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Helping Hospitals Manage New Payment Model

Patricia L. Turner, MD, MBA, FACS

executivedirector@facs.org

In this column, I strive to communicate resources that might help our colleagues, no matter their surgical discipline, practice type, career stage, or geographic location.



WE ARE THE HOUSE OF SURGERY®, and we exist to unite all surgeons and help ensure they and their patients have the best possible outcomes.

One area that may be unfamiliar to some members is how we are working to assist US surgeons through the evolution of payment models in our healthcare system. In fact, this is a crucial part of our work advocating for surgeons and advancing quality.

The Centers for Medicare & Medicaid Services (CMS) has announced plans to implement the Transforming Episode Accountability Model (TEAM), a new payment model that will go into effect January 1, 2026, and last until December 31, 2030.

Episode-based payment models have been in use for some time, and this new program helps answer the question about how they might expand. TEAM will pay hospitals for a defined episode of coordinated care, including any specified surgical procedure and all inpatient and outpatient follow-up in the 30 days after discharge. The eligible procedures for the first program year are lower extremity joint replacement, surgical hip femur fracture treatment, spinal fusion, coronary artery bypass grafting, and major bowel procedures.

A previous episode-based payment model, the Bundled Payments for Care Improvement (BPCI) Advanced Model,

was voluntary. TEAM will be mandatory for hospitals selected by CMS. Approximately 741 acute care hospitals in 188 markets nationwide that already participate in a Prospective Payment System have been selected, including both rural and urban hospitals in both safety-net and non-safety-net categories. (Hospitals that remain in BPCI Advanced also can voluntarily opt into TEAM.) In total, approximately 7.5 million Medicare fee-for-service beneficiaries within these hospitals' catchment areas will be affected by TEAM.

Payment per episode of care will be based on regional pricing averages, risk-adjusted by patient mix, and further adjusted with a discount factor to provide savings to the system. Importantly, hospitals will both bear financial risk and have an opportunity for gain. While the payment model is not yet finalized, analyses presently suggest many hospitals are likely to lose money.

The ACS is committed to the transition to value-based care and envisions episode-based payment models as the logical progression for surgery. We recognize that these changes present real challenges to hospitals and surgeons who participate, and we are actively taking steps to advocate for surgeons and offer resources as hospitals prepare for the new model.

In mid-April, the ACS Division of Advocacy and Health Policy sent letters to new CMS Administrator

Mehmet C. Oz, MD, as well as to Secretary of Health and Human Services Robert F. Kennedy Jr. Both letters expressed our willingness to collaborate with CMS on episode-based payment models, including TEAM, to ensure they offer the best possible approach for our patients.

Our letters particularly emphasized the importance of including appropriate quality measures in episode-based payment models. Quality performance and economics are inextricably linked in that higher-quality care reduces length of stay and complication rates, and both can increase expenses. Any payment model that rewards reduction by limiting care and does not give equal emphasis to enhancing quality threatens to underfund critical services, resulting in a race to the bottom that hurts patients.

With more than a century of experience with quality improvement programs, we contribute meaningful insights to this effort while cutting costs.

The ACS also is collaborating with the Institute for Accountable Care at Brandeis University to offer additional resources. This January, we hosted a webinar that was attended by representatives of more than four dozen hospitals across the US. The webinar recording and slides remain available at facs.org/advocacy/team. As TEAM evolves and is implemented, we anticipate continuing to provide resources.

I routinely quote the ACS motto, "To Heal All with Skill and Trust,"

because it remains the guiding principle for all we do. For all prospective surgical patients and all surgeons affected by TEAM and other alternative payment models, it is important that we influence this evolving sector of our healthcare system. If you are a surgeon in one of the selected hospitals, please engage with our resources and let us help you.

Quality and Safety Conference

If you are interested in learning more about aligning payment and quality, please join us at the 2025 ACS Quality and Safety Conference, July 17–20 in San Diego, California. Registration is now open at facs.org/qsc2025.

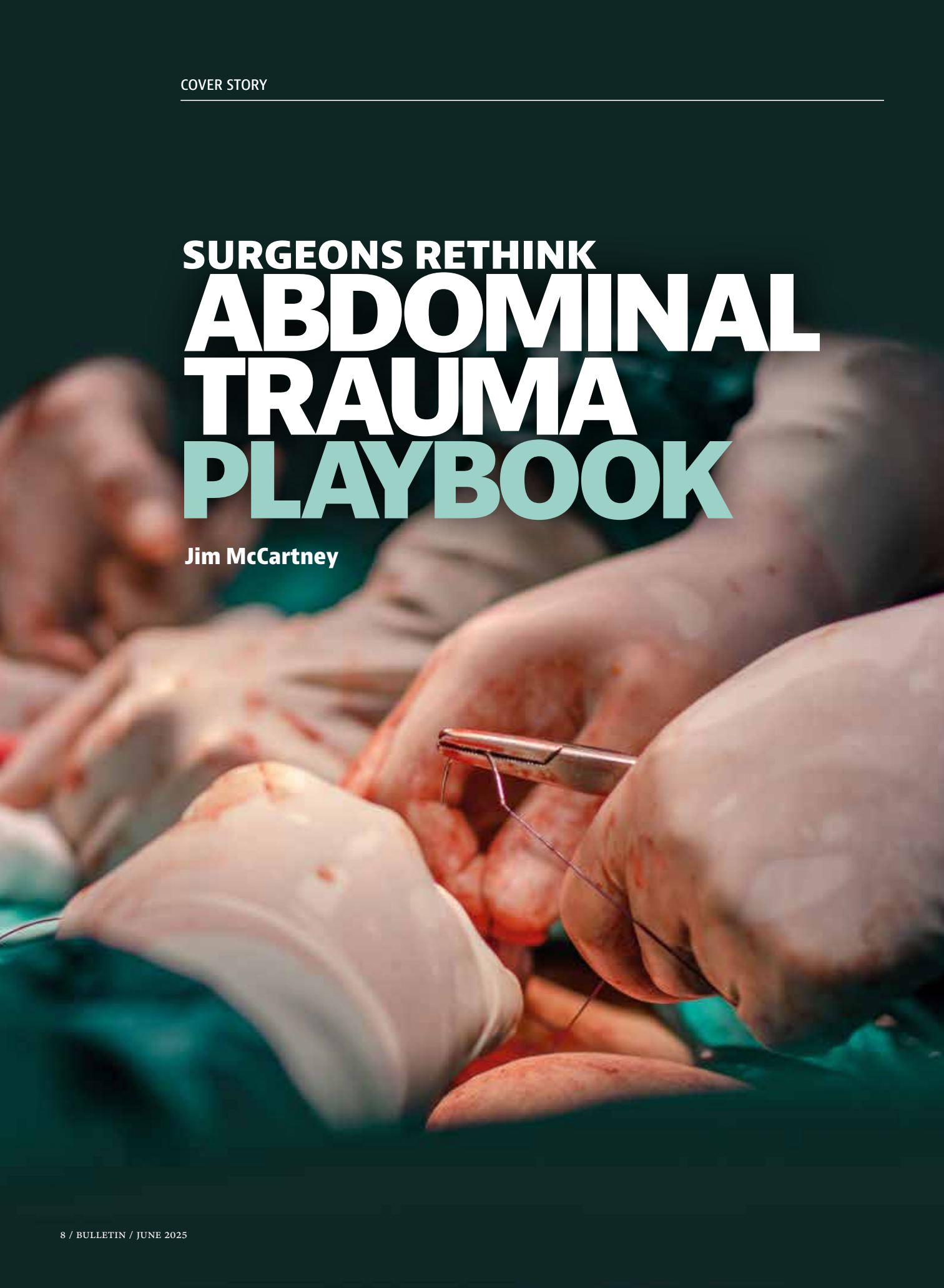
Clinical Congress

Registration is now open for Clinical Congress 2025. We look forward to welcoming surgeons to Chicago, October 4–7, for an updated program, including broad thematic sessions as well as a new Windy City Welcome Reception directly after Convocation on Saturday evening. Learn more at facs.org/clincon2025. **B**

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SURGEONS RETHINK ABDOMINAL TRAUMA PLAYBOOK

Jim McCartney



For decades, the standard approach to managing abdominal trauma, especially for cases involving penetrating injuries, has been to surgically open the abdominal cavity for exploration.

BUT IN RECENT YEARS, there has been a shift toward selective nonoperative management—particularly for stable patients with solid organ injuries—with advanced imaging, evolving resuscitation methods, and a better understanding of injury mechanisms becoming increasingly important.¹

Today, selective nonoperative management of blunt abdominal trauma is acknowledged as a safe treatment option in many injury patterns for hemodynamically stable patients and considered part of the standard of care.^{2,3}

“The most exciting emerging trend in abdominal trauma is the increasing use of interventional techniques in trauma care,” said Kylie Zane, MD, an interventional radiologist from The University of Chicago Medicine in Illinois. “Advanced imaging allows us a way to see inside the patient without the scalpel.”

The expanded role of interventional radiology (IR) comes at a time when traumatic injuries are on the rise.⁴ Traumatic injury is the leading cause of death for people younger than 45 years of age in the US and globally, accounting for about 10% of deaths worldwide each year. During the past decade, outcomes have improved due to a number of factors such as better integration of multidisciplinary care, faster access to advanced imaging and interventions, and the increased selective use of nonoperative management.⁵

In abdominal trauma cases, early involvement of IR can significantly improve patient outcomes by enabling timely and effective management of hemorrhage and other injuries. IR techniques, such as angioembolization, stent grafts, and other endovascular procedures, allow for rapid identification and treatment of vascular injuries and solid organ damage, potentially reducing the need for emergency surgery and improving survival rates.

“We call interventional radiologists early—when we think the injury will be difficult to access, be it

the abdomen, pelvis, or head and neck,” said trauma surgeon Kenneth L. Wilson, MD, FACS, from The University of Chicago.

Even patients who may require a blood transfusion may be candidates for nonoperative management as long as imaging has found the source of bleeding. According to Dr. Zane, a 20-minute angioembolization procedure in the angiography suite may stop bleeding in patients who once may have needed a major operation.

“We can control internal bleeding through an incision that’s a centimeter long compared to a foot-long laparotomy incision that might have been used historically,” she said. “Trauma surgeons continue to trust us with their patients because they see those results.”

Diagnostic “Game Changer”

Strategies now being widely used in the treatment of solid organ injury are based on the Focused Assessment with Sonography for Trauma (FAST) scan, CT scan diagnosis, and the hemodynamic stability of the patient.⁶



The angiogram reveals that an embolization was performed to address a defect in the spine that was causing arterial bleeding.



Dr. Kenneth Mattox performs abdominal trauma surgery on a patient.

This approach allows surgeons to quickly identify patients with hemodynamic instability and help determine if they need surgical intervention by assessing potential injuries.

Because x-ray and ultrasound machines are smaller and portable, the machines can be deployed to the patient's bedside for immediate patient evaluation. An advantage of ultrasound is that it can be repeated as the patient progresses without increased radiation exposure, Dr. Wilson said, adding that this is critical in repeated checks for fluid buildup in the abdomen, "It's a real game changer."

High-Quality CT Scan as Prerequisite

After the primary and secondary surveys are completed, the hemodynamically stable patient will go to a nearby CT scanner that is typically standardized based on the level of trauma, Dr. Zane explained. In fact, major factors in the increased use of nonoperative management for trauma patients are high-quality CT imaging and the increased availability of interventionalists.

"The prerequisite for all of this is having a surgical ICU setting where trauma patients can be closely monitored to make sure that nonoperative approaches are safe for them," she said. "The trauma surgeon can request additional imaging or exclude imaging based on what they're most concerned about."

In most cases, these imaging modalities provide a comprehensive list of the injuries, allowing for appropriate triage, whether that means a subspecialty surgeon, an interventional radiologist, or a trip to the OR, Dr. Zane noted. The whole sequence of portable imaging takes about 10 minutes.

For hemodynamically stable patients who get a CT scan and do not appear to need emergency surgery, nonoperative management has become the standard of care. For example, rather than a

laparotomy, the ACS Trauma Quality Improvement Program Best Practices Guidelines in Imaging, produced in collaboration with the American Society of Emergency Radiology and the American College of Radiology, recommend that surgeons base their initial management decisions on CT scans for selected patients.³

"Twenty-plus years ago, if you had a penetrating injury in the abdomen, you automatically went to the operating room," Dr. Wilson said. "Now, if that patient is stable, you can get a CT scan, and there are no overt signs of peritonitis or hemodynamic instability, we may be able to get away without operating at all and deploy our interventional radiology team to attempt a nonoperative approach."

CT scans can help the surgeon identify the source of the hemorrhage. In some cases, the leak may be in a place that's hard for the surgeon to access but not for the interventional radiologist.

"We can, perhaps, stop the hemorrhage without making an incision at all," Dr. Wilson said.

But some surgeons think the trend toward nonoperative management of abdominal trauma could be pushing the boundaries too far, said cardiothoracic surgeon Kenneth L. Mattox, MD, FACS, a distinguished service professor in the Michael E. DeBakey Department of Surgery at Baylor College of Medicine in Houston, Texas. He added that this hands-off approach may tend to result in more complications and longer operations.

Some tests, such as the CT scan with intravenous contrast or magnetic resonance imaging, are used even though they do not alter decision-making regarding the patient. "If you cannot write a progress note on why an advanced technology is going to change what you normally were going to do and can do it quicker and maybe cheaper, then that extra technology should not be applied," Dr. Mattox said.

In most cases, “the patient who has the big, bad acute injury to the abdomen needs the bleeding taken care of, not just watched,” he explained.

IR Offers Alternative to Open Surgery

Many surgeons choose laparoscopy for selected abdominal trauma patients rather than laparotomy because it provides a minimally invasive way not only to visualize the injuries but also to treat them.⁷

The approach often depends on the experience and preferences of the surgeon, Dr. Wilson said. Some surgeons would never perform minimally invasive surgery (MIS), while others are trained at the centers where they do a lot of MIS, such as robotic surgery using a laparoscope.

As trauma surgeons become increasingly familiar with IR techniques, there has been a move toward combined surgical and nonoperative approaches

for trauma patients. IR can provide an alternative to what would have been a difficult surgery. For example, consider the patient who had a bullet lodged in their inferior vena cava.

“In close collaboration with our trauma surgeons, we snared the bullet fragments intravenously in the IR suite without having to make an incision,” Dr. Zane said. “We retracted that bullet to the groin, and then our trauma surgeons performed a targeted cut down over the femoral vein and took that bullet out. This saved a massive operation and allowed for a much smaller recovery time for the patient with really good outcomes.”

Hybrid OR

Valuable time is wasted when moving a severely hemorrhaging patient from the trauma resuscitation bay to the OR or angiography suite or for additional radiological imaging.⁸ This extended journey can be fatal for the patient.

A patient shot in the abdomen experienced an injury to the inferior vena cava, which was repaired. Arterial bleeding from a defect in the spine was controlled with a rod attached to an external fixator device used to tamponade bleeding from arterial feeding branches lumbar segments L3-L5.





In a hybrid surgical suite at Ben Taub Hospital, Dr. Kenneth Mattox operates on a patient.

In Japan, the hybrid OR system combines a sliding CT scanning system with IR, enabling CT diagnosis and emergency therapeutic interventions without transferring the patient to another examination room. The hybrid OR enables multiple emergency procedures, such as damage control surgery and endovascular intervention, to be conducted after early CT diagnosis. The ability to perform immediate CT diagnosis and rapidly control bleeding without moving the patient has helped improve outcomes for severe trauma patients.⁹

There is growing interest in the hybrid OR approach in the US. At the Ben Taub Hospital in Houston, Texas, for instance, there is a hybrid surgical suite named for Dr. Mattox—the Kenneth L. Mattox, MD Surgical Suite. Although it helps reduce the time spent moving the patient around to get various tests and studies, Dr. Mattox acknowledges that the hybrid OR's complexity and varied instrumentation can be a challenge.

New Protocols in Damage Control

For years, damage control surgery was the standard response to abdominal trauma patients with life-threatening injuries, with the aim of resuscitating patients so they could have definitive treatment later.¹⁰

“Damage control is meant to immediately control bleeding and contamination, resuscitate in the ICU, and return for repeat operation within 12 to 24 hours for definitive repairs not completed during the initial damage control procedure,” Dr. Wilson said.

Resuscitation protocols are being integrated into planning for the patient, Dr. Zane said. There's wide recognition in trauma about the importance of balanced resuscitation and balanced transfusion. For example, most trauma surgery departments now have the ability to initiate massive transfusion in the trauma bay, which is crucial for damage control resuscitation for patients experiencing massive hemorrhage and acute traumatic coagulopathy.

“This is an incredible advance compared to what people were doing 10 years ago,” Dr. Zane said.

To manage life-threatening bleeding in abdominal trauma patients, a massive transfusion protocol (MTP) is recommended, according to 2024 damage control resuscitation recommendations from the ACS and American Association for the Surgery of Trauma.¹¹ The MTP aims to provide a rapid and balanced resuscitation of patients with major blood loss, often in a ratio of 1:1:1 (platelets: plasma: packed red blood cells). It aims to interrupt the lethal cycle of acidosis, hypothermia, and coagulopathy that can develop during massive transfusion.

Another new protocol is a resuscitation strategy known as “permissive hypotension,” in which blood pressure is intentionally kept lower than normal in patients with active bleeding, particularly in trauma. This is done to avoid disrupting blood clots and potentially worsening the hemorrhage, which can occur if blood pressure is raised too quickly before bleeding is controlled.

“The word ‘resuscitation’ is often concomitant with raising the blood pressure to pre-injury levels or higher,” Dr. Mattox said. “That’s wrong.”

IR is increasingly used in damage control and, according to one study, should be considered an arm of damage control surgery and not simply as nonoperative management.¹²

There also is a new generation of hemostatic agents and adjuncts used in damage control of abdominal trauma, including bioactive dressings, powders, sealants, and sprayable hemostats.

Dr. Mattox stressed that these new agents and devices have benefits but often are overused and even harmful if surgery is delayed more than 2 days.

“It's the perfect time really to promote collaboration between trauma, surgery, and interventional radiology on standards and protocols.”

