 2017, Dr. Lee taught surgery for a month, four times a year, at the Tzu-Chi University School of Medicine, Hualien, Taiwan. Dr. Lee was one of 21 women surgeons in attendance at a networking breakfast at the 1981 Clinical Congress—led by ACS Past-President Patricia Numann, MD, FACS—which proved to be the genesis of the Association of Women Surgeons (AWS). She has been a supporter of the association, in time and talent, since its inception, and her presence at the AWS meetings, her academic career at teaching hospitals, and her research publications provide women surgeons and medical students from around the world...
Because her home is in Hawaii, midway between the East and West, Dr. Lee hopes to function as a “bridge,” contributing to global understanding and promoting communication, collaboration, and goodwill, and continues to work in the areas of medical education, international health, and world peace.

The Dr. Mary Edwards Walker Inspiring Women in Surgery Award honors Mary Edwards Walker, MD (1832–1919), for her exemplary inspiration as the first female surgeon employed by the U.S. Army and the only woman to receive the Congressional Medal of Honor—the highest U.S. Armed Forces decoration for valor. After the Civil War, Dr. Walker devoted her life to supporting women’s suffrage and was a frequent lecturer on health care, temperance, and women’s rights. Most notably, Dr. Walker was unwavering in her commitment to service to her country and the surgical profession, and repeatedly excelled in the face of significant adversity. Through Dr. Walker’s example of perseverance, excellence, and pioneering behavior, she paved the way for the women surgeons of today.

Committed to improving the care of the surgical patient, Dr. Lee is an outstanding leader and role model for surgeons everywhere. Her contributions to academic medicine in surgery, in the military, and in surgical volunteerism worldwide have made a lasting impression on the surgical profession. Her passion, endless energy, and dedication to the ACS and to women in surgery are without equal.
Congratulations!
You’re one step closer to accomplishing your career goals.

Keep your ACS connection and enjoy these benefits designed specifically for young surgeons*

Be a leader by participating in the activities of your local chapter, its committees, and its advocacy efforts

Receive member rates for conferences and educational products, including the annual Clinical Congress and SESAP®

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―Don Jay Selzer, MD, FACS

*Pay your $20 Resident membership dues online, and then log into the Associate Fellow application to update your contact information, provide board certification status, and add your hospital and academic appointments. As a current Resident member, the Associate Fellow application fee ($75) will be waived, and you will not need to provide documentation verifying your completion of a surgical residency.
Cardiothoracic surgeon Frank Cole Spencer, MD, FACS, Past-President of the American College of Surgeons (ACS), died July 23 at the age of 92.

Dr. Spencer was a distinguished surgeon, patient care advocate, and leader in the surgical community. During his 60 years as an ACS Fellow, Dr. Spencer served the organization and the surgical profession in a variety of leadership capacities.

Great talent and seminal contributions often spring from motivated individuals whose humble beginnings, extraordinary drive, and exemplary commitment to the pursuit of excellence lead to a career of the highest achievement. Dr. Spencer’s life and successful career clearly illustrate these principles.1

Early life and education
Dr. Spencer has been quoted as saying, “I thank the good Lord for giving me a good brain, access to good education, and teachers who truly wanted me to succeed.” He was born on a farm in rural Haskell County, West Texas. His role model was his paternal grandfather, a physician. The odds were against this boy, educated by dedicated parents and schooled in a two-room schoolhouse, even going to college. The determination of his parents to provide him with an education and opportunity, coupled with a high school science teacher who fueled his curiosity, helped make his dreams a reality.

Dr. Spencer entered North Texas State College, Denton, at 15 years old. A great teacher and mentor, James L. Carrico, PhD, chair of the department of chemistry, recognized potential in “Frank” and chose him as laboratory assistant. Dr. Spencer recalled that Dr. Carrico instilled the students “with the excitement of learning and a warm paternalism, virtually adopting them as foster children.” Dr. Carrico’s mentorship, combined with an innate desire for excellence and a farming background, made Dr. Spencer “an incurable workaholic.”

Dr. Spencer entered Vanderbilt School of Medicine, Nashville, TN, at the age of 17. Surgery beckoned him. He was a member of the Alpha Omega Alpha Honor Medical Society and graduated at the top of his class. The element of luck, a common component in many great careers, put him in the right place at the right time. He went on to complete an internship under Alfred Blalock, MD, FACS, at Johns Hopkins Hospital, Baltimore, MD, which exposed Dr. Spencer to the pioneering work being performed in the new field of cardiac surgery. At Hopkins, he was surrounded by an incredible collection of talented residents and faculty who were working with Dr. Blalock at this pivotal time.

Revolutionizing repair of combat-wounded arteries
After his internship year, Dr. Spencer accompanied William P. Longmire, MD, FACS, to the University of California, Los Angeles (UCLA), to work in the newly developed department of...
surgery. He worked clinically and in the laboratory with William Muller, MD, FACS, and James Maloney, MD, FACS. However, he left UCLA to serve in the U.S. Navy Medical Corp (1951–1953) during the Korean War.

Dr. Spencer’s interest, curiosity, and dedication to his patients were a constant theme throughout his career. As a young surgeon at Hopkins and UCLA, he learned how to repair arteries. Dr. Spencer was disappointed to see the typical clinical course of injury to the leg leading to gangrene and amputation, in part because of the standard practice of arterial ligation of the injured vessel. Ligation was the treatment of choice after World War II because of the often long delay from injury to surgical treatment. In Korea, the Mobile Army Surgical Hospital unit allowed early evacuation by helicopter, leading to the opportunity for a change in practice and performance of early arterial repair.

Seeking permission from the authorities to attempt the repair of injured vessels on a trial basis was a seminal event in Dr. Spencer’s career. After failing to receive clearance for several weeks, he decided to proceed with performing the repair of arterial injuries, even at the risk of court martial. During the next nine months, more than 150 repairs were performed, with an 80 to 90 percent success rate. The results were published in the *Annals of Surgery* and changed military surgical policy.

Dr. Spencer remarked, “I could not live with myself if I was forced to take someone’s leg off when it was not necessary.” Instead of being court martialed, Dr. Spencer received the Legion of Merit Award, which led him to national recognition. “I became a boy hero, much to my embarrassment… but arterial repair in Korea benefited more people than anything I’ve ever done,” he said. It is not surprising that his ACS Presidential address in 1990 was titled *The Vital Role in Medicine of Commitment to the Patient.*

**Post-service leadership**

After discharge, he returned to Johns Hopkins to complete his surgical residency under Dr. Blalock. The Hopkins years included six years on the faculty, where he matured into an innovative surgeon, a gifted teacher, and a mentor to students and residents. These years were among the most innovative and exciting in the development of the field of cardiac surgery.

In 1961, Benjamin Eiseman, MD, FACS, recruited Dr. Spencer to become professor of surgery at the University of Kentucky, Lexington. Five years later, Dr. Spencer accepted the position of the George David Stewart Professor and Chairman, department of surgery, New York University (NYU) School of Medicine, New York. He served in that capacity for 32 years, establishing one of the great surgical departments in terms of clinical volume, innovative research, and superb residency training. From 2002 until shortly before his death,
he remained active at his beloved NYU as chairman of clinical facilities and development, as well as director of patient safety.

Dr. Spencer's wise counsel and leadership resulted in his election to high office in several professional organizations in American surgery. Prior to serving as ACS President (1990–1991), Dr. Spencer was an ACS Regent, serving as Chair (1987–1989) and as a member, Board of Regents (1980–1989). Other ACS leadership positions in which he served are as follows: Chair, Ad Hoc Committee on Professional Liability (1982–1986); Chair, Scholarships Committee (1984–1987); Chair, Central Judiciary Committee (1985–1987); and Chair and Consultant, Committee on Patient Safety and Quality Improvement (1986–1996 and 1998–2012, respectively). In 1979, he delivered the John H. Gibbon, Jr., Lecture at the ACS Clinical Congress—Competence and Compassion: Two Qualities of Surgical Excellence. In 1979, he delivered the John H. Gibbon, Jr., Lecture at the ACS Clinical Congress—Competence and Compassion: Two Qualities of Surgical Excellence.4


A consummate surgeon and teacher

Dr. Spencer never forgot his Texas roots and dedication to each patient. He never delegated postoperative care to others. His clinical rounds were legendary for their attention to detail and logical scientific problem-solving. His morbidity and mortality conferences were unparalleled. Faculty and former residents have vivid memories of feeling respect and occasional fear when attending this time-honored surgical conference. We were taught to understand outcomes, medical and technical errors of omission or commission, and knowledge gaps long before these concepts became formalized in “practice-based learning.” Residents and faculty always were professional and prepared in his presence. His clinical judgment, experience, and knowledge of the medical literature were always current and innovative.

In the operating room, Dr. Spencer was a master surgeon. His dedication to detail and compulsive recording of observations, which he later reviewed, allowed him to discover patterns that remained obscure to others. He always pushed the envelope to advance the safety and range of surgical treatments. He pursued perfection, teamwork, and communication. He demanded focused decorum during operations.

The advances in the field of surgery for coronary artery disease, valvular heart disease, myocardial preservation, mitral valve repair, and safe cardiopulmonary bypass are, in part, because of his direct efforts or the efforts of those whom he inspired. For example, he sent George E. Green, MD, FACS,
Among all these achievements, awards, and professional recognition, Dr. Spencer derived his greatest pride from teaching and witnessing the achievement of his medical students, residents, and fellows.

notably, he was the co-editor of the annual *Yearbook of Surgery* from 1971 to 1991, *Vascular Trauma* (Rich and Spencer, editors), and *Surgery of the Chest* (fifth and sixth editions, Gibbon, Sabiston, and Spencer, editors), and he was a founding editor of *Schwartz’s Principles of Surgery*.

Dr. Spencer lectured worldwide as a visiting professor. In 1997, he received the American Heart Association Achievement in Cardiovascular Science and Medicine Award. In 2010, the American Association of Thoracic Surgery bestowed its Lifetime Achievement Award on Dr. Spencer for his “outstanding contributions to cardiothoracic surgery that have left an indelible mark for future generations.”

Among all these achievements, awards, and professional recognition, Dr. Spencer derived his greatest pride from teaching and witnessing the achievements of his medical students, residents, and fellows. The Hopkins traditions of clinical excellence, teaching, research, and leadership were the hallmarks of the NYU surgical experience. Dr. Spencer was legendary for memorizing the face, name, and a brief biography of every intern. He influenced the surgical careers of hundreds of young surgeons, many of whom became department chairs and leaders in surgery in the U.S. and abroad. He received the NYU School of Medicine Distinguished Teacher Award in 1969, 1970, and 1977, and the Torch of Learning Award from the American Friends of the Hebrew University in 1976.