Dr. Kylie Zane

Coordination between Trauma Surgeons, Interventionalists

The increasing role of IR in the management of bleeding patients has prompted the need for greater coordination between trauma surgeons and interventionalists, including training trauma teams in IR resuscitation practices.¹²

“There’s been a big and relatively recent shift in the organization and structure of interventional radiology that facilitates this coordination,” Dr. Zane said.

The move started with the creation of an integrated residency pathway a decade ago for IR, leading to more interventional radiologists receiving preliminary training in surgery. Similarly, trauma surgical residents are getting more exposure to MIS techniques through fellowship programs. This experience can involve dedicated training in areas like laparoscopic trauma surgery or mentorship from experienced MIS surgeons.

This cross-training could alleviate the trend toward overspecialization, Dr. Mattox predicted.

“Twenty to 30 years ago, the general surgeon took care of all of the diagnostic workup and was trained to do a number of procedures, including vascular,” he said. Now, general, critical care, and acute care surgeons are all involved in abdominal trauma cases, in addition to specialists in emergency medicine and radiology.

Too often, these physicians work separately, not together, Dr. Mattox said, which may lead to a “lack of patient ownership” and worse outcomes.

He suggested that better coordination and collaboration with IR could be achieved if they both answered to the same chief of service.

“It’s the perfect time to promote collaboration between trauma, surgery, and interventional radiology on standards and protocols,” Dr. Zane said, noting that trauma surgeons have voiced concern about a standard 1-hour response time for intervention radiologists when it could be 30 minutes, as an example.

What’s Next?

In addition to the numerous tools and technologies that have already transformed care for the abdominal trauma patient, other significant advances are in the offing.

Artificial intelligence (AI)-assisted trauma imaging and triage tools already leverage computer vision and machine learning to analyze trauma-related images, aiding in the rapid identification of injuries and prioritization of patients for treatment. These tools can help improve workflow efficiency, reduce errors, and enhance patient outcomes.

“There’s a broad use of AI already in radiology,” said Dr. Zane. “Overnight, we have AI running in the background for many of the CT scans we acquire.”

Dr. Mattox said he is intrigued by the potential for AI to guide surgeons through unfamiliar operations, draft the operative report after a case, and augment surgeon decision-making, “Using artificial intelligence, you can get assistance instantaneously.”



Interventional radiologist Jeffrey A. Leef, MD, and Dr. Ken Wilson (right) prepare a trauma patient for intervention in the angiography suite.

Augmented reality could improve the interoperability of abdominal trauma care, Dr. Wilson said. In a complex, multidisciplinary environment like the trauma bay, augmented reality could improve the surgeon's ability to simultaneously tap different information technologies and software applications to optimize patient care.

Also, surgeons could use augmented reality goggles in the OR to get a real-time consultation with a surgeon in another part of the world. These goggles will be able to interact with the environment, pull up relevant information, or even offer guidance via AI.

Staying Current

Abdominal trauma care is evolving fast, and staying current means rethinking old habits, embracing new tools, and building multidisciplinary agility.

Monitoring performance data and comparing performance to others is one way to stay ahead of the game.

To keep up to date, surgeons should read relevant books and articles and attend conferences, such as the ACS Clinical Congress, Dr. Mattox suggested. "Meeting in the hallway, talking over problems and case management—it really keeps one current."

Dr. Zane also would like to see more institutional support for hybrid models and interdisciplinary collaboration. "We're building these relationships so we learn what we can offer each other," she said. "It's an exciting time for trauma care." **B**

Jim McCartney is a freelance writer.

References

1. Qamar SR, Evans D, Gibney B, Redmond CE, Nasir MU, Wong K, Nicolaou S. Emergent comprehensive imaging of the major trauma patient: A new paradigm for improved clinical decision-making. *Can Assoc Radiol J*. 2021;72(2):293-310. Epub 2020.
2. Chu M, How N, Laviolette A, et al. Delayed laparoscopic peritoneal washout in non-operative management of blunt abdominal trauma: A scoping review. *World J Emerg Surg*. 2022;17(1):37.
3. ACS TQIP Best Practices Guidelines in Imaging. 2018. Available at: https://www.facs.org/media/oxdjw5zj/imaging_guidelines.pdf. Accessed May 5, 2025.
4. Rhee P, Holcomb JB, Zangbar B. Evolving epidemiology of increasing trauma deaths in the United States (2000–2020). *Annals of Surgery*. 2025;281(6):976-981.
5. Padia SA, Ingraham CR, Moriarty JM, Wilkins LR, Bream PR Jr, Tam AL, Patel S, McIntyre L, Wolinsky PR, Hanks SE. Society of Interventional Radiology Position Statement on Endovascular Intervention for Trauma. *J Vasc Interv Radiol*. 2020;31(3):363-369.e2.
6. Liagos GT, Chouliaras C, Papadopoulos A, Vagianos C. Successful non-operative management of multi-trauma patient suffering from multiple intra-abdominal injuries—A case report. *Trauma Cases and Reviews*. 2019;5(3).
7. Wafa A, Elsagier M, Friwan R, Baio A. Role of laparoscopy in abdominal trauma. *Int J Surg Res Pract*. 6:100.
8. Tatum D, Pereira B, Cotton B, Khan M, Brenner M, Ferrada P, et al. Time to hemorrhage control in a hybrid ER system: Is it time to change? *Shock*. 2021;56(1S):16–21.
9. Wada D, Maruyama S, Yoshihara T, Saito F, Yoshiya K, Nakamori Y. Hybrid emergency room: Installation, establishment, and innovation in the emergency department. *Acute Med Surg*. 2023;10(1):e856.
10. Leibner E, Andreae M, Galvagno SM, Scalea T. Damage control resuscitation. *Clin Exp Emerg Med*. 2020;7(1):5-13.
11. LaGrone LN, Stein D, Cribari C, Kaups K, et al. American Association for the Surgery of Trauma/American College of Surgeons Committee on Trauma: Clinical protocol for damage-control resuscitation for the adult trauma patient. *J Trauma Acute Care Surg*. 2024;96(3):510-520.
12. Ascenti V, Ierardi AM, Alfa-Wali M, Lanza C, et al. Damage control interventional radiology: The bridge between non-operative management and damage control surgery. *CVIR Endovasc*. 2024;7(1):71.



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Surgical Adhesions Improvement Project **Advances Disease Science**

M. Sophia Newman, MPH

The ACS is making strides in understanding and acting to heal intraperitoneal adhesions (IA) via the Surgical Adhesions Improvement Project.

AFTER AN INITIATING EVENT last autumn, the project has rapidly advanced multiple scientific inquiries into understanding, preventing, and treating the surgical adhesions that affect as many as 93% of all patients who undergo abdominal or pelvic surgery.

The Summit

In September 2024, the ACS held a meeting that brought together experts from nearly a dozen countries for 2 days of scientific presentations and extended discussion on numerous aspects of surgical adhesions, ranging from epidemiology to assessment instruments, effective and ineffective methods of prevention, and the biology behind adhesion formation, prevention, and cure. Summit invitees included abdominal and gynecological surgeons, biomedical engineers, molecular biologists, and other laboratory researchers, in addition to Peter and Marshia Carlino, the philanthropists whose generous donation funded the event and established research grants.¹

“Like in other niche areas of research, we want to gather as many people who are interested in being a part of this network as possible,” explained Samuel P. Carmichael II, MD, PhD, FACS, a trauma surgeon at Wake Forest University School

of Medicine in Winston-Salem, North Carolina, and one of the Surgical Adhesions Improvement Project’s key contributors.

“It’s a tall order to bring multiple people from multiple disciplines to the same table to agree upon anything,” Dr. Carmichael added. “But at the same time, I think the scope of the problem is too broad for just one discipline.”

In the months since the summit, the work has been solidified with the establishment of the Surgical Consortium on Adhesions Research (SCAR) Advisory Group,² a group of 11 surgeons guided by Clifford Y. Ko, MD, MS, MSHS, FACS, Senior Vice President of the ACS Division of Research and Optimal Patient Care. Acting as a core organizing group, the SCAR Advisory Group serves to increase the momentum of the Surgical Adhesions Improvement Project, while also ensuring that the larger cluster of experts can continue to engage with the specific work it carries out. The group already has published its first article, a summary of the summit available in the May 2025 issue of the *Journal of the American College of Surgeons*.³

Fragmented Approach to Treatment and Research

The extended conversation at the summit helped its attendees understand the scope of the existing research on and treatment options for surgical adhesions. The general outcome was an acknowledgment of useful but disjointed and insufficient work by a wide range of scientists, with suboptimal impact on clinical practice and many unknown details. Summit attendees also described the extent of the condition in most patients, the full pathophysiology of adhesion formation, and effective methods by which adhesions can be prevented or cured.¹

Some basics of surgical adhesions are clear. Adhesions occur in as many as 93% of abdominal or pelvic surgical patients,⁴ as well as a minority of patients who have not had surgery but have experienced abdominal or pelvic infection or inflammation via disease processes

(e.g., Crohn disease) or certain nonsurgical treatments of the abdomen (e.g., radiation therapy).

Because surgical adhesions are so common, no specific procedure or type of patient can be considered exempt from risk. Despite this fact, some surgeries and patient attributes are associated with the heightened likelihood of adhesion formation.

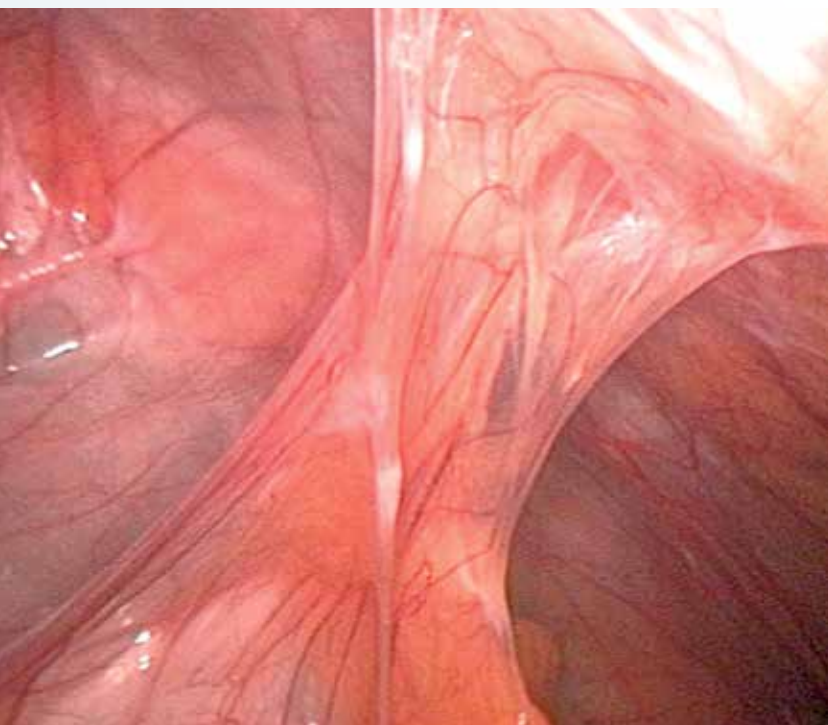
At the summit, Richard ten Broek, MD, PhD, of Radboud University in Nijmegen, the Netherlands, relayed risk factors for readmissions for adhesion care, including having open (as opposed to laparoscopic) surgery, which tripled the hazard of readmission for adhesions directly related to prior surgery; having colorectal surgery, which increased the hazard nearly seven times; and being female, which raised it 14% over the rate for male patients. Repeated or emergency surgeries also are associated with heightened risk of IA.⁵

Other apparent distinctions make less difference; for example, the risk of adhesion formation in patients undergoing gynecological surgery versus the risk in those having abdominal surgery is approximately the same. In part, this is because the “systems that really form an adhesion,” per Dr. Carmichael, “can go absolutely everywhere in the abdomen. In a lot of cases, it can be, if you will, a cavity problem,” with complications from pelvic surgery extending into the abdomen and vice versa.

Nonetheless, gynecological surgeons have engaged with surgical adhesions research to a somewhat larger extent than general surgeons with practices focused on the abdomen. The nature of complications in the pelvic region, which include infertility and localized pain, and the relationship between gynecological surgeons and patients, which can be more long-lasting than those of general surgeons and their patients, contribute to gynecological surgeons’ somewhat stronger engagement with this condition.

At the summit, Rudy Leon de Wilde, MD, PhD, the medical director of the Clinic for Gynecology, Obstetrics, and Gynecological Oncology at Pius-Clinic Oldenburg in the University of Gottingen in

This image shows an intraperitoneal surgical adhesion.





Forthcoming Research Papers from the Surgical Adhesions Improvement Project

- Scoping review of scoring methodologies for assessing IA
- Creation of an intraperitoneal scoring system via a modified Delphi approach
- Patient-reported outcome measures for IA
- Systematic review and meta-analysis of the efficacy of prophylactic agents for preventing adhesive small bowel obstruction
- Developmental roadmap toward abdominal adhesion prevention technologies

Germany, explained, “In the case of general surgeons, you only see the patients back if they have a bowel obstruction, but this percentage is much lower than the patients who have problems getting pregnant or having pelvic pain. So fewer patients are going back to the general surgeon.”

For Dr. de Wilde, this explained the absence of attention to surgical adhesions by many surgeons. “For a long time, general surgeons have not recognized the adhesions as a complication, because it’s difficult to accept that what we are doing is provoking complications. The first step is the awareness and acceptance that what we are doing also causes problems.”

Adding Rigor and Clarity

At present, consolidating and improving upon the instruments currently available for assessing and measuring surgical adhesions is an important early step.

A not-yet-published review presented at the summit¹ by SCAR Advisory Group leaders Melinda Maggard Gibbons, MD, MSHS, a general surgeon, and Tara Russell, MD, MPH, PhD, FACS, a colorectal surgeon, both from the Department of Surgery at the University of California, Los Angeles, conveyed the scattershot use of scoring instruments. Dr. Maggard Gibbons explained that the aim of this review is to facilitate the creation of a definitive assessment option, usable by all surgeons operating in the abdomen or pelvis, to standardize the intraoperative description and classification of adhesions.

She clarified that this instrument is currently conceptualized as including a brief option for clinical use and a longer, more detailed tool for research purposes. The effort has been underpinned by a modified Delphi process, begun at the summit and now close to completion, which uses repeated rounds of surveying and discussion to coalesce and solidify current evidence from the literature along with expert opinion.

Widespread use of the resulting assessment tool can then improve shared understanding among clinicians

and researchers of IA, facilitating advancements in care quality as well as further research. “I think the development of that instrument is going to be critical to understanding the behavior of adhesions within the individual, purely from a clinical context,” Dr. Carmichael said.

The group also is exploring existing patient-reported outcome measures (PROMs) for adhesive disease with the goal of generating a definitive list for publication for both clinical and research use. “If we don’t know what it’s like to live with this disease process, then I think that we’re going to be lacking in our end points or outcome measurements,” Dr. Carmichael explained.

Dr. Maggard Gibbons detailed the PROMs the group has identified thus far: a list of symptoms including abdominal pain, pelvic pain, bloating, impairments in bowel function, symptoms of obstruction, food restriction, and disease-specific and general quality of life measures.

She noted, however, that this list is limited in its utility by the symptoms’ lack of specificity to IA. They overlap symptoms of the underlying health conditions, such as inflammatory bowel disease, cancer, and other gastrointestinal issues, that may exist alongside the adhesions and in fact may have prompted the operations that originally caused adhesions to form. (An analogous difficulty exists with respect to diagnosis of IA, where standard imaging and blood tests also offer insufficient clarity.⁵)

“It’s just hard because adhesions impact a lot of the disease processes, obviously,” Dr. Maggard Gibbons said.

The same mechanisms that permit wound healing after surgery are the ones that cause adhesions to form, and addressing adhesions therefore risks impeding wound healing.

Seeking Opportunities

The difficulty caused by overlaps continues in another key aspect of the work: the laboratory science defining IA physiology and the development of agents that can prevent or heal surgical adhesions in patients undergoing abdominal or pelvis surgery. Here, the issue is biological. The same mechanisms that permit wound healing after surgery are the ones that cause adhesions to form, and addressing adhesions therefore risks impeding wound healing. The possible complications include infection risk, an issue that has thwarted a number of medication-based management efforts. Valid methods of prevention and cure, then, must seek out the biological niches between the processes of healthy wound healing and fibrotic adhesion formation. This effort is made more challenging by an underlying physiological process that is not yet fully known.

“The things we don’t want is to make wound healing worse or make infection worse,” Dr. Carmichael said. “Where is the opportunity? From a biological standpoint, I’m not sure.”

The summit included multiple researchers delineating proposed preventative agents that had been shown not to work. Dr. de Wilde’s presentation, for example, listed nonsteroidal anti-inflammatory drugs, antibiotics, fibrinolytics, and corticosteroids as ineffective, with corticosteroids having particularly negative implications for infection and sepsis. He noted some clear mechanisms for ineffectiveness, including drugs not reaching or not remaining long enough at the relevant site, as well as drugs negatively influencing epithelization.

Although most summit attendees said they used barrier films for adhesion prevention while operating, Drs. Maggard Gibbons and Russell noted that existing products had mixed results. Their data

suggested that Seprafilm (Baxter) is not associated with a lower rate of small bowel obstruction, while Guardix (Dongsung Chemical) is.

Most summit attendees had experience with and thoughts about a range of medical products. Outside of the event, researchers recently published research on interventions ranging from vitamin C supplementation⁶ to polyvinyl alcohol sponges⁷ to (in the case of Dr. Carmichael) human placental stem cell-based therapies.⁸ As a result, the SCAR Advisory Group has followed up by creating a systematic review and meta-analysis of clinically available prophylactic options for adhesive small bowel obstruction, with a particular focus on their effectiveness.

In addition, the group is creating a research paper that details the development of new technologies, Dr. Carmichael shared. Via an iterative process, it focuses on multiple considerations of prophylactic creation and challenges to biological and product development. The paper also will include inputs on regulatory science from a professional formerly with the US Food and Drug Administration.

Pursuing Laboratory Science

Finding further opportunities also will require the pursuit of scientific understanding of the physiology of adhesion formation and healing, as well as the biomedical engineering necessary to create efficacious interventions.

To that end, the Carlino Family, whose philanthropy was motivated by their son’s experience with IA, has provided funding for three grants of \$100,000 each. These awards will be provided to scientists over 2 years for research projects exploring the biology of adhesive disease and/or the development of medical products that may provide means of prevention or cure.