**An endless enthusiasm for surgery**

Dr. Spencer taught us his concepts of the basic principles of surgery. First and foremost he admonished, “Do what is best for the patient.” His second precept was, “Don’t be smart enough to quit.” He believed that all complex surgical problems have a cause often so difficult to figure out that most would give up. Dr. Spencer taught that persistence and using the scientific method with experimentation will eventually lead to solutions.

His comments are timeless, and included the following:

“Surgery is a joy, and the pleasure of a surgical career stems from several basic instincts. First is the deep instinctive personal pleasure..."
in helping a sick person get better. Second is the excitement of intellectual productivity, the discovery of new knowledge, and the scientific basis of our profession. Third, is the pleasure of teaching, a vital component of the medical profession since the time of Hippocrates.”

Finally, “Unique to surgery is the creative use of one’s hands to cure or improve human disease.”

Despite occasional failures, the surgeon’s optimism, excitement, and pragmatic resourcefulness remain our strength throughout our careers as we seek surgical solutions to complex problems.

Dr. Spencer’s career spanned more than four decades. His contributions to general and vascular surgery, cardiac surgery, health policy, and surgical art and science are innumerable. His surgical expertise saved tens of thousands of lives and relieved suffering for many others. His impact on patient care is magnified by the hundreds of practicing surgeons he trained and influenced. Clearly, he stands among the giants of surgery in the 20th century. His influence will be long lived through his students, residents, and colleagues. I am indebted to him as my teacher, mentor, role model, and lifelong advisor.

Dr. Spencer’s attitude about the future of medicine was in strict contrast to the “gloom and doom” of others. “I remain as enthusiastic and excited about the pleasures and opportunities of surgery and medicine as in my early house officer days. My attitude is a blend of confident optimism with pragmatic realism.”

We celebrate Dr. Spencer’s life and career. We mourn his loss. We have lost a giant in surgery, and a friend. ♦

REFERENCES
In 2016, the American College of Surgeons (ACS) Board of Governors’ Surgical Care Delivery Workgroup developed an Onboarding Checklist for Surgeons for the complex, multistep process of bringing a new surgeon into a group or surgery department. The checklist delineates action items for a new surgeon and the hiring partner, group, or hospital.

The workgroup recently revised the checklist to more accurately reflect the evolving health care landscape, specifically detailing the unique onboarding of aspects of academic and/or private and employed practices. Increased emphasis on surgeon well-being has been included to help reduce stress during the onboarding process. This following revised checklist is intended to serve as a guideline for discussion and not to represent mandatory surgeon contract requirements.

**Common vision for surgeon’s success**
- Personal fit within culture of community
- Employer’s business plan for surgeon, including marketing and practice growth plans

**Expectations**
- Practice scope, skill set, and competency to operate independently
- Proctoring guidelines, ability to request operating room (OR) assistance for complex cases and level of anticipated support; for example, from a surgeon, physician assistant, scrub tech, or other health care professionals
- Credentialing details for all clinical sites
- Work requirements, on-call expectations, night rotations, and postcall expectations
- Details of call coverage arrangements within group
- Best things about practice (as per the hiring surgeon)
- Most important practice factors (as per the new surgeon)
- Cautions or concerns about practice (as per the new surgeon)
- Surgeon’s personal goals for success
- Work-life integration
- Required number of service weeks per year
- Requirement: Achievement and maintenance of American Board of Surgery certification
- Participation in clinical care maps and protocols; such as the ACS National Surgical Quality Improvement Program, ACS Trauma Quality Improvement Program, or other registries
- Detailed metrics for new surgeon evaluation, promotion, or dismissal
- Professionalism and social media policies
- State license and U.S. Drug Enforcement Agency registration
- Risk management evaluations
- Organization and physician expectations for membership and participation in professional organizations (required versus desirable)
- Protected time off (PTO) allowances for attendance at professional meetings, Continuing Medical Education (CME) activities
• Advanced Cardiac Life Support, Advanced Trauma Life Support®

• Hospital committees participation: Requirement versus opportunity

• Hospital and professional group performance improvement activity participation

• Health insurance participation or nonparticipation

• Contracted health insurance access requirements

• Independent physician association membership and representation

• Physicians Health Organization membership and representation

• Guidance around serving as an external medicolegal reviewer

**Professional support**

• Assistance with onboarding process

• Administrative support staff for clinic and OR scheduling

• Access to clinical support from advanced practice providers: Clinic, inpatient, OR

• Electronic health record (EHR) access, training, ongoing support at all sites, and nonclinical time providing for ongoing training

• Training in modes of communication between clinicians (PerfectServe, EHR, Agency for Healthcare Research and Quality TeamSTEPPS [Team Strategies and Tools to Enhance Performance and Patient Safety], and so on)

• Ongoing professional development in state/national initiatives (opioid prescriptions, end-of-life care, and so on)

• Mentorship and career guidance

• Business training and small business ownership (as necessary)

• Practice marketing and website support

• Availability and role of locum tenens surgeon support

**Facilities and equipment**

• Introduction to all practice sites and staff

• OR availability, block times, scheduling

• Preference card guidelines and equipment needs

• Clinical/professional office space and staff support

• Clinic scheduling, templates, new patient assignment

**Employment details/employee benefits**

• Compensation and bonus: Structure, base salary relative value unit (RVU) targets and bonus structure (as applicable), sign-on bonus, RVU credit or payment for additional administrative/educational responsibilities

• Details of pension plan structure

• Employee benefit package: Health care, disability, life, liability insurance (limits and tail coverage)

• Details of health care benefits—that is, dental, eye, mental health, addiction services, and so on

• Details about health care insurance coverage for dependents

• Vacation and approved time off (meetings, illness) policy

• Parental leave policies of group/institution

• Moving expenses

• Personal computers, cell phone, information technology support
• Dues, books, and subscriptions payments
• Yearly CME allowance; details of reimbursement
• Business cards, stationary, parking passes
• Noncompetition clauses or geographic radius exclusion
• Termination agreement details: With or without cause, timeline

**Academic surgery position specifics**
- Teaching and oversight responsibilities: Residents; medical students; advanced practice providers (APPs), including physician assistants and nurse practitioners
- Academic rank and promotion track details
- Research/scholarly activity expectations
- Clinical productivity expectations
- Research facilities, support
- Research support, including protected time and timeline, seed money, facilities
- Income from honoraria, inventions, medicolegal opinions

**Private or employed practice position specifics**
- Timing and access to a partnership track and/or buy-in option
- If buy-in, is there a buyout of senior partners when they retire?
- Ambulatory surgery center availability and ownership details
- Availability, financial support of APPs
- Details of all fixed and anticipated practice expenses and their distribution among providers
- Financial details of employment cessation; patient records, accounts receivables, facility ownership

**Personal support**
- Loan forgiveness arrangements within practice
- Local banking and loan assistance
- Health care enrollment assistance
- Financial planning and retirement coaching
- Real estate and school district information/real estate agent

• Intellectual property details
• Military commitment and/or tours away for surgical volunteerism; time away from work specified in contract or included as part of PTO
• Surgeon wellness support services
• Personal health accommodations
• Attorney review of a new surgeon’s contract (recommended)

♦
The American College of Surgeons (ACS) recently published a new biography of C. Rollins Hanlon, MD, FACS, ACS Past-Director, a seminal figure in the history of surgery and the College, titled The Conscience of Surgery: C. Rollins Hanlon, MD, FACS. Written by David L. Nahrwold, MD, FACS, this account examines the life of the erudite, principled cardiothoracic surgeon and innovator, who co-developed the Blalock-Hanlon operation with Alfred P. Blalock, MD, FACS.

The book covers every aspect of Dr. Hanlon’s life—from his boyhood in Baltimore, MD, to his quest to be the best clinician and surgeon-scientist, to his views on the government’s increasing influence on the delivery of surgical care, and to his undying love of the written word. For many surgeons, Dr. Hanlon was the embodiment of what it means to be a Fellow of the ACS.

“I got to know [Dr. Hanlon] as a person and a professional during my stint as the Interim Director of the ACS in 1999 when he was ‘retired’ and serving as Executive Consultant,” Dr. Nahrwold writes in the book’s preface. “He insisted that the mission of the College was to advance the ethical and competent practice of surgery and not to improve the financial well-being of surgeons.”

Throughout his career, Dr. Hanlon’s mentors, colleagues, and students included many eminent surgeons at Johns Hopkins Medical School, Baltimore, MD; Cincinnati General Hospital, OH; and the University of California, San Francisco. He trained under Dean DeWitt Lewis, Walter E. Dandy, Howard C. Naffziger, Warfield “Monty” Firor, and Mont Reid (all MD, FACS). He worked alongside William P. Longmire, MD, FACS; Dr. Blalock; and Mark C. Ravitch, MD, FACS; and his residents and interns at St. Louis University, MO, included Vallee Willman, Theodore Cooper, Theodore Dubuque, and William Stoneman (all MD, FACS), among others.
Dr. Hanlon served in the U.S. Navy in World War II, and followed with a distinguished career at Johns Hopkins and at St. Louis University, where, as chair of surgery, he developed the institution’s cardiac research capabilities, which helped to pioneer early open-heart and heart transplant procedures.

Dr. Hanlon became a Fellow of the College in 1953 and served as the ACS Director for 17 years (1969–1986), making him the longest-serving Director to date. Additionally, he served on the Board of Regents and as the ACS President (1985–1986). After retirement, he stayed on as ACS Executive Consultant, offering his sage advice to his successors, including Paul A. Ebert, MD, FACS; Samuel Wells, MD, FACS; Dr. Nahrwold; Thomas R. Russell, MD, FACS; and David B. Hoyt, MD, FACS. Through these positions, Dr. Hanlon had a profound effect on the direction and philosophy of the College, including in philanthropic endeavors and the establishment of the ACS Archives. He received the first ACS Lifetime Achievement Award in 2010.

“Hanlon’s integrity, faith, hard work, and service to others led him to become a role model for physicians and laypersons alike. These attributes also drove his brilliant career as an innovative surgeon, leadership in academic and organized medicine, and reputation as a humanist and ethicist,” Dr. Nahrwold concludes in the preface. “Before he died I knew that I must write his biography to expose his principled life, his goodness, and his devotion to surgery and to surgeons, especially young surgeons, with the hope that they and others will find his life worthy of study and emulation.”

Dr. Nahrwold is Emeritus Professor of Surgery at Northwestern University Feinberg School of Medicine, Chicago, IL, where he was the Loyal and Edith Davis Professor and Chairman, department of surgery, and surgeon-in-chief, Northwestern Memorial Hospital. He is a recipient of the College’s highest honor—the Distinguished Service Award. Dr. Nahrwold is author of A Mirror Reflecting Surgery, Surgeons, and their College: The Bulletin of the American College of Surgeons, and co-author, with Peter J. Kernahan, MD, PhD, FACS, of A Century of Surgeons and Surgery: The American College of Surgeons 1913–2012.