There are many possible pathways for the scientists who are awarded these grants. Investigations may focus on the innate immune system, peritoneal mesothelial cells, and/or coagulation system that together can generate scar tissue and fibrosis across the peritoneal cavity. These studies may pursue insights into underlying genetics, the involvement of specific proteins, the role of inflammation, and much more. In addition to examining the complex physiological processes by which adhesions are formed, studies may focus on identifying specific targets for drugs to prevent or ameliorate adhesions, evaluating the performance of such drugs, and developing and assessing mechanisms of drug delivery.

Optimism

No matter the approach of these studies, there are many surgeons whose work will be informed by the project. “This is a quintessential shared experience if you operate in the abdomen,” Dr. Carmichael noted of encountering surgical adhesions—which means whatever strides forward are made will be applicable to many surgeons’ routine clinical practices.

Dr. Maggard Gibbons noted that change may not come quickly. “It does take a long time when you find something successful to put it into practice; that’s not a quick turnaround time. But to me, there was a lot of optimism at the summit that we can make improvements. We are hopeful about the future for this sometimes very chronic, debilitating problem for patients.” **B**

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References

1. Newman MS. Surgical Adhesions Summit Launches Ambitious Improvement Project. Published October 9, 2024. <https://www.facs.org/for-medical-professionals/news-publications/news-and-articles/bulletin/2024/october-2024-volume-109-issue-9/surgical-adhesions-summit-launches-ambitious-improvement-project/>. Accessed April 29, 2025.
2. American College of Surgeons. Surgical Consortium on Adhesions Research Advisory Group. No date. <https://www.facs.org/media/iyuja2kt/surgical-consortium-on-adhesions-research-advisory-group-scar.pdf>.
3. Carmichael S, Wiseman D, Foster D, et al; Surgical Consortium on Adhesions Research (SCAR) Advisory Group. Proceedings of the American College of Surgeons Surgical Adhesions Improvement Project Summit. *J Am Coll Surg*. 2025;240(5):812-819.
4. Al-Husban N, Elayyan Y, El-Qudah M, Aloran B, Batayneh R. Surgical adhesions among women undergoing laparoscopic gynecological surgery with or without adhesiolysis—prevalence, severity, and implications: Retrospective cohort study at a University Hospital. *Ther Adv Reprod Health*. 2020;14:2633494120906010.
5. Welle NJ, Sajjad H, Adkins A, Burns B. Bowel adhesions. Published March 11, 2023. <https://www.ncbi.nlm.nih.gov/books/NBK470544/>.
6. Kitundu JH, Mashauri HL. Clinical implications of postsurgical adhesions and fibrosis: The role of vitamin C in prevention and control. *Health Sci Rep*. 2025;8(2):e70393.
7. Koo DC, Scalise PN, Ostertag-Hill CA, et al. Polyvinyl alcohol sponges reduce intraperitoneal adhesions after abdominal surgery. *J Surg Research*. 2025;308:183-192.
8. Carmichael SP, Chandra PK, Vaughan JW, Kline DM, Holcomb JB, Atala A. Human placental stem cell–based therapies for prevention of abdominal adhesions: A prospective randomized preclinical trial. *J Trauma Acute Care Surg*. 2025;98(1):78-86.

WHIPPLE'S WHIPPLES

**Insulinomas Changed
the Course of
Hepatopancreatobiliary
Surgery**

Brendan P. Lovasik, MD



Descriptions of the pancreas gland can be traced back to ancient medicine.

IN 1500 BCE EGYPT, the Ebers Papyrus described the clinical features of diabetes mellitus. In the 4th century BCE, the Greek physician Herophilus, known as “the Father of Anatomy,” described a nameless, glandular structure in the retroperitoneum.^{1,2} In the 1st century CE, Greek physician Aretaeus of Cappadocia provided the first named description of diabetes mellitus. In 100 CE, Rufus of Ephesus first named

the pancreas (from the Greek *pan* “all” and *creas* “flesh”).^{1,2} In the 2nd century CE, the prominent Roman physician Galen described the pancreas in his writings as an attachment for the omentum.^{1,2}

In 1541, the famed Dutch anatomist Vesalius described the pancreas briefly as a “glandulous body” in his text *Epitome*, though he did not postulate its function or utility.¹ He wrote, “The stem [of the portal vein] is divided into

two trunks; the right one [the superior mesenteric vein], which is larger, is carried in various ways through the mesentery and is offered to the intestines (first the duodenal intestine); the right trunk also presents a branch to the beginning of the jejunum. The right trunk is supported by a glandulous body stretched out in this region of the intestines.”

The pancreatic duct was first described by Dutch anatomist Johann Wirsung in 1642.¹

Allen O. Whipple,
MD, FACS (1881–
1963)



William Stewart Halsted, MD, FACS(Hon) (1852–1922) (Credit: US National Library of Medicine. Photo by John H. Stocksdaile.)

Wirsung wrote of the duct, “Should I call it an artery or a vein? I never found blood in it, but a turbid fluid which stains a silver probe like bile. What this may be, what function and action it has, is unclear, and I do not know.” Ironically, this ductular structure that Wirsung did not know the function of would later be eponymously named after him.

Early Pancreatic Operations from Surgical Pioneers

The earliest described pancreatic resections were performed by some of the foremost surgeons of their times; however, the surgeons were met with significant obstacles. One of

the first documented attempts at pancreatic resections was by Friedrich Trendelenburg (1844–1924, Germany), who performed a distal pancreatectomy with splenectomy for a spindle cell mass in 1882. The patient died on the first postoperative day.³ In 1884, Theodor Billroth (1829–1894, Switzerland) attempted two partial pancreatic resections.³ In 1886, Nicholas Senn, MD (1844–1908, US), described various operations of the pancreas in his writings, which included “Complete Section of the Pancreas,” “Complete Extirpation of the Pancreas,” “Partial Extirpation of the Pancreas,” and “External Pancreatic Fistula.”⁴ However, Dr. Senn noted the near impossibility of removing

the entire pancreas due to pancreatic exocrine insufficiency, hemorrhage from the duodenum, and duodenal ischemia.

In 1895, Emil Theodor Kocher (1841–1917, Switzerland) described a successful transduodenal retrieval of periampullary choledocholithiasis and later described his eponymous lateral mobilization of the duodenum in 1903. In 1899, William Stewart Halsted, MD, FACS(Hon) (1852–1922, US), described the first successful resection of an ampullary carcinoma at a meeting of the Suffolk Medical Society.⁵ These incremental milestones in surgical technique and perioperative management paved the way for later innovations in pancreatic surgery.



Walther Kausch: An Uncredited Innovator

Walther Kausch, MD (1867–1928, Germany), is a lesser-known innovator in the history of the pancreatoduodenectomy. In fact, Dr. Kausch performed the first pancreatoduodenectomy in 1909, more than 25 years before renowned American surgeon Allen Oldfather Whipple, MD, FACS (1881–1963), performed his operation.

Dr. Kausch was born in Königsberg, Prussia, and completed his medical education in Strasbourg in 1890. Following his initial training in psychiatry and internal medicine, he was recruited to Breslau by Jan Mikulicz-Radecki, MD, to complete his surgical training.

(Dr. Kausch would later marry Dr. Mikulicz-Radecki's daughter.) Afterward, he moved to Berlin to become chair of surgery at the Auguste-Viktoria-Krankenhaus.

In 1909, Dr. Kausch described the first successful pancreatoduodenectomy as a two-stage procedure for an ampullary carcinoma.⁶ The first operation, on June 15, 1909, was a biliary diversion procedure as a cholecystoenterostomy. Dr. Kausch shared, “At exploration, I felt a bean-sized lump in the papilla on transduodenal palpation, which obviously was not a gallstone. There was no evidence of metastatic disease. A cholecystojejunostomy was performed. Icterus improves and

patient gains weight to the tune of half a kilogram.”

Approximately 2 months later, on August 21, 1909, he undertook the second stage of the operation as a pancreatoduodenectomy followed by reconstruction with a gastrojejunostomy and pancreatoduodenostomy. Dr. Kausch described this procedure: “Adhesions from prior operation add to the difficulty. After Kocherization, I verified resectability. Having confirmed that it was resectable, I went on to fashion a gastroenterostomy, close the pylorus, resect the duodenum and part of the pancreatic head, which was the size of a walnut, ligate the choledochus, suture the cut end of the duodenum to the pancreas.”

Walther Kausch, MD
(1867–1928)

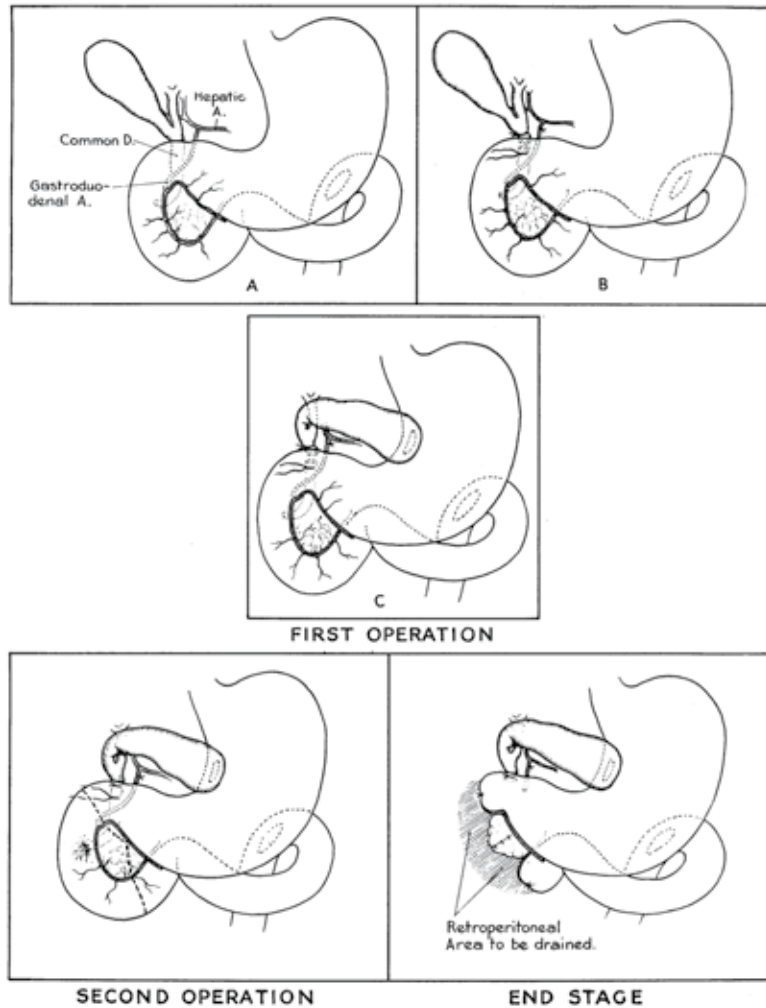


FIG. 2.—Consecutive steps in the two stages of the operation.

This figure was taken directly from Dr. Whipple's paper describing his two-stage surgical technique in 1935.

The significance of Dr. Kausch's procedure was largely lost on surgical nomenclature, though some have advocated for the name "Whipple-Kausch" procedure to be included in the eponym.

Dr. Whipple: A Pancreatic Pioneer

"The surgery of the pancreas had been more or less an unexplored field so far as the tumors of that organ were concerned. The very recent recognition of tumors of the islet cells of the pancreas, which gave a clinical picture identical to that caused by an overdose of insulin by the islet cells of these tumors—had intrigued me greatly," said Dr. Whipple.

Dr. Whipple is one of the 20th century's major innovators in pancreatic surgery. He was born in Oromia, Persia in 1881, as his parents were serving as American Bible Society missionaries. His family had American roots, with a connection to William Whipple (1730–1785), who was a signer of the US Declaration of Independence. Dr. Whipple's middle name, "Oldfather," was the last name of his parents' close family friends while living in Persia (and is a frequent surgical trivia question for surgical residents in the OR).

As a child, Dr. Whipple spoke fluent English, French, Armenian, Syrian, Turkish, and Persian. In 1896, he moved to Duluth,

Minnesota, where he completed his high school education. He attended Princeton University in New Jersey from 1900 to 1904 and spent his junior summer observing in the surgical clinic of David Graham, MD, FACS, in Evanston, Illinois.

Dr. Graham was the father of Evarts A. Graham, MD, FACS, a fellow Princeton alumnus who was studying at Rush Medical College in Chicago, Illinois. Dr. Evarts Graham would later serve as ACS President (1940–1941) and chair of surgery at Washington University in St. Louis, Missouri (1919–1951). He also was a founding member of the American Board of Surgery and performed the first pneumonectomy for carcinoma of

“None of us is too young to be aware of the timidity with which surgeons in general have approached any radical interference on the pancreas.”

Dr. Evarts Graham

the lung. Dr. Evarts Graham also was the first to statistically prove the increased risk of lung cancer in cigarette smokers.

Dr. Whipple attended medical school at Columbia University in New York from 1904 to 1908, and he completed his surgical residency at New York Presbyterian Hospital from 1909 to 1915. He served as chair of surgery at Columbia from 1921 to 1946 and was the first to offer Charles Drew, MD, a pioneering surgeon and researcher, a position in academic surgery.

The field of pancreatic surgery began as a curative treatment for insulin-secreting tumors of the pancreas. Unlike other pancreatic tumors, “insulinomas” represented a targetable pathology, as the diagnosis was straightforward, predictable, did not rely on radiography or physical examination, and was a new indication for abdominal operations.

The insulin molecule and its function were first discovered by Nobel Prize winners Frederick Banting, MD, and Charles Best in Toronto in 1922. In October 1926, William J. Mayo, MD, FACS, who served as ACS President from 1917 to 1920, performed a total pancreatectomy for an insulin-secreting carcinoma. The patient was a surgeon who was affected by profound hypoglycemia, and he initially was treated with continuous duodenal dextrose feedings.

The patient tolerated the procedure well but had persistent

postoperative hypoglycemia that was found to be metastatic insulinoma to the liver and kidneys; the patient died in January 1927. In 1929, Roscoe Graham, MD, performed the first surgical excision of a pancreatic insulinoma in Toronto.⁷

From 1933 to 1935, Dr. Whipple reported his case series on insulinoma resections of eight tumors in six patients. He described a typical and essential triad:

1. An attack of nervous or gastrointestinal disturbances appearing in the fasting state
2. Associated hypoglycemia (with readings below 50 mg/dl)
3. Relief occurring immediately by ingestion of glucose

Without this triad of symptoms, Dr. Whipple argued that the patient should not be considered a candidate for an operation.

In 1935, Dr. Whipple presented the first reported cases of pancreatoduodenectomy with compete duodenal excision as a two-stage procedure among three patients at an American Surgical Association meeting.⁸ The first patient died within 30 hours postoperatively from anastomotic breakdown, the second patient died at 9 months postoperatively from cholangitis, and the third patient died at 24 months from liver metastases.

The discussants for Dr. Whipple's presentation were Damon Pfeiffer, MD, FACS, and Dr. Evarts Graham, who stated: “It is very

fitting, however, that the Society should recognize the importance of this contribution because it is quite apparent that a new and brilliant chapter is being added to the surgery of this condition. None of us is too young to be aware of the timidity with which surgeons in general have approached any radical interference on the pancreas.”

On March 8, 1940, Dr. Whipple performed the first one-stage pancreatoduodenectomy.⁹ In spring 1940, a group of European surgeons was visiting surgical clinics in the US, and Dr. Whipple hosted the group, affording them the opportunity to watch him perform an operation from the amphitheater.¹⁰

The patient was a 53-year-old woman with a preoperative diagnosis of a gastric antral mass. Only after the stomach was divided (without opening lesser sac), Dr. Whipple was “astonished and chagrined” to discover that the tumor was located in the head of pancreas.¹¹ The planned distal gastrectomy was converted to one-stage pancreatoduodenectomy with antecolic gastrojejunostomy and choledochojejunostomy (as the gallbladder had been previously removed).

Dr. Whipple did not perform a pancreatojejunostomy but rather tied off the pancreatic duct. The patient did well, and the pathology on the specimen, appropriately for Dr. Whipple's career, demonstrated a non-functioning islet cell carcinoma.⁹



As a result of this operation, he advocated for the one-stage procedure due to its three primary benefits:

1. The advent of vitamin K (which first became commercially available in 1939) meant that biliary diversion was no longer required for coagulopathy correction.
2. This approach avoided adhesion formation from repeat operation.
3. A choledochojejunostomy avoided the pitfalls of a cholecystoenterostomy.

Dr. Whipple would go on to perform 37 pancreatoduodenectomies in his career, including 30 for cancer. In 1941, Verne Hunt, MD, FACS, from the University of California, Los Angeles, described the pancreatoduodenectomy and completed the first planned one-stage Whipple operation that we know today.⁴

In 1942, Dr. Whipple began performing duct-to-mucosa pancreaticojejunal anastomoses to his procedures. Later, he described steps in his operative approach:¹¹

- At least 2 days of vitamin K and bile salts therapy.
- The distal half of the stomach, the entire duodenum, the terminal portion of the common duct, and the head of the pancreas were removed en masse.

- Vertical limb of the jejunum, starting at the duodenojejunal junction, was brought up through a rent in the mesocolon, behind the colon, with the following anastomoses in sequence:

- Choledochojejunostomy, end to end.
- Anastomosis between the pancreatic duct and the wall of the jejunal opening the size of the pancreatic duct, followed by the tacking of the stump of the resected pancreas to the wall of the jejunum.
- End-to-side gastrojejunostomy. A sump drain in the bed of the duodenum was used. Silk technic was employed throughout.

Dr. Whipple's Later Career

Dr. Whipple's professional trajectory was highlighted by further revolutionary surgical innovations. In collaboration with Arthur Blakemore, MD, Dr. Whipple developed the portocaval shunt procedure for portal hypertension in 1945,¹² and he performed 60 portocaval shunts by his retirement.⁹

During World War II, he was appointed to the medical committee of the National Research Council and chaired the Committee on Burns and Contaminated Wounds. Dr. Whipple studied the use of penicillin as a safe antibiotic for treating various

infections and the "second set" immune phenomenon (now known as sensitized/memory immune response) for skin grafts in the Glasgow Royal Infirmary Burn Unit.