Call for nominations for ACS Officers-Elect and ACS Board of Regents

The American College of Surgeons (ACS) 2019 Nominating Committee of the Fellows (NCF) and the Nominating Committee of the Board of Governors (NCBG) will be selecting nominees for leadership positions in the College as follows.

Call for nominations for Officers-Elect

The 2019 NCF will select nominees for the three Officers-Elect positions of the ACS: President-Elect, First Vice-President-Elect, and Second Vice-President-Elect. The deadline for submitting nominations is February 22, 2019.

Criteria for consideration

The NCF will use the following guidelines when considering potential candidates:

- Nominees must be loyal members of the College who have demonstrated outstanding integrity and an unquestioned devotion to the highest principles of surgical practice.

- Nominees must have demonstrated leadership qualities, such as service and active participation on ACS committees or in other areas of the College.

- The ACS encourages consideration of women and underrepresented minorities for all leadership positions.

All nominations must include the following:

- A letter/letters of nomination
- A current curriculum vitae (CV)
- The name of one individual who can serve as a reference

In addition, nominations for President-Elect must include the following:

- A personal statement from the candidate detailing their ACS service and interest in the position

Further details

Entities such as surgical specialty societies, ACS Advisory Councils, ACS Committees, and ACS chapters that provide a letter of nomination must provide a description of their selection process and the total list of applicants reviewed.

Any attempt to contact or influence members of the NCF by a candidate or on behalf of a candidate will be viewed in a negative manner and may result in disqualification.

Applications submitted without the requested information will not be considered.

Nominations must be submitted to officerandbrnominations@facs.org. If you have any questions, contact Emily Kalata, staff liaison for the Nominating Committee of the Board of Governors, at 312-202-5360 or ekalata@facs.org.

Call for nominations for Board of Regents

The 2019 NCBG will select nominees for two pending vacancies on the Board of Regents to be filled at Clinical Congress 2019. The deadline for submitting nominations is February 22, 2019.

Criteria for consideration

The NCBG will use the following guidelines when considering potential candidates:

- Nominees must be loyal members of the College who have demonstrated outstanding integrity and an unquestioned devotion to the highest principles of surgical practice.

- Nominees must have demonstrated leadership qualities, such as service and active participation on ACS committees or in other areas of the College.

- The ACS encourages consideration of women and underrepresented minorities for all leadership positions.

- Only individuals who are currently and expected to remain in active surgical practice for their entire term may be nominated for election or reelection to the Board of Regents.

The NCBG recognizes the importance of the Board of Regents representing all who practice surgery in both academic...
and community practice, regardless of practice location or configuration. Nominations are open to surgeons of all specialties, but particular consideration will be given in this nomination cycle to the following specialties:

- Burn and critical care surgery
- Gastrointestinal surgery
- General surgery
- Surgical oncology
- Transplant surgery
- Trauma surgery
- Vascular surgery

All nominations must include the following:

- A letter of nomination
- A personal statement from the candidate detailing their ACS service and interest in the position
- A current CV
- The name of one individual who can serve as a reference

Further details
Entities such as surgical specialty societies, ACS Advisory Councils, ACS Committees, and ACS chapters who wish to provide a letter of nomination must provide at least two nominees, and a description of their selection process, along with the total list of applicants reviewed.

Any attempt to contact or influence members of the NCBG by a candidate or on behalf of a candidate will be viewed in a negative manner and may result in disqualification. Applications submitted without the requested information will not be considered.

Nominations may be submitted to officerandbrnominations@facs.org. If you have any questions, contact Emily Kalata, staff liaison for the Nominating Committee of the Board of Governors, at 312-202-5360 or ekalata@facs.org.

For information only, the current members of the Board of Regents who will be considered for re-election are (all MD, FACS): Anthony Atala, James W. Gigantelli, and Fabrizio Michelassi.

Coming next month in JACS and online now

F. Selcen Kilinc-Balci, PhD; Zafer Kahveci, PhD; and Patrick Yorio, PhD, report in the Journal of the American College of Surgeons (JACS) on a novel method they developed to evaluate fluid leakage and assess performance improvements with new gowns and gloves. Their method uses a robotic arm, which simulates arm movements made by health care personnel during fluid exposures. This article and all other JACS content is available at www.journalacs.org.
CALL FOR ABSTRACT Submissions

The American College of Surgeons Division of Education welcomes abstract submissions to the following programs:

Owen H. Wangensteen Scientific Forum
• ORAL PRESENTATIONS*
• e-POSTER PRESENTATIONS
*Accepted authors are encouraged to submit full manuscripts to JACS

Video-Based Education
• VIDEO PRESENTATIONS

Videos are peer reviewed and may be recommended for inclusion in the ACS Video Library following presentation

Submission Information
• Online submissions only
• The submission period begins after December 1, 2018
• Deadline: 11:59 pm (CST), Friday, March 1, 2019
• Abstract and video specifications and guidelines will be posted on facs.org

facs.org/clincon2019
My journey as the 2018 American College of Surgeons (ACS) Traveling Fellow to Australia and New Zealand (ANZ) began at the ACS Clinical Congress 2017 in San Diego, CA, where I met with Prof. Julian A. Smith, MB, BS, MS, MSurgEd, FACS, FRACS, FFSTRCSEd, FCSANZ, FAICD, head of the departments of cardiothoracic surgery and surgery, Monash University, Melbourne, Australia, and President, ANZ Chapter of the ACS. He connected with me throughout Australia’s trauma centers in Sydney and Melbourne, as well as with Prof. Ian Civil, BSc, MB, ChB, FACS, FRACS, co-director, trauma services, Auckland City Hospital, New Zealand, and past-president, Royal Australasian College of Surgeons (RACS).

The RACS also engaged me with Jeremy Hsu, MB, BS, FACS, the 2018 trauma program convener and director of trauma, Westmead Hospital; as well as Prof. Richard M. Hanney, MB, BS, FACS, FRACS, chair, Developing a Career and skills in Academic Surgery (DCAS) course, and clinical senior lecturer, University of Sydney. All four surgeons were central to my academic activities, networking, and travel planning.

Surgeon-scientists in Sydney
Annelise M. Cocco, MB, BS, a graduating surgical resident interested in trauma, greeted me and Prof. Timothy Pritts, MD, PhD, chief, section of surgery, University of Cincinnati, OH, at Darling Harbour. She accompanied us to the Westmead Hospital International Professorial Symposium, organized by Dr. Hanney; chaired by Prof. Henry Pleass, MD, FRACS, surgical head of the Australian National Transplant Unit; and moderated by Danny O’Connor, BSOCASTOC(Hon), MSW, chief executive, Western Sydney Local Health District. Speakers included Profs. Arthur J. Richardson, MB, BS, DClinSurg, FACS, FRACS, head, upper gastrointestinal and hepatobiliary surgery at Westmead; Marc Gladman, MB, BS, PhD, DRCOG, DFFP, MRCs, MRCOG, FRCs, FRACS, DCAS co-chair, University of Adelaide; and senior U.S. surgeon health services researchers, including Amir A. Ghaferi, MD, MS, FACS, associate professor, University of Michigan, Ann Arbor; Caprice C. Greenberg, MD, MPH, FACS, vice-chair, research, and professor of surgery, University of Wisconsin, Madison; and Lillian S. Kao, MD, FACS, professor of surgery, The University of Texas Health Science Center (UTHealth), and chief, division of acute care surgery, McGovern Medical School, UTHealth, Houston.

Drs. Pritts, Hsu, and I led a trauma hands-on session, during which I enjoyed discussing mentorship in trauma and facilitating ballistics and penetrating trauma cases, which are uncommon mechanisms of injury in Australia due to steady legislative efforts since 1996. Despite the infrequency of these scenarios, the knowledge base, cognitive skills, and creativity of the Westmead trainees and faculty in caring for the injured patient afflicted by penetrating trauma were impressive.

Professor Hanney arranged a rooftop dinner at the Cafe Sydney with Westmead anesthesiology and surgery faculty and topped this off with a day trip to the Hunter Valley Wine Country. Joining the Westmead DCAS contingent were young Australian academic surgeons and U.S. DCAS and Association of Academic Surgery (AAS) members, as well as many families and other friends. At the
Thomas Allen Winery, we tasted wine, learned about Australian viticulture, finished with a hearty meal at Blaxton Inn, and concluded with a fortuitous wallaby sighting.

First ASSET Course in Australasia
It was an honor to participate in the inaugural ACS Advanced Surgical Skills for Exposure in Trauma (ASSET) course in Australia and New Zealand at Macquarie University, New South Wales. Mark W. Bowyer, MD, FACS, professor, surgical director of simulation, and chief, division of trauma and combat surgery, Uniformed Services University of the Health Sciences, Bethesda, MD, led the development of the day-long ASSET course with the ACS Committee on Trauma (COT) and its education committee. Dr. Hsu, aided by New Zealand surgeon Ashish Taneja, MD, head, acute surgical unit, Auckland City Hospital; Dr. Pritts; and I directed the course. The ASSET course participants comprised preeminent surgical residents and faculty from both Australia and New Zealand. Michael Muller, MB, BS, MMEDSCI, FRACS, founding director of trauma, Royal Brisbane and Women’s Hospital and a course participant, reminisced about his wife, Karen, and her time as a Vanderbilt nurse practitioner, as well as about the trials and tribulations faced by our Vanderbilt trauma medical director Oscar Guillamondegui, MD, FACS, as a Galveston medical student. Overall, all who participated felt this interactive ACS trauma course facilitated bidirectional learning, and we anticipate these experiences will drive future course deployments throughout Australasia and New Zealand.

RACS ASC: Reflecting on what really matters
Taking advantage of the integrated social program built into the RACS Annual Scientific Conference (ASC), I joined the breathtaking and beautiful
BridgeClimb Sydney and was grateful to meet Prof. Stephen Deane, MB, BS, FACS, associate dean, clinical partnerships, Macquarie University, trauma surgeon, and internationally recognized trauma educator. He brought the ACS COT Advanced Trauma Life Support® (ATLS®) course to Australia, created the Definitive Surgical Trauma Care course, and received the Member of the Order of Australia for his lasting contributions. His wife, Anne, was equally impressive with her expansive knowledge of Sydney history, which matched that of our BridgeClimb tour guide. She joined Dr. Guillamondegui and myself for a breakfast with koalas at the Wild Life Sydney Zoo and was excellent company during many RACS ASC dinners.