Dr. Whipple also served as a consulting surgeon for the North African campaigns along with Edward D. Churchill, MD, FACS, from Massachusetts General Hospital in Boston. After the war, Dr. Whipple was the clinical director of the Memorial Hospital in New York (now Memorial Sloan Kettering Cancer Center) and served as a trustee of Princeton University and the American University in Beirut from 1941 to 1963.

Modern surgeons have continued to refine these techniques and expedite perioperative care for their patients. Charles Garner Child III, MD, FACS (1908–1991), reported the first pancreatoduodenectomy with en-bloc portal vein resection in 1952, which expanded the scope of resectability in pancreatic tumors.¹³

With regard to further improvements in pancreatojejunostomy technique, Richard Cattell, MD, FACS (1900–1964), and Kenneth Warren, MD (1911–2001), first described their eponymous two-layer pancreatojejunostomy in 1953.¹⁴ Leslie Blumgart, MD, FACS (1931–2022), and David Kooby, MD, FACS, reported the eponymous Blumgart pancreatojejunostomy



anastomosis in the *Journal of the American College of Surgeons* in 2010.¹⁵

Pancreatic surgery has a rich and colorful history and includes contributions from several trailblazing surgical leaders. The legacy of the pancreatoduodenectomy demonstrates the application of centuries of dedicated anatomical, pathologic, and surgical study to produce an elegant operation to treat diseases of the pancreas. **B**

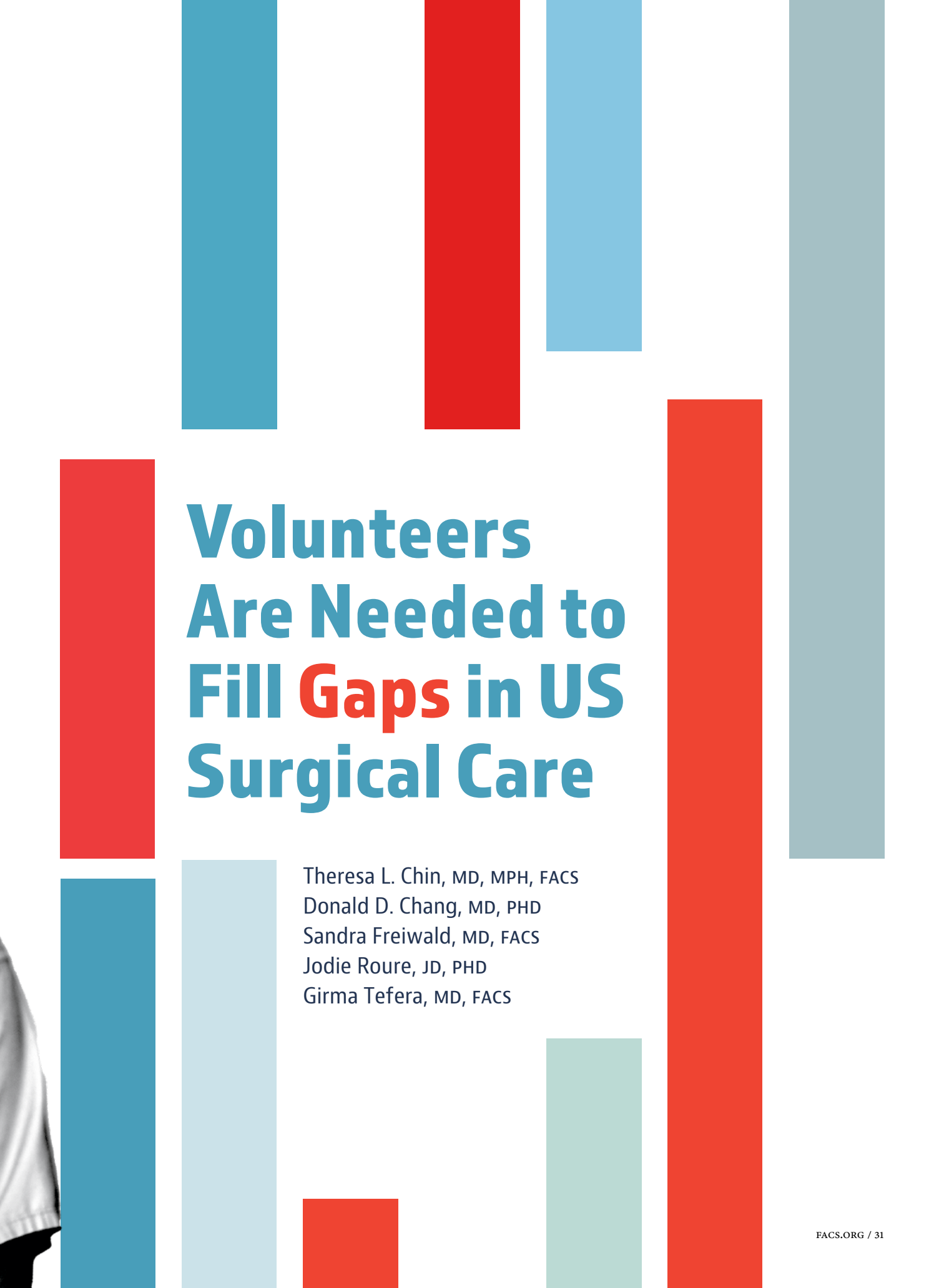
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References

1. Busnardo AC, DiDio LJ, Tidrick RT, Thomford NR. History of the pancreas. *Am J Surg*. 1983;146(5):539-550.
2. Tsuchiya R, Kuroki T, Eguchi S. The pancreas from Aristotle to Galen. *Pancreatol*. 2015;15(1):2-7.
3. Schnelldorfer T, Adams DB, Warshaw AL, Lillemoe KD, Sarr MG. Forgotten pioneers of pancreatic surgery: Beyond the favorite few. *Ann Surg*. 2008;247(1):191-202.
4. Are C, Dhir M, Ravipati L. History of pancreaticoduodenectomy: Early misconceptions, initial milestones and the pioneers. *HPB (Oxford)*. 2011;13(6):377-384.
5. Halsted WS. Contributions to the surgery of the bile passages, especially of the common bile-duct. *Boston Med Surg J*. 1899;(141):645-654.
6. Kausch W. Das Carcinom der Papilla duodeni und seine radikale Entfernung. 1912;78:439-486.
7. Piper CC, Yeo CJ, Cowan SW, Roscoe Reid Graham (1890 to 1948): A Canadian pioneer in general surgery. *Am Surg*. 2014;80(5):431-433.
8. Whipple AO, Parsons WB, Mullins CR. Treatment of carcinoma of the ampulla of Vater. *Ann Surg*. 1935;102(4):763-779.
9. Whipple AO. Pancreaticoduodenectomy for islet carcinoma: A 5-year follow-up. *Ann Surg*. 1945;121(6):847-852.
10. History of Medicine: Whipple's Improvised Breakthrough. Columbia University. Available at: <https://columbiasurgery.org/news/2015/11/12/history-medicine-whipples-improvised-breakthrough>. Accessed April 3, 2025.
11. Whipple AO. A reminiscence: Pancreaticoduodenectomy. *Rev Surg*. 1963;20:221-225.
12. Blakemore AH. Portacaval anastomosis for portal hypertension. *Surgery*. 1949;26(1):99-102.
13. Child CG 3rd, Holswade GR, McClure RD Jr., Gore AL, O'Neill EA. Pancreaticoduodenectomy with resection of the portal vein in the Macaca mulatta monkey and in man. *Surg Gynecol Obstet*. 1952;94(1):31-45.
14. Warren KW, Cattell RB. Basic techniques in pancreatic surgery. *Surg Clin North Am*. 1956;36(3):707-724.
15. Grobmyer SR, Kooby D, Blumgart LH, Hochwald SN. Novel pancreaticojejunostomy with a low rate of anastomotic failure-related complications. *J Am Coll Surg*. 2010;210(1):54-59.

Dr. Allen Whipple
(Credit: Archives & Special Collections, Columbia University Health Sciences Library)





Volunteers Are Needed to Fill **Gaps** in US Surgical Care

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The US often is hailed as the land of opportunity. We pride ourselves on the “American Dream,” where hard work can transform humble beginnings into success and financial freedom.

YET, THIS HOPEFUL NARRATIVE obscures a harsher reality, where ordinary American citizens struggle to gain access to healthcare, particularly surgical care. Many readers of the *ACS Bulletin* likely will have encountered an uninsured patient in the emergency room who requires surgical follow-up but lacks resources and cannot be scheduled for an outpatient case.

Ensuring access to surgical care for uninsured patients is not only a moral imperative but also a benefit to the broader community. Several studies have highlighted the financial advantages of outpatient procedures such as herniorrhaphy and cholecystectomy. The benefits include reduced emergency room and urgent care visits, avoidance of emergent surgeries resulting from disease progression, and faster returns to productivity. Together, these factors contribute to significant economic gains for the communities involved. Moreover, volunteering and giving back can help combat physician burnout—an epidemic that is escalating in our medical communities.

A quick online search for surgeon volunteer opportunities reveals the scarcity of domestic surgical volunteer roles, while in contrast, numerous opportunities exist to participate in surgical mission trips abroad.

Taking these realities into account, why is it so challenging to help those in need of surgical care within our country? The short answer is: it's complicated.

Challenges of Domestic Surgical Volunteerism

There are barriers within the US healthcare system that limit the ability of organizations and individuals to provide surgical care to the uninsured and underinsured. Outpatient surgical consultation is considered specialty care and often requires prior authorization from insurers, including Medicaid. Furthermore, where these patients receive care also is limited and often dictated by insurers.

While the government has provided various ways to assist citizens with access to healthcare, via Medicare and the Affordable Care Act, for example, the US healthcare system remains fragmented and difficult to navigate, particularly for those with poor medical literacy, language barriers, and geographical or transportation challenges.

Medical insurance premiums also are expensive, particularly for small business owners who may not have employee-subsidized premiums, leaving people to choose whether or not to pay for medical insurance coverage.



When uninsured patients have surgical emergencies, they often have nowhere to turn other than emergency departments. It is not uncommon for marginalized populations and uninsured individuals to present to emergency departments with diagnoses requiring urgent or emergent surgery, including but not limited to strangulated hernias or undiagnosed cancers that have perforated.

In these situations, emergency Medicaid reimburses hospitals for procedures needed to treat life-threatening conditions but does not cover outpatient surgeries—an apparent flaw, considering that emergency surgeries often are more costly and resource-intensive than outpatient scheduled procedures.

The question of hospital costs and payment further complicates matters. Many healthcare systems separate professional and facility fees. In other words, even if a surgeon is willing to donate their time to perform an operation, the surgery center or hospital also must be willing to donate resources, including medications, supplies, OR availability, not to mention staff, such as anesthesia providers, OR nurses, scrub technicians, a pathologist to evaluate specimens, and perioperative personnel. The question remains, however, as to how costs are covered if postoperative complications arise.

Credentialing and licensing present another challenge. If a surgeon wants to volunteer outside

their community or health system, would their credentials to perform surgery be recognized?

Currently, there is no solution to this issue across state lines, as licensing in one state is not recognized in another—a significant barrier that fundamentally disrupts efforts to collaborate and direct care to communities in need of surgeons. This circumstance also limits the ability for surgeons to volunteer in the event of a disaster as was demonstrated during COVID-19. Moreover, liability insurance is a necessity for surgeons and an additional barrier to domestic volunteerism.

Beyond hospital administration and licensing barriers, uninsured patients often are apprehensive about interacting with the healthcare system, a reality that is exacerbated by public objections toward using resources for noncitizens. Nonetheless, care must be provided, and resources must be used when patients present to safety net hospitals for urgent and emergent care.

Parallels of Domestic and International Volunteerism

International surgical volunteerism often is compared to domestic surgical volunteerism, but they are, in fact, quite different and face varying challenges with unique metrics for success.

Street medicine teams aim to provide medical and social services directly to people experiencing unsheltered homelessness.



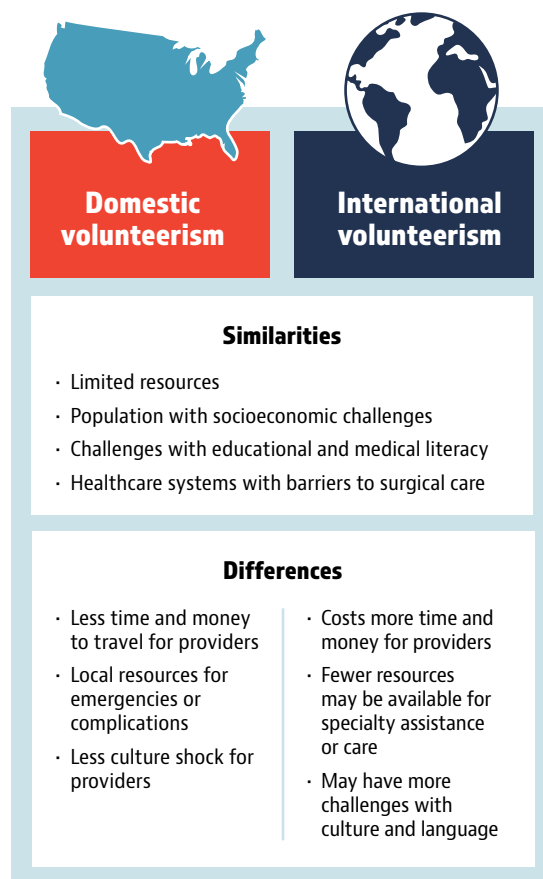
Dr. Sandra Freiwald provides wound care to a patient in Puerto Rico.

Similar to international volunteerism, domestic resources for surgical care of the uninsured and underinsured are limited. Many domestic patients are unable to access surgical care without a visit to the emergency department, and even there, they may only receive surgical services deemed to be urgent or emergent. For example, a patient with a large symptomatic reducible hernia may not be able to have a repair unless the hernia becomes strangulated.

Evidence shows that emergent operations are at higher risk for complications and longer lengths of stay, contributing to longer time away from work in an already under-resourced population. Furthermore, there may be geographical barriers for patients needing surgical care, including lack of transportation. Street medicine programs that address this barrier and meet patients where they are located can address nonoperative surgical issues, such as chronic wounds.

Differences between domestic volunteerism and international volunteerism can include less travel time and money to treat an unserved population. Surgeons can volunteer domestically for a few hours or on a Saturday morning rather than blocking a week (or more) and closing clinics and ORs, which can affect revenue or work relative value unit productivity.

Additionally, domestic volunteerism can build relationships and connections to the local community, giving a volunteer a different sense of purpose. And in



some situations, this kind of work could even lead to referrals for patients with insurance.

Success Stories of Domestic Surgical Volunteerism

Relatively well-established primary care clinics can serve as essential resources for referring patients for surgical evaluation. For example, Federally Qualified Health Centers (FQHCs) were established to manage chronic diseases such as diabetes and hypertension in underserved populations. Additionally, many states benefit from

a dedicated and passionate volunteer community of primary care providers. These include medical student-run preventive care initiatives, volunteer-driven outpatient clinics, and street medicine teams such as those in Detroit, Michigan, Orange County, California, and Nashville, Tennessee that directly engage with unhoused patients in their communities. These providers and clinics play a vital role in identifying and referring individuals for surgical care.

However, significant challenges persist in obtaining the necessary preoperative work-up, a process that can include lab tests, interpreters, healthcare navigators, and radiology imaging. With this in mind, the reality is such that these logistical hurdles often are easier to address than the more complex issue of securing access to an OR.

Perhaps most impressive are the various success stories of “free surgery” clinics in the US. A variety of programs have been created, including some modeled after the “Surgery on Sunday” program that originated in Louisville, Kentucky. Similar programs exist in the California Bay Area and in Salt Lake City, Utah.

There also are student-run, free clinics that are starting to address surgical care. One of the early domestic surgical programs was created by the ACS in partnership with Puerto Rico’s Secretary of Health, Rafael Rodríguez-Mercado, MD, FACS, along with the national nonprofit HMARIA, Inc., local FQHCs, and other community partners. This initiative offered free surgeries to underserved, uninsured populations, setting a precedent for what is possible, though it ceased operation during the COVID-19 pandemic.

The Center for Surgical Health at the University of Pennsylvania in Philadelphia helps uninsured and underinsured patients navigate the healthcare system and provides scheduling services for outpatient surgery. In Orange County, California, the Lestonnac Free Clinic partnered with an ambulatory surgery center for free surgery days and is now building an outpatient surgery center for procedures performed under anesthesia for the uninsured and underinsured.

Some programs support domestic surgical volunteerism outside of the OR. Pipeline programs such as the Health Career Collaborative and HMARIA expose high school students in lower-income areas to the medical and surgical field as a potential career pathway, offering surgeon engagement opportunities for as little as an hour a month.

With the evolution of virtual educational opportunities, surgeons can virtually engage with students and residents across the country, including Puerto Rico. Additionally, surgeons can work in the local community with advocacy and violence intervention programs.

Within the domestic subcommittee of the ACS Health Outreach Program for Equity in Global Surgery (A.C.S. H.O.P.E.), the aim is to leverage

Dr. Theresa Chin works with a street medicine team.





The Health Career Collaborative joined forces with Stanford University to launch a collaboration between East Palo Alto Academy High School and Eastside College Preparatory School in California.

the College's network to support access to high-quality surgical services for all patients in need domestically while simultaneously enhancing surgical care at the local level. Indeed, many of the subcommittee members have been instrumental in founding some of the domestic volunteer initiatives.

As the US healthcare system landscape continues to evolve, the need for equitable access to surgery and perioperative care remains. Providing access to surgical care for underserved domestic populations is essential for reducing care gaps in the US healthcare system, while also re-energizing physicians to address issues related to burnout.

If you're interested in getting involved or know of free or discounted clinics in your area, reach out to acshope@facs.org. Help us share and grow these efforts within the ACS community. **B**

Dr. Theresa Chin is a board-certified surgeon at University of California Irvine Health, specializing in emergency, burn, trauma, and critical care surgery. Her research focuses on improving outcomes in surgical patients and addressing health disparities.