The RACS ASC was a fabulous interdisciplinary and educational event with the Australian and New Zealand College of Anaesthetists (ANZCA). One of the meeting highlights was the unveiling of a joint emergency laparotomy binational pilot study intended to improve quality and reduce costs in acute care surgery. I enjoyed presenting Insights into Intensive Care Unit (ICU) Survivorship in the ASC keynote lecture, chaired by Professor Smith and graciously acknowledged by the 47th RACS president and orthopaedic surgeon John Batten, MBBS(Hons), FRACS, FAOrthA. I participated in a session on postacute trauma issues and delivered Spinal Clearance and Mobility—Do We Really Need Collars, Spine Boards and Bed Rest?, moderated by Dr. Civil. Trauma surgeon and international ATLS expert Scott D’Amours, MDCM, FRCS, FRACS, moderated a fun, interactive session on Standardization to Improve Outcomes—Bundles of Care in Trauma & Critical Care. Whereas Vanderbilt’s Critical Illness, Brain Dysfunction, and Survivorship (CIBS) Center is leading ongoing randomized clinical trials in critical care (NCT01211522, NCT01739933), it was exhilarating to see the results from the ANZCA Clinical Trials Network and the Australian and New Zealand Intensive Care Society (ANZICS) Clinical Trials Group investigation, the RESTRICTIVE Versus LIBERAL Fluid Therapy in Major Abdominal Surgery: RELIEF Study (NCT01424150). Published in the New England Journal of Medicine (NEJM) during the RACS ASC, the work showed no difference in the rate of one-year disability-free survival after randomization to a restrictive or liberal fluid strategy for 24 hours after major abdominal surgery.

Westmead trauma

After the RACS ASC, I enjoyed a home-cooked meal with Dr. Hsu; ACS President-Elect Ronald V. Maier, MD, FACS, FRCSEd, FCS(HK)(Hon); and their spouses. I spent additional time at Westmead Hospital with Dr. Hsu and joined their trauma rounds to learn more about their clinical approach. In many ways, the U.S. and Australia/New Zealand trauma care systems are similar. Westmead uses
a team-based and shift-based approach, such that a mountain of clinical, imaging, laboratory, and operative information passes at the daily check-out using heavy and creative abbreviations that U.S. residents would appreciate (TF means transfer; HSMVA means high-speed motor vehicle accident; BIBA means brought in by ambulance, and so on).

In other ways, our critical care training and care models are different. In a U.S. ICU, critical care is an extension of perioperative and trauma care, staffed by surgical intensivists, as well as anesthesiology intensivists. However, in Australia and New Zealand, ICU care is led by talented medical intensivists who often extend themselves even to emergency room environments and trauma resuscitations.

My final foray at Westmead focused on oral examination preparation for graduating surgery residents, which felt more intensive than the American Board of Surgery Certifying Exam, in that trainees are expected to explain surgical pathophysiology, as well as demonstrate the history and physical of actual patients waiting for surgery, over a multi-day testing period marked by higher failure rates. These were outstanding young surgeons, and I am proud to report that Dr. Cocco passed her exam and is embarking on a career in trauma.

**Trauma, critical care, and clinical trials in Melbourne**

Upon my arrival in Melbourne, my new colleague from the inaugural ANZ ASSET course, Dr. Jithoo, and his anesthetist friend took me to dinner and showed me the beautiful South Wharf. Then, I visited The Alfred and Royal Melbourne Hospitals (RMH), and their respective trauma centers led by Profs. Mark Fitzgerald, MBBS, MD, and Rodney Judson, MBBS, FRACS, FRCS. At The Alfred, I enjoyed rounding with Dr. Fitzgerald, engaging trainees in discussions about penetrating trauma cases coordinated by ASSET colleague Dr. Martin, and witnessing their collaborative webcast, the Victorian Trauma Grand Rounds.

Subsequently, I connected with the acclaimed clinical trialist and researcher Prof. Jamie Cooper, AO, BMBS, MD, FRACP, FCICM, FAHMS, participated in their journal club on extracorporeal membrane oxygenation, and rounded in their ICUs. At RMH, after rounding with Dr. Rezvaneh (Rose) Shakerian’s Trauma Service, I witnessed the 2018 National Tribute & Awards Ceremony for Clinical Trials of the Year, where Dr. Cooper’s TRANSFUSE study (NEJM 2017) was a finalist. It was incredible to see the multifaceted support for “public-good” clinical trials by patients, government (National Health and Medical Research...
Kia Ora from Auckland

I closed my academic journey by visiting Auckland City Hospital and its trauma program under Drs. Civil and Taneja. I joined both trauma and emergency general surgery services, as well as their multidisciplinary trauma audit, partook in mid-morning tea, and enjoyed meeting Prof. Li Hsee, MB, BCh, BAO, FRACS, co-director, trauma services; clinical director, general surgery; and chair, New Zealand Trauma Committee of the RACS. Afterward, my family and I continued onto Rangitoto and Waiheke Islands, before further adventures in Queenstown and Christchurch. The ACS/ANZ Traveling Fellowship facilitated friendship, ties to the RACS, DCAS, AAS, and ANZICS organizations, and an unforgettable journey.