Bibliography

- Evans PT, Ewing JK, Walia S, Miller RF, Hawkins AT. Implementation of general surgery care into a student-run free clinic. *J Surg Res.* 2020;255:71-76.
- Metzger T, Nguyen N, Le H, Havo D, et al. Does volunteering decrease burnout? Healthcare professional and student perspectives on burnout and volunteering. *Front Public Health.* 2024;12:1387494.
- Park FS, Pang JC, Yang CD, Breziner D, et al. Surgical care through a community free clinic-ambulatory surgical center partnership. *Am Surg.* 2024;90(12):3193-3200.
- Schelbar N, Eshete R, Nies K, Winfield RD. The creation of a free outpatient surgical clinic: A descriptive report. *Journal of Student-Run Clinic.* October 12, 2024. Available at: <https://journalsrc.org/index.php/jsrc/article/view/450/295>. Accessed April 25, 2025.

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Dr. Rohan Joseph

How Does Private Equity Affect the Delivery of Quality Care?

Rohan A. Joseph, MD, FACS

John Kelly, MD, FACS

Doug Lundy, MD, FACS

The origins of the modern private equity (PE) industry date back to the late 1940s with the creation of the first venture capital firms.

HOWEVER, it was not until the 1980s, with the changes in the regulation of the US financial and labor markets, that PE firms became prominent. The last 2.5 decades have seen explosive growth in the expansion of PE firms into the healthcare sector.

Acquisition of hospitals, ambulatory surgical centers, nursing homes, fertility clinics, imaging centers, and medical practices, as well as retail health and mobile application companies, are numerous. In 2018, the

valuation of PE deals in the US healthcare sector surpassed \$100 billion with \$1 trillion invested in the last decade.^{1,2}

As of 2022, the American Hospital Association estimated that of the 5,129 US community hospitals, approximately

one-quarter are owned by a for-profit entity.¹ Among these, PE firms now own approximately 460 hospitals, an estimated 25-fold increase over the last 2 decades.^{2,3}

Understanding How PE Works through Leveraged Buyout

The arrival of for-profit institutions and PE firms in the healthcare sector is seen as contributing to an overall investment strategy now recognized and referred to as the “financialization” of healthcare. Financialization can be described as the “transformation of public, private, and corporate entities into salable and tradable assets from which the financial sector may accumulate capital.”^{4,5}

PE firms operate using the concept of a leveraged buyout to acquire ownership of hospitals, medical practices, and similar entities. Under a leveraged buyout, the PE firm uses a small amount of capital from investors but primarily borrows a large loan (debt) to purchase a healthcare entity.

This debt is placed (leveraged) on the acquired entity, and its physical assets (i.e., land, buildings) are used as collateral for the loan. This is unlike transactions by for-profit, non-

PE firms that make similar transactions by leveraging their own capital and physical assets.

Investors in PE firms defer financial returns (capital illiquidity) and accept greater financial risk in the interim in the hopes of astronomical returns (20%–30% annualized) on the sale of the healthcare entity in 3–7 years.¹

Further, US tax policy allows the interest accrued on these loans to be treated as a deductible business expense and the profits from the sale of the entity to be taxed as capital gains (20%).

When examined from the purview of its size, stable cash-flow status, prevalence of valuable fixed assets, and recession-proof nature, the encroachment into the healthcare sector by PE firms would seem inevitable.

Benefits of PE Acquisition

PE investment into the healthcare sector can result in positive changes regarding workforce shortages, increased access to resources, and enhanced patient care. Specifically, PE acquisition can offer the following:

Capital investment

PE can provide capital investment for start-up practices to purchase office space, equipment, and improved electronic health

record processes, hire personnel, and analyze big data to handle capitated contracts. For established and thriving practices, PE may offer the opportunity to enhance one’s business footprint, increase efficiency, and expand ancillary services. The use of PE capital to invest back into the practice and generate additional cashflow without acquiring debt can be advantageous. Physician owners, wary of the economic trajectory of medicine, may find realizing future revenue to be extremely appealing.

Market consolidation

Physician groups being squeezed into a competitive market may find a PE investment as a way to remain viable through consolidation with similar practices, thereby reducing operations costs through professional management strategies and economies of scale, which they may not currently possess.

Avoiding bankruptcy

In extreme cases, certain practices may choose selling to PE rather than being acquired by the local hospital to gain financial liquidity. The stakeholders in these groups are often of the mindset that hospital acquisition is the worse choice.

Leveraged buyout

There are markets where the physicians' future earnings are legitimately in crisis. In these circumstances, a guarantee of future income "right now" may be in the practice shareholders' best interest.

Through careful investment of proceeds from the acquisition by PE firms, physicians and practices can supplement future cashflow and avoid potential catastrophic downturns in practice revenue. Undisciplined financial behavior after the windfall can leave physicians struggling to make ends meet, demonizing the PE deal.

Physicians within 10 years of retirement typically see the benefit of PE partnership, though many question the advantage of those with more than 20 years left to practice. Younger physicians need to understand that any PE revenue represents their future earnings and that responsible investment and a disciplined approach to spending is paramount for future success.

Disadvantages of PE Acquisition

Possible drawbacks of PE investment in healthcare could include diminished quality of care and increased costs as described in the following:

An overarching profit motive

Creating a short-term focus on maximizing profits for investors rather than developing long-term healthcare solutions can occur. For example, cost-cutting measures through reduced services, staff layoffs, and organizational restructuring with a focus on more profitable services at the expense of essential but less-profitable service lines. Subsequently, health outcomes and access to quality of care are adversely affected, especially in smaller cities.

Lack of transparency, accountability, and oversight

Acquisitions with conflicts of interest involving the investors and owners of PE firms allow such transactions to continue unchecked with little consequence to the PE firm when they make windfall profits at the expense of hospital foreclosures.

Access and affordability

Healthcare can diminish, as increased costs for services (to maintain a higher profit margin) are eventually passed on to patients.

Leveraged debt

The purchase of the healthcare facility puts the burden of loan repayment on the acquired institution. If an institution

cannot generate adequate revenue to repay the loan, it is forced to file bankruptcy.

Eileen Appelbaum, codirector of the Center for Economic and Policy Research, has stated that PE firms in the healthcare arena are "Turning healthcare from a social good into a commodity."³ Profits are generated by extracting wealth through complex financial manipulation schemes rather than by producing goods and services. Medicare and Medicaid payments (taxpayer funded) are thereby transferred to PE firms rather than remaining in the healthcare sector for which they were intended.

Current Legislative Action to Regulate PE in Healthcare

PE deals often involve confidentiality agreements and limited public disclosure, leading to a lack of transparency about decision-making processes, ownership, financial performance, and quality of care in healthcare institutions owned by PE firms. Until recently, legislative efforts to curtail the unfettered acquisition of healthcare entities by PE investors have been modest due to concerns of expanding regulatory overreach into the free market and the potential for partisan political abuse.

Physicians within 10 years of retirement typically see the benefit of PE partnership, though many question the advantage of those with more than 20 years left to practice.

Recently, regulatory agencies in the executive branch have turned their sights on these financial transactions in the healthcare sector given the public outcry and media scrutiny over the collapse of an iconic institution such as Hahnemann University Hospital in Philadelphia, Pennsylvania, and Steward Health, an eight-hospital consortium in Massachusetts.⁶

In 2019, the Rhode Island legislature further tightened the Hospitals Conversion Act of 1997, which states that the state department of health and the attorney general must approve any transfer of hospital ownership, assets, membership or control at or above a threshold of 20%. In Oregon, similar efforts are still underway to try and limit the amount of corporate ownership allowed in physician groups and specialty clinics.⁷

The Federal Trade Commission (FTC) held a webinar in 2024, “Private Equity, Public Impact,” which offered regulatory insight and guidance. The webinar also included testimony from patients, nurses, and physicians on the detrimental impact of PE, including the loss of employment and access to healthcare from the shuttering of hospitals that were unable to pay the leveraged debt at the time of their acquisition.⁸

The Health Subcommittee of the House Way and Means Committee held a hearing on May 23, 2024, to investigate the collapse of private practice in the US,⁹ and the House Budget Committee conducted a hearing on “Breaking Up Health Care Monopolies: Examining the Budgetary Effects of Health Care of Consolidation.”¹⁰ Surgeons testified before both committees and provided perspective on the impact of consolidation. Similarly, the Senate Budget Committee has launched an investigation into the impact of PE ownership of hospitals.¹¹

On June 11, 2024, Massachusetts Senators Elizabeth Warren and Ed Markey introduced the Corporate Crimes Against Health Care Act of 2024 to “root out corporate greed and PE abuse in the healthcare system.”¹² The legislation specifically targets the PE principals, levying criminal penalties and severe claw backs if they are found guilty. The bill also would require physicians to disclose PE investment when applying for federal funding.

Sen. Ed Markey also introduced the Health Over Wealth Act on July 26, 2024, to increase transparency and scrutiny of PE and for-profit companies that own healthcare facilities. Companion legislation in the Massachusetts House of

Representatives, promises to “restore stability to the healthcare system, bolster accountability within the industry, and control healthcare spending.”^{13,10}

On January 8, 2025, An Act Enhancing the Market Review Process (H 5159) was signed by the Massachusetts governor. It improves the state’s ability to constrain healthcare cost growth and ensures that high-quality care is both affordable and accessible. The bill strengthens oversight of the major market groups, including providers, insurers, pharmaceutical manufacturing companies, pharmacy benefit managers, for-profit entities, PE firms, real estate investment trusts, and management services organizations. The bill significantly enhances the state’s tools to safeguard the system and put patient needs first.¹⁴

In Washington state, SB 5387 was introduced by Sen. June Robinson on January 21, 2025, to prohibit unlicensed individuals or entities from owning a medical practice or influencing clinical decisions. The bill also would restrict financial and managerial arrangements that could compromise the independence of medical practices; treat violations as unprofessional conduct; and require that licensed healthcare professionals must hold the majority of voting shares and

The trend of financialization of healthcare appears unstoppable and unlikely to reverse course.

serve as the majority of directors and all officer positions except for secretary and treasurer.¹⁵

Federal and State Policy Interventions

Congress, the federal administration, or state governments could consider a variety of interventions to address concerns related to PE. These policy changes could include:

Transparency and Accountability

- Public disclosure of financial data, ownership structure, operational changes, and quality of care metrics for healthcare entities owned or managed by PE firms
- Reporting of lobbying activity and monies invested by PE firms in the healthcare sector
- Public reporting of reduction in clinical patient services in PE-owned facilities
- Public reporting on reductions in pay and benefits for staff in PE-owned facilities

Oversight and Increased Scrutiny

- Oversight of all capital sales in the healthcare market to include those under the minimum threshold of \$111.4 million (not currently reported)

- Oversight of transactions of healthcare entities who sell or lease from real estate investment trusts (REIT)
- Require that PE firms obtain a license prior to acquisition of healthcare entities
- Apply financial penalties and revoke licenses violations
- Increase scrutiny of PE firms involved in prior failed health entity acquisitions
- Monitor for fraudulent upcoding, inflated pricing, and excessive billing practices
- Increase anti-trust oversight on transactions of PE firms in the healthcare sector
- Increase staffing and funding to regulatory agencies

Financial Prudence

- Impose limits on the amount a PE firm can leverage, or amount of capital sold off without investment in the entity itself (i.e., eliminate sale/leaseback strategies)
- Ban investors from stripping assets of hospital and healthcare entities within the first 5 years of acquisition
- Set up escrow accounts that provide for 5 years of capital and operational expenses
- Close tax loopholes for REIT
- Exclude profits from the sale

of healthcare entities as capital gains, especially when the healthcare system has failed or become bankrupt

The trend of financialization of healthcare appears unstoppable and unlikely to reverse course. In most cases, PE firms have no direct expertise in managing healthcare and are looking to extract huge profits over a short term by leveraging debt and using loopholes in the tax code. Profits are extracted no matter if the acquired company becomes successful or falls into financial ruin.¹⁶

In select circumstances, PE can enhance clinical delivery, physician autonomy, and patient well-being. However, in an unregulated market PE firms have the potential to create unnecessary and even dangerous disruptions to the very public entity of healthcare.

We believe PE will eventually rely on the regulatory and judicial power of the federal and state governments to ensure thoughtful oversight and patient protection measures. Careful and thoughtful attention from state and federal government is needed in this area. **B**

Disclaimer

The thoughts and opinions expressed in this column are solely those of the authors and do not necessarily reflect those of the ACS.

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References

1. American Hospital Association. Fast Facts on US Hospitals 2025. January 2025. Available at: www.aha.org/statistics/fast-facts-us-hospitals. Accessed April 7, 2025.
2. Applebaum E., Batt R. Financialization in Health Care: The Transformation of US Hospital Systems. Center for Economic and Policy Research. September 9, 2021. Available at: <https://cepr.net/wp-content/uploads/2021/10/AB-Financialization-In-Healthcare-Spitzer-Rept-09-09-21.pdf>. Accessed April 7, 2025.
3. Private Equity Stakeholder Project. Private Equity Hospital Tracker. Available at: <https://pestakeholder.org/private-equity-hospital-tracker/>. Accessed April 7, 2025.
4. Garber J. The Rising Danger of Private Equity in Healthcare. Lown Institute. January 23, 2024. Available at: <https://lowninstitute.org/the-rising-danger-of-private-equity-in-healthcare/>. Accessed April 7, 2025.
5. Bruch JD, Roy V, Grogan CM. The financialization of health in the United States. *N Engl J Med*. 2024;390(2):178-182.
6. US House Committee on Ways and Means. Health Subcommittee Hearing on the Collapse of Private Practice: Examining the Challenges Facing Independent Medicine. May 23, 2024. Available at: <https://waysandmeans.house.gov/event/health-subcommittee-hearing-on-the-collapse-of-private-practice-examining-the-challenges-facing-independent-medicine/>. Accessed April 7, 2025.
7. Thomas J. What killed the Oregon effort to curb corporate medicine? *The Lund Report*. March 12, 2024. Available at: <https://www.thelundreport.org/content/what-killed-oregon-effort-curb-corporate-medicine>. Accessed April 7, 2025.
8. Federal Trade Commission. Private Capital, Public Impact: An FTC Workshop on Private Equity in Health Care. March 5, 2024. Available at: <https://www.ftc.gov/media/private-capital-public-impact-ftc-workshop-private-equity-health-care-march-5-2024-video>. Accessed April 7, 2025.
9. US House Budget Committee. Breaking Up Health Care Monopolies: Examining the Budgetary Effects of Health Care Consolidation. May 23, 2024. Available at: <https://budget.house.gov/hearing/breaking-up-health-care-monopolies-examining-the-budgetary-effects-of-health-care-consolidation>. Accessed April 7, 2025.
10. Warren E. Senators Warren, Markey introduce the Corporate Crimes Against Health Care Act of 2024. June 11, 2024. Available at: www.warren.senate.gov/newsroom/press-releases/senators-warren-markey-introduce-the-corporate-crimes-against-health-care-act-of-2024. Accessed April 7, 2025.
11. Senate Budget Committee. Senate Budget Committee Digs into Impact of Private Equity Ownership in America's Hospitals. Press release. December 7, 2023. Available at: www.budget.senate.gov/chairman/newsroom/press/senate-budget-committee-digs-into-impact-of-private-equity-ownership-in-americas-hospitals. Accessed April 7, 2025.
12. Warren E. 118th Congress 2D session. To Prevent Exploitative Private Equity Practices, and for Other Purposes, the Corporate Crimes Against Health Care Act. Available at: <https://www.warren.senate.gov/imo/media/doc/Corporate%20Crimes%20Against%20Health%20Care%20Act%206.11.24.pdf>. Accessed April 7, 2025.
13. Commonwealth of Massachusetts. Press room. Available at: <https://malegislature.gov/PressRoom/House>. Accessed April 7, 2025.
14. Commonwealth of Massachusetts. Fact sheet: An Act Enhancing the Market Review Process (H.5159). January 8, 2025. Available at: <https://malegislature.gov/PressRoom/Detail?pressReleaseId=167>. Accessed April 7, 2025.
15. Washington State Legislature. SB 5387-2025-26. Revised for 2nd Substitute: Concerning the corporate practice of health care. Original: Concerning the Corporate Practice of Medicine. Available at: <https://app.leg.wa.gov/bills/summary?BillNumber=5387&Chamber=Senate&Year=2025>. Accessed April 7, 2025.
16. McCluskey PD. Steward Health Care says it is under federal investigation. WBUR. July 11, 2024. Available at: <https://www.wbur.org/news/2024/07/11/steward-health-care-investigation-corruption-fraud>. Accessed April 7, 2025.



Leif Sorensen

Surgical Systems Are Built through Partnership: My Reflections from Mongolia and Cambodia

Leif M. Sorensen, BS



When I was 19 years old, I moved to Ulaanbaatar, Mongolia.

SURROUNDED BY VAST grasslands, roaming herds of livestock, and the white yurts of nomadic herders, I quickly became immersed in this unique culture. But as I moved outside the capital, I began to see a different reality—one where healthcare wasn't just limited, it was almost entirely out of reach. Many Mongolians live without running water, proper sanitation, or reliable transportation.

As I continued to live in rural communities and became fluent in Mongolian, I gained a deeper understanding of the complex barriers Mongolians faced daily, including limited access to medications, a shortage of trained physicians, and limited access to surgical care, which is typically located hundreds of kilometers away, and even then, hospitals are often severely underequipped to provide care.

In many regions, capable doctors worked in professional isolation, without resources, specialists, or a structured referral system, and yet the dedication of these providers to their patients is unwavering. They help as much as they can with the resources that are available. It was after observing these challenges that I realized I

wanted to find solutions to help.

This interest led me to Raymond Price, MD, FACS, cofounder of the Center for Global Surgery at The University of Utah in Salt Lake City, who has spent the past 2 decades expanding access to surgical care and strengthening health systems in Mongolia and around the world.

Inspired by the impact of his research, I joined Dr. Price's efforts and quickly came to understand the vital role that surgery plays in a community, and that by focusing on strengthening surgical systems, we can drive broader improvements across entire healthcare systems.

From Pilot Project to National Initiative

The introduction of the laparoscopic surgery training program in Mongolia in 2006 marked a turning point in the country's surgical development.¹ What began as a small pilot project to teach laparoscopic cholecystectomy evolved into a nationwide initiative. Through a long-standing partnership between The University of Utah and the Mongolian National University of Medical Sciences in Ulaanbaatar, laparoscopy transformed from a rare service

offered only in the capital into the national standard of care.

Built on simulation-based training, graduated surgical mentorship, and a "train-the-trainers" model, this initiative empowered Mongolian surgeons to lead and teach within their own institutions. It was more than a technical milestone—it was a demonstration of what sustained, trust-based collaboration could achieve.

That success set a larger movement in motion. Like a flywheel gaining momentum, one well-executed program began empowering others.

Dr. Raymond Price operates alongside newly trained laparoscopic surgeons at Battambang Provincial Hospital in Cambodia.



The entire hospital staff at Battambang Provincial Hospital in Cambodia gathered to observe the hospital's first-ever laparoscopic surgery.

The credibility earned through laparoscopy opened the door for national efforts in trauma training, liver transplantation, and oncology, with each building on the infrastructure and partnerships developed in the years prior.

In collaboration with the ACS Committee on Trauma, The University of Utah then launched

Advanced Trauma Life Support® (ATLS®) training in 2015, with the aim of addressing Mongolia's significant trauma burden, specifically within the context of a rural landscape.²

Focused on the unique challenges of rural trauma care in Mongolia, ATLS training was quickly adopted nationwide. In fact, this initiative provided a

strong foundation for trauma system development—one that the country is now actively building upon.

As I worked on these initiatives through contributions in the areas of translation, logistics, and data collection, I began to understand that successful global surgery work demands more than clinical expertise. I learned that lasting progress depends on aligning with national priorities, pacing interventions to match local readiness, and designing systems that respond to real-world constraints.

These lessons took on new urgency as Mongolia—facing some of the highest rates of liver and gastric cancer in the world—turned to international partners for support in strengthening its liver transplant capacity.

Mongolia's liver transplant program has been active since 2011, but its recent growth was limited by resource constraints and a lack of technical training. Working with hepatobiliary surgeons and international





experts, our team collaborated with Mongolian surgeons to update clinical pathways, refine donor and recipient protocols, and guide surgical planning.³

Between 2020 and 2023, Mongolia's transplant team doubled the total number of living donor transplants performed in the entire previous decade—rising from 100 transplants between 2011 and 2020 to 200 by early 2023, and reaching 300 by early 2025. The rapid growth reflects the power of focused investment and shared learning.

This approach became reproducibly true when, during the height of the COVID-19 pandemic, leadership at the National Cancer Center of Mongolia (NCCM) reached out to stakeholders at The University of Utah and University of Minnesota in Minneapolis for help to address the 88% mortality

rate among late-stage breast cancer patients in Mongolia.⁴

Together, through the pandemic, we launched a multidisciplinary virtual tumor board, connecting Mongolian oncologists with US-based breast surgeons, radiologists, pathologists, and medical oncologists. Meeting monthly, the virtual tumor board served as both a clinical consultation space and a platform for continuing education during a time when international travel was severely limited.

By 2023, through this collaboration, the mastectomy rate at NCCM dropped from 94% to 32%, signaling a significant shift toward breast-conserving surgery and more individualized care. Supporting this effort, my global surgery cofellow and I coordinated case discussions, translated between teams, and prepared educational materials.

Through this work, I gained a clearer view of how cancer systems could take shape in resource-limited settings, where distance, limited diagnostics, and workforce shortages demand creative, collaborative solutions.

After years of virtual collaboration, our teams returned to Mongolia in 2024, to continue working on the ground. In the absence of widespread mammography and formal referral systems, we turned to ultrasound as a practical, portable tool for breast cancer screening in rural areas. I helped lead efforts in a remote mining town in the Gobi Desert, working alongside Mongolian clinicians to launch the region's first screening initiative and train rural physicians in ultrasound techniques.

Working in rural Mongolia taught me that addressing cancer

Sorensen (right front) guides residents as they practice their laparoscopic skills on a box trainer at Calmette Hospital in Phnom Penh, Cambodia.



Dr. Raymond Price assists laparoscopic surgeons at Battambang Provincial Hospital, following a graduated responsibility model.

care is not just about introducing new technology; it's about rethinking how we deliver care in places that have historically been underserved. We're now building on those lessons by conducting a nationwide breast cancer needs assessment in partnership with the Mongolian Ministry of Health.

Adapted from a model first developed in Ghana and tailored to Mongolia's unique geography and health system, the assessment evaluates access to screening, surgery, imaging, and oncology services across all provinces. More than a survey, it represents a shift in how the country is approaching cancer care—mapping existing gaps

and creating the foundation for more coordinated, equitable, and sustainable solutions.

This work has shown me what is possible when local leadership and long-term collaboration align. The challenges of rural surgical care in Mongolia are complex, but the lessons we have learned continue to inform efforts in other countries. They serve as a reminder that solutions must be context-driven, sustainable, and rooted in partnership.

From Mongolia to Cambodia

In 2022, Dr. Price and The University of Utah Center for Global Surgery were invited to help establish a national

laparoscopic training program in Cambodia. Inspired by Mongolia's focus on strengthening surgical systems, this government request gave our team the chance to apply 2 decades of experience in partnership, mentorship, and sustainable system-building to a new setting. This highlights a broader shift in how countries are approaching surgical development—not through short-term workshops, but through long-term partnerships.

By the end of 2022, our collaboration was underway. Partnering with surgeons from Calmette Hospital with the University Hospital in Cambodia and funded through the Cambodia Health Improvement Effort by the Church of Jesus Christ of Latter-Day Saints, the initiative focused on expanding training beyond the Cambodian capital, Phnom Penh, into high-volume, strategically located provincial hospitals.

Drawing directly from lessons learned in Mongolia, our team began developing a skills-based curriculum tailored to Cambodia's needs. We collaboratively designed a laparoscopic box-trainer curriculum, created task-specific rubrics to evaluate technical performance, and developed

digital tools to track simulation scores. Working closely with my global surgery cofellow, I saw how even simple tools, when thoughtfully implemented, could shift the entire dynamic of training. I came to understand that building trust, confidence, and clinical competence begins long before the operating room.

Following a “train-the-trainers” model, the program emphasized foundational laparoscopic cholecystectomy skills at provincial hospitals. Cambodian instructors led simulation sessions and hands-on instruction, while our team stood nearby ready to support when needed.

From the outset, the structure was designed to prioritize local surgical champions and long-term sustainability. Since its launch, more than 20 laparoscopic training courses have been conducted across Cambodia, training more than 400 surgeons and residents. The results have been striking.

The Mongolian breast cancer team joins Sorensen (second from the left) during the first-ever breast cancer screening in the rural mining village of Khanbogd, Mongolia.





At Kampong Cham Referral Hospital, from 2023 to 2025, the average number of monthly cholecystectomy cases increased by 188% after the training began. Of those cases, more than 94% were performed laparoscopically, with a complication rate under 3%.⁵ For patients, this shift has meant shorter hospital stays, faster recoveries, and reduced risks of infection.

Perhaps most significantly, our Cambodian colleagues are now independently organizing and running their own training courses without direct intervention from our team. Additionally, the collaboration is expanding beyond basic laparoscopic general surgery into surgical oncology, colorectal surgery, obstetrics, gynecology, critical care medicine, and other specialties, marking a promising step toward a fully self-sustaining national training system.

What has emerged is more than a skills course. It is a coordinated, multisite effort to build national surgical capacity grounded in local ownership, guided by long-term partnerships, and driven by the belief that education, mentorship, and data can produce meaningful change. As in Mongolia, the goal is not simply to introduce techniques

but to equip local surgical teams with the tools, confidence, and leadership to transform their health systems from within.

Through interpreting in operating rooms in Mongolia, navigating late-night Zoom calls across time zones, and working alongside surgeons on two continents, I have learned that surgical systems are not simply delivered. They are built slowly, collaboratively, and through mutual respect and long-term partnership.

Looking ahead, our partnerships in Mongolia and Cambodia continue to grow, shaped by the lessons of the past and a shared vision for the future. In both countries, we are deepening our collaboration with local leaders to strengthen surgical systems, expand equitable access to care, and develop the next generation of clinician-educators. Each step forward reflects the same guiding principle: empower local providers, support national priorities, and invest in systems that are built to last.

The greatest lesson I've learned is that surgery, when grounded in shared purpose, becomes one of the most powerful tools for equity. It has the potential to strengthen systems, uplift

communities, and create trust across borders. That belief continues to guide me. As I build on the work of those who came before me, I look to the future of global surgery with hope—committed to becoming someone who carries this mission forward, one partnership at a time. **B**

Acknowledgment

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Disclaimer

The thoughts and opinions expressed in this article are solely those of the author and do not necessarily reflect those of the ACS.

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References

1. Vargas G, Price RR, Sergelen O, Lkhagvabayar B, et al. A successful model for laparoscopic training in Mongolia. *Int Surg*. 2012;97(4):363-371.
2. Kornfeld JE, Katz MG, Cardinal JR, Bat-Erdene B, Jet al. Cost analysis of the Mongolian ATLS program: A framework for low- and middle-income countries. *World J Surg*. 2019;43(2):353-359.
3. Banzragch G, Ganzorig B, Batsaikhan B, Sainbuyan T, et al. Building a self-sufficient liver transplant program in Mongolia. *Transplantation*. 104(S3):S532.
4. Brownson KE, Flores-Huidobro Martinez A, Ganbayar J, Sorensen LM, Det al. Development of an international virtual multidisciplinary tumor board for breast cancer in Mongolia. *J Surg Res*. 2024;295:776-782.
5. Sorensen L, Darelli-Anderson, AM, Sin P, Flores A, et al. Refining global surgical education: Successful implementation of laparoscopic cholecystectomy training in Cambodia. *J Am Coll Surg*. 2024;239(5):S206-S233.

Opposite page:

A patient shows her laparoscopic surgery bandages.



Dr. Ricardo Gonzalez-Fisher

Jerry's Ethical Framework Analyzes Nonhuman Animal Use in Surgical Skill Development

Ricardo F. Gonzalez-Fisher, MD, MPH, FACS

This viewpoint article examines the ethical implications of using nonhuman animals in surgical training, drawing on personal and professional experiences.

REFLECTING ON MY interactions with animals, I explore my past involvement in live tissue training (LTT), from medical school to surgical residency and beyond. I critique the traditional justification for animal use in training and surgery, highlighting the moral standing of animals and the limitations of utilitarian reasoning. The article also evaluates the effectiveness of LTT in preclinical, nonsurgical, and surgical settings, questioning its educational value and ethical justification. It advocates for alternatives that respect animal welfare while advancing medical education.

In addition, this article critically examines the moral implications of using LTT in three scenarios: preclinical training, nonsurgical specialist training, and surgeon training. It evaluates whether these practices align with evolving ethical standards and explores alternatives that respect the intrinsic value of all sentient beings.

As I write, Jerry, a Husky adopted by my son during the pandemic, rests beside my desk. Jerry has become an integral part of our family, embodying the bond and values that many place on companion animals. His presence prompts me to reflect

on my experiences in medical training and research.

As a medical student in the 1980s, I participated in a “surgical techniques” lab that used dogs. Later, as an instructor for the same course, I taught others these methods. During my year of surgical research, I conducted kidney transplants in hypertensive rats and performed biliary and intestinal reconstructions in dogs, justifying their use as essential for advancing surgical knowledge.

As a surgical chief resident, I helped pioneer laparoscopic techniques, using pigs to develop skills foundational to modern minimally invasive surgery. Finally, teaching Advanced Trauma Life Support® (ATLS®) courses, I witnessed the use of dogs to train physicians for surgical procedures in critical scenarios.

Each stage of my career involved the use of animals to advance medical progress. However, reflecting on these experiences has deepened my ethical considerations.

Moral Standing of Nonhuman Animals

Exploring the moral status of animals through a deontological lens offers a perspective distinct

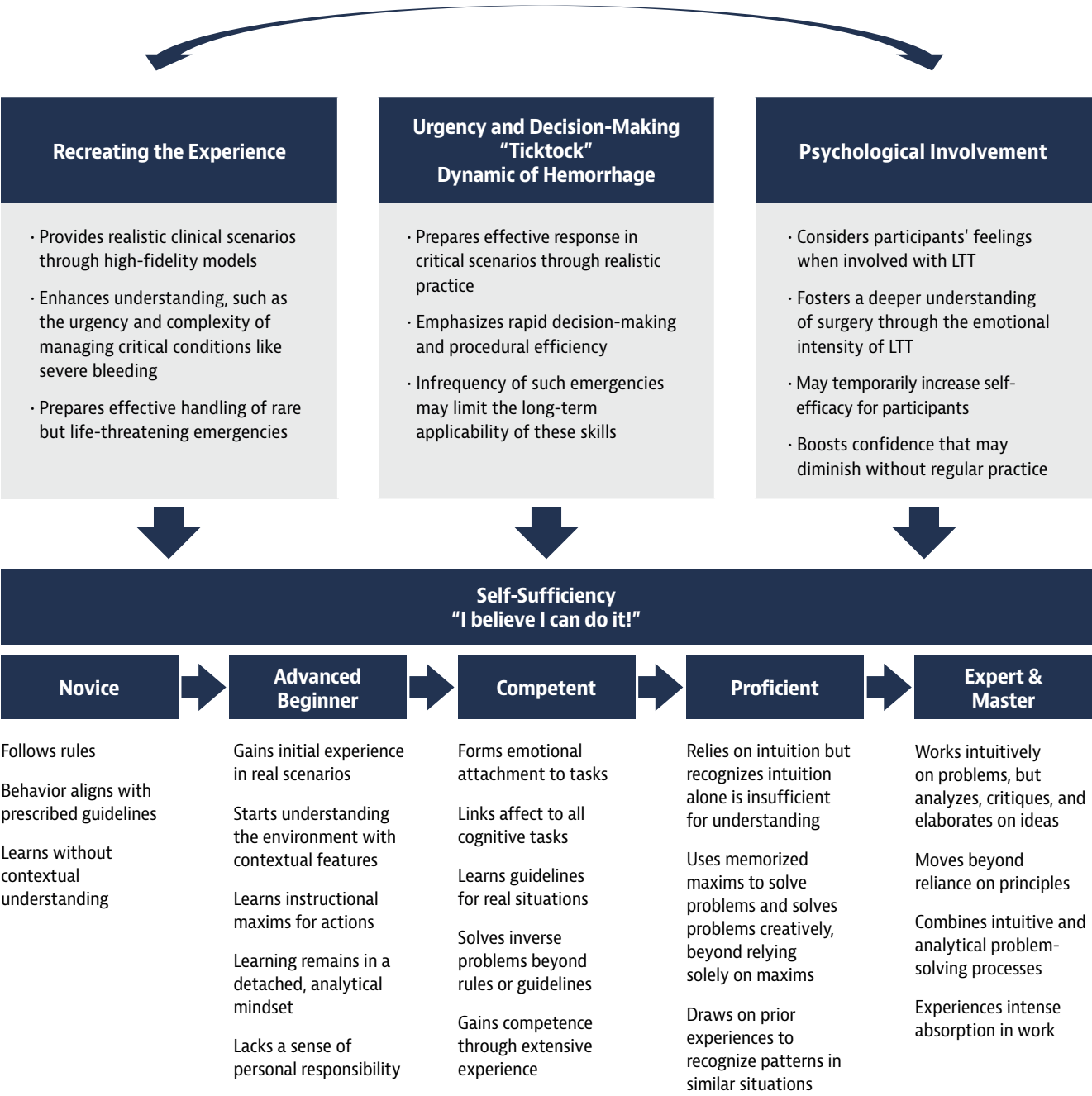
from the traditionally utilitarian approach. Unlike rational beings who form a “moral community,” animals lack autonomy and the cognitive ability to be held morally responsible for their actions. However, this reality does not exclude them from being moral subjects.¹

The idea that the moral status of an animal is inherently less important than that of a human has been challenged, as the Cambridge Declaration on Consciousness in 2012 formally acknowledged that nonhuman animals possess the neurological substrates necessary for consciousness.^{2,3}



Jerry was adopted by Dr. Gonzalez-Fisher's family during the pandemic.

Figure. Jerry's Ethical Framework



Jerry's ethical frame for analyzing the use of live nonhuman animals in surgical skills development incorporates four educational themes identified by Swain et al. These elements interact to foster a sense of "self-sufficiency," enhancing the educational experience.

The Dreyfus model of clinical problem-solving acquisition provides a structured approach to evaluating a trainee's proficiency in the targeted surgical skill and serves as a critical factor in determining whether the use of live nonhuman animals is justified for surgical training.

This point of view challenges traditional Kantian perspectives while criticizing the reliance on cost-benefit analyses and the aggregation of pleasure and pain. Under utilitarian reasoning, painful or fatal experiments on animals are justifiable if they maximize overall happiness or minimize human suffering.

Some argue that animal suffering carries less moral weight because it may be less intense than human suffering, which is attributed to the absence of reflective capacities. However, this assumption is not universally valid; animals may experience more acute suffering due to their inability to contextualize or rationalize their pain.⁴

Ethical guidelines can be traced to the World Organization for Animal Health's guiding principles, developed in 1965, which describe society's expectations for the conditions animals should experience when under human control. Guidelines from the American Psychological Association and the ACS⁵ emphasize the need for animal use to be scientifically justified, humane, and minimized whenever possible. Both frameworks advocate alternatives, such as simulation, whenever feasible.

Use of Nonhuman Animals for Surgical Skills Development

LTT is intended to address gaps in clinical practice, focusing on acquisition of technical

skills rather than theoretical knowledge. LTT prioritizes revisiting and refining techniques rather than initial skills learning, with experts designing and regularly evaluating curricula.

In a systematic review, Swain and colleagues identified four themes in the literature about LTT: realism and fidelity, urgency and decision-making, psychological engagement, and self-efficacy.⁶ With a proper understanding of the Dreyfus model of clinical problem-solving skills acquisition,⁷ these themes underscore the value learners derive from LTT and provide a frame for ethical reflection on its necessity in various educational contexts.

Jerry's ethical framework for analyzing the use of live nonhuman animals in surgical skills development (see Figure, page 54) integrates the four educational themes identified by Swain et al.—recreating the experience, decision-making under urgent conditions, and the trainee's psychological engagement, while emphasizing the role of self-efficacy in surgical training. Self-efficacy, the personal assessment of how well one can complete a task, is central to determining the trainee's readiness and ability to perform surgical procedures.