I am forever indebted to my family; the trauma division and surgery leadership at Vanderbilt University Medical Center; the AAS; the ACS and its International Liaison Section consummately coordinated by Kate Early; the RACS and its ASC; the ANZCA; Westmead Hospital, Macquarie University, The Alfred Hospital, The Royal Melbourne Hospital, and Auckland City Hospital; Australian Clinical Trials Alliance (ACTA), Department of Industry, Innovation and Science, and the NHMRC. All of these entities facilitated my wonderful experiences serving for the 2018 ACS Traveling Fellowship to ANZ. ♦

REFERENCES


### MEETINGS CALENDAR

**Calendar of events**

*Dates and locations subject to change. For more information on College events, visit facs.org/events or facs.org/member-services/chapters/meetings.*

#### NOVEMBER

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td><strong>Maryland Chapter</strong></td>
<td>November 1</td>
<td>Baltimore, MD</td>
<td>Kathy Drake Browning, <a href="mailto:kathy@marylandACS.org">kathy@marylandACS.org</a>, bit.ly/2DeFYyG</td>
</tr>
<tr>
<td><strong>South Korea Chapter</strong></td>
<td>November 1</td>
<td>Seoul, South Korea</td>
<td>Dr. Lee Su Kim, <a href="mailto:lskim0503@hallym.ac.kr">lskim0503@hallym.ac.kr</a></td>
</tr>
<tr>
<td><strong>Keystone Chapter</strong></td>
<td>November 2</td>
<td>Hershey, PA</td>
<td>Jessica Winger, <a href="mailto:jwinger@pamedsoc.org">jwinger@pamedsoc.org</a>, kc-acs.org</td>
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<tr>
<td><strong>Wisconsin Surgical Society</strong></td>
<td>November 2–3</td>
<td>Kohler, WI</td>
<td>Terry Estness, <a href="mailto:wisurgical@att.net">wisurgical@att.net</a>, wisurgicalsociety.com</td>
</tr>
<tr>
<td><strong>New York Chapter Dinner Event</strong></td>
<td>November 7</td>
<td>New York, NY</td>
<td>Babette Grey, <a href="mailto:nycfacs@yahoo.com">nycfacs@yahoo.com</a>, nysurgeon.org</td>
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<tr>
<td><strong>Minnesota Surgical Society</strong></td>
<td>November 9–10</td>
<td>St. Paul, MN</td>
<td>Janna Pecquet, <a href="mailto:janna@msurgicalsociety.org">janna@msurgicalsociety.org</a>, mnsurgicalsociety.org</td>
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#### DECEMBER

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<tr>
<td><strong>Kuwait Chapter</strong></td>
<td>November 21–23</td>
<td>Kuwait City, Kuwait</td>
<td><a href="mailto:info@kas-conference.com">info@kas-conference.com</a>, kas-conference.com</td>
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<tr>
<td><strong>Massachusetts Chapter</strong></td>
<td>December 1</td>
<td>Boston, MA</td>
<td>Brittany Fiore, <a href="mailto:bfiore@prri.com">bfiore@prri.com</a>, meeting.mcacs.org</td>
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<tr>
<td><strong>New Jersey Chapter</strong></td>
<td>December 1</td>
<td>Iselin, NJ</td>
<td>Andrea Donelan, <a href="mailto:njsurgeons@aol.com">njsurgeons@aol.com</a>, nj-acs.org</td>
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<tr>
<td><strong>Philippine College of Surgeons Annual Clinical Congress</strong></td>
<td>December 2–4</td>
<td>Mandaluyong City, Philippines</td>
<td>Annette D. Tolentino, <a href="mailto:nette.pcs36@yahoo.com">nette.pcs36@yahoo.com</a>, pcs.org.ph/Events/view/?id=12</td>
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<tr>
<td><strong>Argentina Chapter</strong></td>
<td>December 10–12</td>
<td>Buenos Aires, Argentina</td>
<td>Dr. Alberto Raul Ferreres, <a href="mailto:dr.albertoferreres@gmail.com">dr.albertoferreres@gmail.com</a></td>
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#### JANUARY 2019

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<tr>
<td><strong>Louisiana Chapter</strong></td>
<td>January 18–20</td>
<td>New Orleans, LA</td>
<td>Janna Pecquet, <a href="mailto:janna@laacs.org">janna@laacs.org</a>, laacs.org</td>
</tr>
<tr>
<td><strong>Montana-Wyoming, Idaho and Utah Chapters</strong></td>
<td>January 25–27</td>
<td>Sun Valley, ID</td>
<td>Cyan Sportsman, <a href="mailto:csportsman21@outlook.com">csportsman21@outlook.com</a>, acschapter.wixsite.com/idacs</td>
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#### FEBRUARY

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<tr>
<td><strong>South Texas Chapter</strong></td>
<td>February 7–9</td>
<td>Austin, TX</td>
<td>Janna Pecquet, <a href="mailto:janna@southtexasacs.org">janna@southtexasacs.org</a>, southtexasacs.org</td>
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#### FUTURE CLINICAL CONGRESSES

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<tr>
<td>2019</td>
<td>October 27–31</td>
<td>San Francisco, CA</td>
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<tr>
<td>2020</td>
<td>October 4–8</td>
<td>Chicago, IL</td>
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<tr>
<td>2021</td>
<td>October 24–28</td>
<td>Washington, DC</td>
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The tribal leaders of a Mundari cattle camp in Terekeka, South Sudan, stand proudly with Barclay T. Stewart, MD, MPH, PhD (center). The program Dr. Stewart ran was responsible for assessing the burden of neglected tropical diseases and delivering drug treatment to millions of people across the war-torn country.

Making a difference in the world starts with one step forward. One personal challenge. One decision to give back.

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The AMERICAN COLLEGE OF SURGEONS is a leader in initiatives to improve quality of care for surgical patients in the areas of trauma, cancer, bariatric surgery, breast care, general surgery, and surgeon-specific outcomes.