The Dreyfus model of clinical problem-solving acquisition provides a structured methodology for evaluating proficiency in surgical skills,

offering an objective measure to determine whether live animal use is ethically justifiable. This model balances educational value with ethical responsibility by aligning these themes with a structured competency-based framework that nonhuman animal use is only employed when it demonstrably enhances self-sufficiency and decision-making under real-world conditions.

LTT in Preclinical Medical Education

Preclinical medical education is enhanced by recreating the experience through training fidelity and real-world case scenarios, which help students understand the basics of surgical procedures and promote psychological engagement. However, the emotional impact of working with live animals can be profound, ranging from initial stress to ethical discomfort. These experiences may foster empathy, but do not necessarily contribute to long-term skill retention or moral practice.

One common justification, the benefits argument, states that such practices are acceptable because the advantages to humans outweigh the harm to animals. However, the benefits can be overstated.

At the same time, surgical skills proficiency in nonhuman animal models has been proven unreliable in translating proficiency, safety, and effectiveness in human

patients.⁸ This lack of reliability questions the epistemic value of using animals in such practices. Without clear and consistent benefits, the moral justification for the continued use of nonhuman animals in this context is insufficient, necessitating a shift toward alternative, humane methods.

Teaching Surgical Skills to Nonsurgical Specialists

For nonsurgical specialists who may encounter trauma scenarios, LTT provides a valuable opportunity to recreate realistic clinical experiences. High-fidelity training models help these professionals understand the urgency and complexity of managing bleeding and other critical conditions, preparing them for high-stakes situations.

Understanding the dynamics of hemorrhage emphasizes the importance of rapid decision-making and procedural efficiency. LTT allows nonsurgical specialists to practice these skills under realistic conditions, enabling them to respond effectively in emergency scenarios. However, these scenarios are often infrequent, limiting the long-term applicability of learned skills.

The emotional intensity of LTT can heighten awareness and engagement, fostering a deeper understanding of trauma care, particularly for those who will be providing care in a combat setting.^{6,9} While participants may experience a temporary boost in self-efficacy, this confidence can

wane without regular practice of these skills.

LTT may extend human lifespans by facilitating medical advancements. However, this type of training inflicts severe suffering on animals. The idea of “saving lives” is context-dependent—combat—and does not universally justify moral transgressions, mainly when they involve unnecessary harm. Indeed, the ACS phased out the use of animal models in ATLS courses in the early 2000s,⁶ replacing them with simulation models that are more anatomically realistic, cost less, and allow trainees to repeat surgical skills until proficiency.¹⁰ However, although these alternative models collectively meet standards in military trauma training, only animal models and advanced manikins enable advanced skill proficiency.⁹

Training Surgeons

Some surgical interventions are inherently complex and heavily reliant on the surgeon’s evolving technical proficiency—expert and master levels. Achieving consistent quality care typically necessitates extensive training and experience—a process known as the “learning curve.” Controlling this variability in surgical training is inherently difficult. Moreover, the learning curve phase is frequently marked by an increased likelihood of errors, which can significantly skew outcome data and may compromise the procedure’s reliability.¹¹

LTT provides realistic experiences for trainees who will be managing complex surgical scenarios. The dynamic nature of live tissues, including bleeding and coagulation, mirrors real-life conditions, enabling trainees to refine their techniques under pressure and helping them become proficient before applying the skills to human patients. The urgency of managing hemorrhage reinforces critical decision-making and procedural skills essential for surgical practice. However, according to a 2020 meta-analysis, virtual reality (VR) improves efficiency and quality in trainees’ surgical practice with reduced error rates and improved tissue handling.¹²

The use of VR surgical simulators as a training tool has increased rapidly over the past few years. Several studies demonstrate that prior training in basic psychomotor skills such as hand-eye coordination, depth perception, and knot-tying with VR simulators improves resident performance in the operating room. Despite a noticeable boost in trainees’ self-sufficiency in laparoscopic techniques and hemostasis management following LTT, their overall opinions about the training showed no significant change before and after the lab session.

Using nonhuman animals in surgical training has historically played a significant role in medical education, but it raises serious ethical concerns.

Using nonhuman animals in surgical training has historically played a significant role in medical education, but it raises serious ethical concerns.

As medical practices and ethical frameworks evolve, the justification for LTT diminishes, especially considering the suffering inflicted on animals. While LTT offers transient benefits, such as improved technical skills and self-efficacy, these do not outweigh the ethical consequences.

Swain's thematic framework, combined with Dreyfus's model of skill acquisition, provides a structured approach to evaluating LTT. For preclinical education, LTT enhances the training experience but offers limited lasting benefits, leaving students at the advanced beginner stage. Thus, LTT is both ethically and educationally unjustifiable.

For nonsurgical specialists, LTT is valuable for simulating high-stakes scenarios but often can be replaced with high-fidelity simulations, with an exception for precombat training. In advanced surgical training, LTT's dynamic realism justifies its use at proficient and expert levels. Alternative methods like simulation offer ethical, practical solutions, reducing reliance on animal use. **B**

Disclaimer

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References

1. Gruen L, Monsó S. The moral status of animals. In: Zalta EN, Nodelman U, eds. *The Stanford Encyclopedia of Philosophy*. Fall 2024 ed. Stanford University; 2024. Available at: <https://plato.stanford.edu/archives/fall2024/entries/moral-animal>. Accessed December 25, 2024.
2. Birch J, Schnell AK, Clayton NS. Dimensions of animal consciousness. *Trends Cogn Sci*. 2020;24(10):789-801.
3. Low P. The Cambridge Declaration on Consciousness. Proceedings of the Francis Crick Memorial Conference, Churchill College, Cambridge University; July 7, 2012:1-2.
4. Korsgaard CM. Medical research on animals and the question of moral standing: A comparison between Kantian and utilitarian accounts on moral standing of non-human animals. Harvard Center for Bioethics News. January 1, 2020. Available at: <https://bioethics.hms.harvard.edu/journal/animal-moral-standing>. Accessed December 25, 2024.

5. American College of Surgeons. Statement on the Use of Animals in Research, Education, and Teaching. October 1, 2002. Available at: <https://www.facs.org/about-acsc/statements/use-of-animals-in-research-education-and-teaching>. Accessed December 25, 2024.
6. Swain CS, Cohen HML, Helgesson G, Rickard RF, Karlgren K. A systematic review of live animal use as a simulation modality ("live tissue training") in the emergency management of trauma. *J Surg Educ*. 2023;80(9):1320-1339.
7. Peña A. The Dreyfus model of clinical problem-solving skills acquisition: A critical perspective. *Med Educ Online*. 2010;15:10.3402/meo.v15i0.4846. Published June 14, 2010.
8. Ruan Y, Robinson NB, Khan FM, et al. The translation of surgical animal models to human clinical research: A cross-sectional study. *Int J Surg*. 2020;77:25-29.
9. Galloway DS. Alternatives to the use of live animals in military medical trauma training. Thesis. U.S. Army Command and General Staff College; 2000. Available at: <https://apps.dtic.mil/sti/citations/ADA383824>. Accessed December 26, 2024.
10. Gala SG, Crandall ML. Global collaboration to modernize advanced trauma life support training. *J Surg Educ*. 2019;76(2):487-496.
11. Andreoletti M, Bina F. A defense of surgical procedures regulation. *Theor Med Bioeth*. 2022;43:155-168.
12. Portelli M, Bianco SF, Bezzina T, Abela JE. Virtual reality training compared with apprenticeship training in laparoscopic surgery: A meta-analysis. *Ann R Coll Surg Engl*. 2020;102(9):672-684.

Alarming Rise of Workplace Violence Forces Healthcare Workers to Rethink Safety

Lenworth M. Jacobs Jr., MD, MPH, FACS

A hospital is supposed to be a safe place where anyone can receive care.

TRADITIONALLY, this has meant healthcare facilities did not have a demonstrated need for metal detectors or armed security guards. But violent events have crept into medical facilities and offices, and workers and patients have lost their sense of security.

Workplace violence is a major problem in healthcare, with the US Bureau of Labor Statistics stating that healthcare workers are five times more likely to experience violence than other occupations. In these types of events, 93% of assaults are committed against healthcare workers.¹

Earlier this year, the husband of a woman being treated at a hospital in Pennsylvania shot and killed a police officer and wounded five others. According to news reports, he was upset with the care his terminally ill

wife received and was removed by hospital security the night before the incident after being told there were no other treatment options to pursue.

This tragic event underscores a growing trend of violence being committed against healthcare workers. These incidents can have devastating, long-lasting effects on the victim and the people who are actively or passively involved in the event.

A study by Texas State University and the Federal Bureau of Investigation examined active shooter events in the US from 2000 to 2013.² According to the study, active shooter events increased to an average of 16.4 events per year from 2007 to 2013—up from the 6.4 average events per year from 2000 to 2006.

These events have continued to escalate, and the healthcare environment has not been immune to this phenomenon. A total of 160 active shooter events occurred between 2000 and 2013, with 2.5% occurring in healthcare facilities.³

More and more healthcare workers are calling for stronger security protocols to better protect frontline staff from harm. Workplace violence can happen in any type of healthcare facility, including medical offices. Therefore, it is critical for office staff also to be able to recognize signs of an event beginning to escalate. Attempting to de-escalate the situation and rapidly summoning assistance are critical to containing and controlling the incident before people are injured or killed.

In a hospital setting, these events can pose a significant challenge, as some patients may not be physically able to run or hide. In certain parts of the hospital, like the intensive care unit (ICU) or the OR, the patient may be immobile, unconscious, and completely dependent on the healthcare personnel and medical equipment.

The Hartford Consensus, the result of the Joint Committee to Create a National Policy to Enhance Survivability from Intentional Mass Casualty and Active Shooter Events, which was sponsored by the ACS, surveyed the public and healthcare personnel on how they would react to an active shooter event in a hospital. Of the respondents, 61% of the public and 62% of the doctors and nurses said they had a special duty to protect patients, and most of the public said it was important for hospitals to be prepared to mitigate any event that would disrupt the safety of the hospital.⁴

The recommendation from the Hartford Consensus was that all hospital employees should think through their response to an active shooter for managing patients in all types of environments, and there should be training and drills on active shooter situations to reduce potential indecision and inaction.

What can administrators and healthcare personnel do to prepare for such an event? First, know your options. The concept of “run, hide, fight” may be relevant in some situations, but may not be the best course of action in others. For example, in an ICU or OR where healthcare personnel and the patient

cannot leave, one way to prevent a shooter or person committing violence from entering the space may be to turn off the lights and secure the OR door with a wedge or activate a locking system to block entry. Some of these options may be financially significant or may require assistance from local law enforcement and other agencies to ensure proper building or safety codes are met.

A key to all these strategies is to have a clear set of policies and procedures already in place and practice implementing them to ensure continuity of care for the compromised patient. To help in this process, The Joint Commission recently revised and added new requirements addressing workplace violence prevention for office-based surgical practices, which went into effect this month. These requirements align with similar updates that were already made to the Critical Access Hospital Accreditation programs, including:

- Defining workplace violence and developing processes and procedures
- Outlining leadership’s oversight role
- Giving information on reporting systems, data collection, and analysis
- Suggesting how to implement post-incident strategies
- Providing guidance on training and education

While this topic can be emotionally challenging, it is extremely important to have active shooter planning in place. It is better to have the conversation now and develop a plan of action that can be

practiced and implemented in the event of a major violent event. Keeping staff informed and trained about what to do when these events arise may be the difference between life and death for staff members and patients.

For more information on workplace violence, read the ACS *Bulletin* article, “Violence Escalates against Surgeons and Other Healthcare Workers” in the October 2024 issue, and the September 2023 Executive Director’s column, “How the ACS Can Help Surgeons Address Workplace Violence.” 

Disclaimer

The thoughts and opinions expressed in this column are solely those of Dr. Jacobs and do not necessarily reflect those of The Joint Commission or the American College of Surgeons.

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References

1. IHSSF Foundation. Health Care Crime Survey. 2014. Available at: <https://iahssf.org/assets/crimesurvey2014.pdf>. Accessed May 12, 2025.
2. Blair JP, Schweit KW. A study of active shooter incidents, 2002-2013. Washington, DC. Texas State University and the Federal Bureau of Investigation, US Department of Justice; 2014.
3. US Federal Bureau of Investigation. Active Shooter Resources. Available at: <https://www.fbi.gov/how-we-can-help-you/active-shooter-safety-resources>. Accessed May 12, 2025.
4. Jacobs LM, Burns KJ. The Hartford Consensus: Survey of the public and healthcare professionals on active shooter events in hospitals. *J Am Coll Surg*. 2017;225(3):4352-4442.

QI Project Reduces Pediatric G-Tube Dislodgement through Standardized Care

Samantha Kipley, RN, BSN
Karen Pollitt, CPHQ

GASTROSTOMY TUBE (G-TUBE) placement is one of the most common surgical procedures in pediatrics,¹ with an estimated 1.4 million children born every year with a condition that requires assisted feeding with a nasogastric or gastrostomy tube.² Despite the high prevalence of this procedure, it is associated with one of the highest rates of hospital revisit, approximately 30% within 30 days of placement.¹

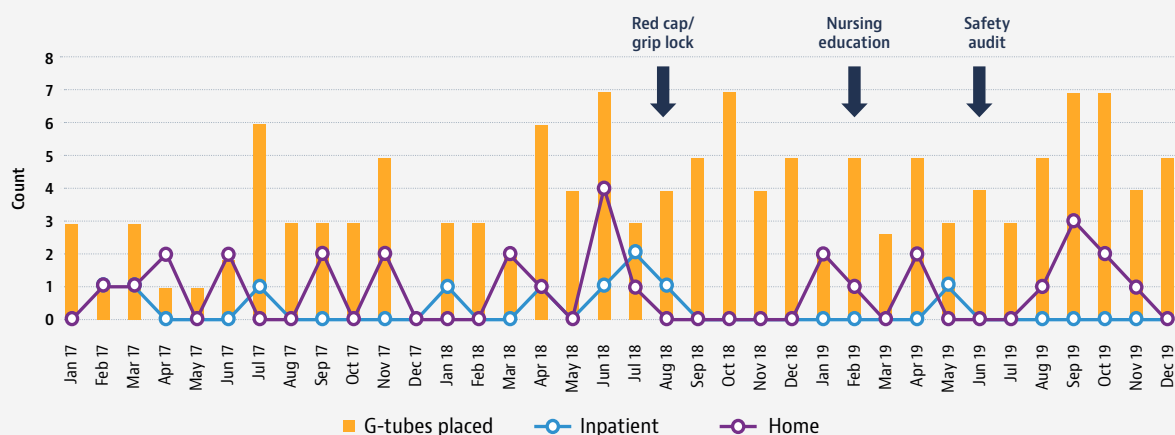
The team at Golisano Children's Hospital in Rochester, New York, led by pediatric surgeon Derek Wakeman, MD, FACS, was experiencing a large number of children having accidental dislodgement of their G-tube, both in the hospital and at home. These occurrences lead to many emergency department (ED) visits and hospital admissions, as well as imaging studies.

Description of QI Activity

A quality improvement project to reduce pediatric G-tube dislodgement was launched in summer 2018. The initiative aimed to standardize care across the preoperative, intraoperative, and postoperative phases. In the preoperative phase, key changes included creating checklists for consulting services and standardizing the preoperative workup. In many cases, it was determined that a preoperative upper gastrointestinal (GI) study was not necessary.

In the intraoperative phase, surgeons were encouraged to adopt standardized processes in the OR to streamline procedures and optimize supply usage. An intraoperative checklist specific to G-tube placement was introduced to ensure surgical safety and securement of devices. Additionally, a training video was developed to

Figure. Surgical G-tube Dislodgement (90 days post-op)



2017	
31	2
G-tubes placed	G-tubes dislodged

In 2017, prior to interventions, 31 G-tubes were placed. During this time, two G-tubes were dislodged within 90 days of insertion and occurred in the hospital.

2018	
53	6
G-tubes placed	G-tubes dislodged

In 2018, 53 G-tubes were placed. During this time, six G-tubes were dislodged within 90 days of insertion and occurred in the hospital. Interventions were put in place in August 2018.

2019	
51	1
G-tubes placed	G-tube dislodged

In 2019, 51 G-tubes were placed. During this time, one G-tube was dislodged within 90 days of insertion and occurred in the hospital. Nursing education was rolled out in February 2019, and safety audits began in June 2019.

educate nurses and surgical trainees.

Postoperative standardization included the development of feeding pathways, a discharge education pathway (featuring two instructional videos), and standardizing nursing care documentation in the medical record. To ensure compliance, routine audits were conducted.

Intervention Data

With standardization of care, the data showed a significant decline in G-tube dislodgements occurring in the hospital within 90 days of insertion (see Figure on this page). G-tube dislodgements that happened outside of the hospital also decreased in frequency, but to a lesser extent. Interestingly, during the same time (late 2018–2019), the length of stay for G-tube insertion became shorter.

G-Tube Buddy Program

Starting in 2021, the team sought to dig deeper into discovering factors outside of the hospital that were leading to accidental G-tube dislodgement. In an earlier case study, it is noted that “the majority of ED utilization stemmed from a small group of patients with a high proportion of children of non-white race and less socioeconomic advantage determinants of health.”³

Armed with this knowledge, the team made a goal to improve health equity for their G-tube patients, not realizing they actually had already accomplished this goal by standardizing the three phases of care. It was found that G-tube patients living in less-advantaged neighborhoods, based on area deprivation of their neighborhood, had more ED visits after G-tube placement.

The team learned that a high number of G-tube dislodgements happen when the extension tubing is connected during a feed.

However, these disparities were largely mitigated after the improvement work was started, as well as standardizing care.⁴

In April 2022, the G-Tube Buddy Program was piloted. This program aimed to provide psychosocial support for families of children with G-tubes. The program paired an experienced G-tube caregiver with a first-time G-tube caregiver.

The team learned that a high number of G-tube dislodgements happen when the extension tubing is connected during a feed. Given this information, the team at the hospital, as well as the mentors in the Buddy Program, encourage caregivers to be very careful when moving a child during a feeding and be diligent in disconnecting tubing when not in use.

Initially, the G-Tube Buddy Program was offered to families that were seen as high risk for worse outcomes. As of 2023, the program was offered to all children receiving a G-tube at Golisano Children's Hospital. The program provides quarterly meetings with mentors and regular focus groups.

Dr. Wakeman noted that the mentors and mentees of the program consistently provide feedback that the program is helpful.⁵ Engaging with families has been noted to be key in understanding issues that are faced outside of the hospital.

G-Tube Pilot Project

An additional benefit of the QI project was making a shift toward sending more neonates home with nasogastric tubes (NG). The team noticed that often, neonates sent home with an NG will mature and never require a G-tube. Given this change in practice, most patients undergoing G-tube placement now come from home rather than already being admitted to the hospital beforehand. This approach provides more time to planning and allows caregivers to better prepare.

Dr. Wakeman noted when this QI project was underway, National Surgical Quality Improvement Program (NSQIP) Pediatric did not capture data on G-tube dislodgements. The G-Tube Pilot Project for NSQIP Pediatric ran January 2023–December 2024 and provided meaningful tracking of G-tube-related events within NSQIP Pediatric, such as accidental dislodgement, ED visits, preoperative upper GI series, and readmissions.

After the conclusion of the G-Tube Pilot, the variables became a procedure targeted set in NSQIP Pediatric, available to all participating sites.

The case study for this quality improvement project, “Reducing Gastrostomy Dislodgements and ED Visits after Gastrostomy (G)-Tube Insertion: Improving Health Equity for Children with G-Tubes,” is featured in the ACS Quality Improvement Case Study Repository.

For more information regarding NSQIP Pediatric and Children's Surgery Verification Improvement Program, visit facs.org/quality-programs/accreditation-and-verification/childrens-surgery-verification. **B**

Samantha Kipley is a Quality Resource Specialist in the ACS Division of Research and Optimal Patient Care in Chicago, IL.

References

1. Ruffolo LI, McGuire A, Calderon T, et al. Emergency department utilization following pediatric gastrostomy tube placement is driven by a small cohort of patients. *J Pediatr Surg*. 2021;56(5):961-965.
2. Aedla M, Zhou A, Sompel K, et al. A study of postoperative complications occurring at home with pediatric gastrostomy feeding tubes. *J Pediatr Gastroenterol Nutr*. 2022;75(1):30-35.
3. Ruffolo LI, Pulhamus M, Foito T, Levatino E, et al. Implementation of a gastrostomy care bundle reduces dislodgements and length of stay. *J Pediatr Surg*. 2021;56(1):30-36.
4. Juviler P, et al. *J Pediatr Surg*. 2024 Sep 24:161964.
5. Juviler P, Wegman S, Yousefi-Nooraie R, Erlick MR, et al. Implementation and qualitative analysis of peer support for new pediatric gastrostomy tube families. *J Surg Res*. 2024;302:92-99.



Does your hospital want to improve the care of older adult surgical patients?

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In addition, GSV helps hospitals participating in the Centers for Medicare & Medicaid Services (CMS) Hospital Inpatient Quality Reporting Program comply with the new CMS Age Friendly Hospital Measure—a new regulatory requirement that became effective January 1, 2025.



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Two Medical Directors Are Selected for New Leadership Positions in ACS Advocacy Division

The ACS has hired two surgeons for reimagined, part-time leadership positions in the Division of Advocacy and Health Policy.

THOMAS C. TSAI, MD, MPH, FACS, is the Medical Director for Health Policy Research, and Margaret C. Tracci, MD, JD, FACS, is the Medical Director for Surgeon Engagement. “Drs. Tsai and Tracci are both extraordinary additions to our team,” said Patricia L. Turner, MD, MBA, FACS, Executive Director and CEO. “They’ll be involved in all of areas of our advocacy efforts to help ensure that we aggressively leverage our collective influence for all of our members and have a unified voice across the House of Surgery. We have exciting work forthcoming, and we are grateful to have them on board.”

Thomas C. Tsai, MD, MPH, FACS

Dr. Tsai is a minimally invasive gastrointestinal and bariatric surgeon and associate professor of surgery at Brigham and Women’s Hospital and Harvard Medical School in Boston, Massachusetts. He is also an associate professor in the Department of Health

Policy and Management at the Harvard T. H. Chan School of Public Health.

As Medical Director for Health Policy Research, Dr. Tsai’s responsibilities include developing and implementing a resident scholar program in health policy and advocacy and engaging in health policy research in coordination with the ACS policy agenda.

A renowned researcher in the field of healthcare payment and

delivery system reform, Dr. Tsai codirects the Healthcare Quality and Outcomes Lab at Harvard. His recent research projects have focused on the consequences of Medicare privatization on surgical access and outcomes; evaluation of value-based care models on cost and quality of surgical care; the effect of hospital mergers on healthcare quality; and the consequences of private equity acquisitions of healthcare facilities.

Dr. Tsai has focused on translating research into evidence-driven clinical programs and national health policy. At Brigham and Women’s Hospital, he has served as director of clinical care redesign, leading the design and implementation of surgical home hospital programs. He has extensive health policy leadership experience in the federal government. He previously served as Senior Advisor to the Assistant Secretary for Planning and Evaluation in the



US Department of Health and Human Services in the Obama Administration, expanding access to health insurance through implementation of the Affordable Care Act Marketplace.

During the COVID-19 pandemic, he served as senior policy advisor for the COVID-19 Response Team in the Biden Administration. In his capacity as the testing and treatment coordinator on the White House COVID-19 Response Team, Dr. Tsai coordinated federal policies and programs to deliver widespread access to COVID-19 diagnostics and treatments. Dr. Tsai has also served as vice-chair of the Council on Graduate Medical Education of the Health Resources and Services Administration and a consultant to the Centers for Disease Control and Prevention and the Food and Drug Administration.

Dr. Tsai earned his MD degree at the Stanford University School of Medicine in California and his MPH degree at the Chan School of Public Health. He has been an ACS Fellow since 2022.

Margaret C. Tracci, MD, JD, FACS

Dr. Tracci is an endovascular surgeon and professor of surgery in the Division of Vascular and Endovascular Surgery at the University of Virginia (UVA) School of Medicine in Charlottesville. She also is an associate professor at the UVA School of Public Health.

As Medical Director for Surgeon Engagement, Dr. Tracci's responsibilities include engaging Fellows in advocacy initiatives, drafting health policy and advocacy articles, and presenting to surgeon audiences regarding advocacy and health policy issues. She also leads the coordination and development of practice management resources to assist Fellows with the business aspects of their practices.



Dr. Tracci has served as a member or leader in several capacities in healthcare advocacy. Most recently, she was part of the teaching and research faculty within the UVA Center for Health Policy. Before that, she served as faculty liaison for government relations within the UVA Health System, wherein she coordinated federal advocacy efforts. Her responsibilities included increasing faculty awareness of and access to health system advocacy staff, strengthening

health system advocacy efforts by engaging faculty, and establishing a pathway for faculty to bring issues to the attention of the government relations group.

Additionally, Dr. Tracci has worked as health counsel in the US Senate, where she helped develop legislation related to patient safety, health information technology, prescription drug monitoring, and more. She served as a liaison between the Senate and federal and state agencies, state healthcare entities, and state constituents.

Dr. Tracci has extensive experience as an advocacy leader for professional medical associations, including the ACS.

An ACS Fellow since 2012, Dr. Tracci currently is Chair of the ACS Legislative Committee, as well as a member of the Board of Regents Healthy Policy and Advocacy Group. She has been President and Secretary/Treasurer of the ACS Virginia Chapter, as well. In addition, she has worked on government relations, policy, and advocacy committees in other healthcare organizations.

Dr. Tracci earned her MD and JD degrees in the Medical Scholars Program at the University of Illinois Urbana-Champaign. She is a prolific researcher, having published nearly 100 combined articles and book chapters on high-impact clinical topics such as value-based purchasing and performance in federal value programs. **B**

Dr. Patricia Turner Offers Three Pieces of Advice to Medical Graduates at UChicago

M. Sophia Newman, MPH

ACS Executive Director and CEO Patricia L. Turner, MD, MBA, FACS, delivered the commencement address at The University of Chicago (UChicago) Pritzker School of Medicine's 35th Annual Divisional Academic Ceremony last month.



THE EVENT, which invests each graduate with an academic hood, marked the successful completion of medical school by the 81 graduates in the class of 2025.

Dr. Turner welcomed the new physicians into medicine with “my most heartfelt congratulations,” as well as several insights gleaned from her own career. In addition to her role as the Executive Director and CEO of the ACS, this has included several years in the Department of Surgery at UChicago, where she currently is a clinical professor of surgery.

Her remarks began with a tribute to her mother, who Dr. Turner called “my biggest cheerleader and advocate.”

She described her mother, who was a junior high school math and science teacher, as having a “singular focus on education,” and said this mindset served as a key inspiration and example for her own path toward surgery. At her own commencement



from medical school, Dr. Turner said, “Graduating was not just my accomplishment but ours.”

The example of her mother’s loving support prefaced advice on how new physicians might excel in the often-challenging medical profession. “What will help you thrive are your relationships with the people who love and support you, who, without exception, want what is best for you,” she advised, adding that graduates should cherish their families, friends, professors, and mentors, and strive to become equally supportive of others.

“Very few achieve pinnacles of success entirely independently,” she said.

Dr. Turner also guided the newly minted physicians to “strive to love what you do,” as a key aspect of thriving and excelling in a challenging medical profession.

“My advice is not that you can follow your heart, but that you should and even must follow your heart. Your excitement will inspire you to invest the work that allows your excellence to manifest,” she said.

Finally, Dr. Turner strongly suggested an unfailing dedication to professionalism. She emphasized that this includes communicating calmly in times of stress, adding an insight she gained from a legendary surgeon: “In the words of my chair during residency, Dr. LaSalle D. Leffall, who was also a Past President of the American College of Surgeons, ‘We are all required to demonstrate equanimity under duress.’”

Throughout her 15-minute speech, Dr. Turner underscored the personal and professional fulfillment and service to others the new graduates can achieve in medicine: “Your path will bring you great pride, many moments of satisfaction, and incredible professional fulfillment. Indeed, I believe there is no higher calling than to be a physician.”

The speech received a hearty round of applause at its conclusion.

A video of Dr. Turner’s commencement speech is available at facs.org/turner. 

M. Sophia Newman is the Medical Writer and Speechwriter in the ACS Division of Integrated Communications in Chicago, IL.



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ACS 2025 Health Policy Scholars Are Announced

EIGHTEEN SURGEONS have been named Health Policy Scholars and will attend the June Leadership Program in Health Policy and Management presented by The Heller School for Social Policy and Management at Brandeis University in Waltham, Massachusetts.

Each scholarship includes participation in the weeklong intensive course, followed by a year's service in a health policy-related capacity for the ACS and the surgical specialty society that is cosponsoring the awardee.

This year's scholars are:

- **Hassan Aziz, MD, FACS**, The University of Iowa in Iowa City (The Society for Surgery of the Alimentary Tract Health Policy Scholar)
- **Cherisse Berry, MD, FACS**, Rutgers New Jersey Medical School in Newark (The American Association for the Surgery of Trauma Health Policy Scholar)
- **Andrew Chen, MD, FACS**, University of Connecticut Health in Farmington (American Society of Plastic Surgeons Health Policy Scholar)
- **Christopher P. Childers, MD, PhD**, University of Washington in Seattle (ACS Health Policy Scholar for General Surgery)
- **Michael S. Davis, MD, MBA, MHA, FACS**, University of New Mexico in Albuquerque (American Urological Association Health Policy Scholar)
- **Michael Dingeldein, MD, FACS**, University Hospitals Rainbow Babies & Children's Hospital in Cleveland, Ohio (American Pediatric Surgical Association Health Policy Scholar)
- **Victor C. Joe, MD, MBA, FACS**, University of California Irvine Health (ACS Health Policy Scholar for General Surgery)
- **Steve Sung Kwon, MD, MPH, MBA, FACS**, Boston University School of Medicine/Roger Williams Medical Center in Massachusetts (Americas Hepato-Pancreato-Biliary Association Health Policy Scholar)
- **Isidore Dinga Madou, MD**, Kaiser Permanente Northwest in Clackamas, Oregon (The Society of Thoracic Surgeons Health Policy Scholar)
- **Konstantinos Margetis, MD, PhD, FACS**, Mount Sinai in New York, New York (American Association of Neurological Surgeons Health Policy Scholar)
- **Nancy D. Perrier, MD, FACS**, The University of Texas MD Anderson Cancer Center in Houston (American Surgical Association Health Policy Scholar)
- **Elizabeth J. Renaud, MD, FACS**, Rhode Island Hospital and Hasbro Children's Hospital in Providence (New England Surgical Society Health Policy Scholar)
- **Tereza Cristina Sardinha, MD, FACS, FASCRS**, Northwell Health in New Hyde Park, New York (American Society of Colon and Rectal Surgeons Health Policy Scholar)
- **Sarah P. Shubeck, MD, MS, FACS**, The University of Chicago in Illinois (The American Society of Breast Surgeons Health Policy Scholar)
- **Julie Suyama, MD, PhD**, Virginia Commonwealth University Health in Richmond (American Urogynecologic Society Health Policy Scholar)
- **Tze-Woei Tan, MD, MPH, FACS**, Keck School of Medicine at the University of Southern California in Los Angeles (Society for Vascular Surgery Health Policy Scholar)
- **Amanda Teichman, MD, FACS**, Rutgers Robert Wood Johnson Medical School in New Brunswick, New Jersey (Eastern Association for the Surgery of Trauma Health Policy Scholar)
- **Travis T. Tollefson, MD, MPH, FACS**, University of California, Davis in Sacramento (American Academy of Otolaryngology-Head and Neck Surgery Health Policy Scholar) 

The following articles appear in the June 2025 issue of the *Journal of the American College of Surgeons (JACS)*. A complimentary online subscription to JACS is a benefit of ACS membership. See more articles at facs.org/jacs.

Overcoming Political Upheaval to Deliver Pediatric Surgical Care in Afghanistan: A Prospective Analysis of the First 1000 Procedures

Dunya Moghul, MD, PhD, Phillip J. Hsu, MD, PhD, Emma Bryce, MPH, and colleagues

Political conflicts hinder pediatric healthcare in Afghanistan. This study examines the impact of a new pediatric operating room at Ataturk Hospital in Kabul. In 2023, 1,014 operations were performed, showing successful implementation of surgical care in a low-resource setting. Future efforts should focus on addressing untreated surgical needs.

Implementation of Electronic Medical Record Interventions to Maximize Opioid Disposal after Surgery in Routine Clinical Practice

Yash Deshmukh, BS, Mateo L. Amezcua, BA, Brendan W. Barth, MD, and colleagues

Surgical operative reports are tedious to create, inherently subjective, and may contain inaccuracies. The authors of this study explored automated creation of video-based artificial intelligence (AI) surgical operative reports in robotic-assisted radical prostatectomy. They found that operative reports written by AI had higher overall accuracy than those written by surgeons.

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Member News

Jeruss Receives Named Professorship



Jacqueline S. Jeruss, MD, PhD, FACS, was installed as the inaugural Alfred E. Chang, MD, Research Professor in Surgical Oncology in the Department of Surgery at the University of Michigan in Ann Arbor. Dr. Jeruss also is associate vice president for research integrity and compliance at the University of Michigan and associate dean for regulatory affairs at the University of Michigan Medical School.

Kaneko Leads CT Surgery at WashU



Tsuyoshi Kaneko, MD, FACS, is the new director of the Division of Cardiothoracic Surgery in the Department of Surgery at Washington University (WashU) in St. Louis, Missouri. He also will remain the John M. Shoenberg Chair of Cardiovascular Disease. Previously, he was chief of cardiac surgery in the Department of Surgery at WashU.



Have you or an ACS member you know achieved a notable career highlight recently? If so, send potential contributions to Jennifer Bagley, MA, *Bulletin* Editor-in-Chief, at jbagley@facs.org. Submissions will be printed based on content type and available space.

Mullen Chairs Surgery at Dartmouth



John T. Mullen, MD, FACS, was named chair of the Department of Surgery at Dartmouth Health Dartmouth Hitchcock Medical Center and the Geisel School of Medicine at Dartmouth in Lebanon and Hanover, New Hampshire, respectively. He also will be nominated for appointment as the William N. and Bessie Allyn Professor in Surgery at the Geisel School of Medicine. A surgical oncologist, Dr. Mullen previously served as program director of general surgery residency, vice chair of faculty affairs, and co-chair of the executive compensation committee in the Department of Surgery at Massachusetts General Hospital in Boston.

Chaikof Is Elected to American Academy of Arts and Sciences



Elliot L. Chaikof, MD, PhD, FACS, was elected to the American Academy of Arts and Sciences for distinguished accomplishments in biological sciences, engineering, and technology. Established in 1780, the Academy honors excellence and brings together leaders from across disciplines to examine new ideas and address issues of importance. Dr. Chaikof is chair of the Department of Surgery and surgeon-in-chief at Beth Israel Deaconess Medical Center in Boston, Massachusetts, as well as the Johnson and Johnson Professor of Surgery and chair of the Surgical Executive Committee at Harvard Medical School in Boston.



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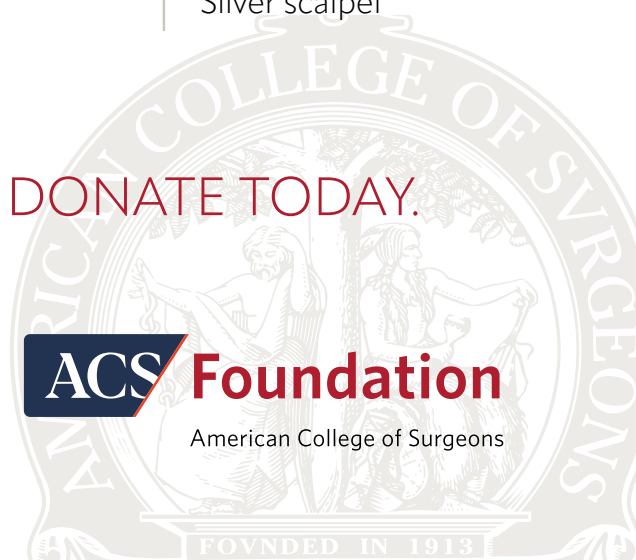


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