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ACS Bulletin

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Engaging Colorectal Surgeons in the House of Surgery

Patricia L. Turner, MD, MBA, FACS executivedirector@facs.org



OVER THE PAST YEAR or so, I have written columns on some of the surgical disciplines within the House of Surgery. Today, I will focus on colorectal surgery and many programs within the ACS that benefit from the engagement of colorectal surgeons and should, in turn, benefit their practices and patients.

National Accreditation Program for Rectal Cancer

Among the most notable programs is the National Accreditation Program for Rectal Cancer (NAPRC), which was launched in 2017 through collaboration between the OSTRiCh (Optimizing the Surgical Treatment of Rectal Cancer) Consortium and Commission on Cancer, with input from the American Society of Colon & Rectal Surgeons (ASCRS).

The NAPRC now has more than 100 participating programs. In 2024, it was among the fastestgrowing ACS Quality Programs.

This may be because the program has a great track record. For example, a 2024 study in the *Journal of the American College of Surgeons* showed that NAPRC-accredited hospitals had significantly lower mortality rates—at 30 days and 1 year than nonaccredited hospitals, as well as significantly lower 30-day complication rates. It may also be because of strong enthusiasm among the participants, as shown in a 2024 survey published in *Surgery*. That study also found most participating programs reported NAPRC participation improved their culture of quality and accountability, program coordination, and quality of their patient care.

To help ensure ongoing positive impact, we have just released updated NAPRC standards (effective in 2026). We, as always, receive guidance from NAPRC Committees to which ACS members can apply each spring.

Surgical Adhesions Improvement Project

The ACS is now leading the Surgical Adhesions Improvement Project, which has brought together surgeons and scientists from around the world to better understand and pursue solutions to this vexing sequela of abdominal surgical care. Our intention is to improve the outcomes of all such surgery, and this work is clearly relevant to colorectal surgeon colleagues. Read more about the project in the October 2024 issue of the *Bulletin*.

Supporting Colorectal Surgeon-Scholars

We are contributing to the next generation of surgeon-scientists, including those pursuing careers in colorectal surgery. Since 2008, the Clinical Scholars in Residence program has invited surgical residents to spend 2 years exploring surgical outcomes and health policy research at the ACS. Of the fellowship's 27 past scholars, several are colorectal surgeons, and two of the seven current scholars are planning careers in colorectal surgery.

Additionally, our Health Policy Scholars program helps Fellows or Associate Fellows of the ACS attend the Executive Leadership Program in Health Policy and Management at Brandeis University. Scholars are selected from several surgical disciplines, including colorectal surgery.

Notable Colorectal Surgeons

We have ample other evidence of excellence and engagement among colorectal surgeons within the ACS.

One example is **Clifford Ko**, MD, MS, MSHS, FACS, FASCRS, FRCI(Hon), who is Senior Vice President of the ACS Division of Research and Optimal Patient Care (DROPC) and the Robert and Kelly Day Professor of Surgery at the University of California, Los Angeles. In his 20 years at the College, Dr. Ko has been instrumental in several programs listed above and more.

Our team also includes **Genevieve Melton-Meaux**, MD, PhD, FACMI, FACS, FASCRS, a professor of colon and rectal surgery and health informatics at the University of Minnesota in Minneapolis. Dr. Melton-Meaux is the inaugural ACS Chief Health Informatics Officer and is working to transform our data strategy for Quality Programs and other aspects of ACS resources.

Colorectal surgeons are further represented in ACS leadership by **James W. Fleshman Jr.**, MD, FACS, FASCRS, who is chair of the Department of Surgery at Baylor University Medical Center in Dallas, Texas, a member of the ACS Board of Regents, and the DROPC Chair.

Asked about the representation of colorectal surgeons, Dr. Fleshman pointed out

Harry T. Papaconstantinou, MD, FACS, FASCRS, who is chair of the Department of Surgery at Baylor Scott & White Medical Center in Temple, Texas, the current president of the Board of Colorectal Surgery, and a recent panelist at the ACS Leadership & Advocacy Summit. He exemplifies colorectal surgeons' engagement with advocacy via the ACS an important contribution many continue to make.

The ACS has also recognized colorectal surgeons as Honorary Fellows several times. The first, **William Ernest Miles**, FRCS(Eng), FACS(Hon), FRCSI(Hon), was recognized in 1930. He is the eponym behind the Miles operation (abdominoperineal resection), which he innovated in 1908 to improve rectal cancer survival.

More recently, we have given Honorary Fellowships to colorectal surgeons **Andrew Graham Hill**, MBChB, MD, EdD, FACS, FISS, FRACS, FRSNZ (in 2024), who has led randomized clinical trials on fundamental questions in surgical care and represented New Zealand on the ACS Board of Governors, and **Nicola Fearnhead**, BM BCh, FRCS, DM, FASCRS (in 2023), whose career has included prolific research and a strong focus on patient-centered care. Their work represents surgical ideals applicable to all surgeons.

Finally, the ACS has an Advisory Council for Colon and Rectal Surgery that supports the ACS Central Judiciary Committee, recommends programming for Clinical Congress, and focuses on the needs of the specialty. It is one of 14 Advisory Councils that collectively represent all surgical disciplines at the ACS.

ACS Quality and Safety Conference

If you are interested in learning more about the NAPRC and other ACS Quality Programs, please join us at the ACS Quality and Safety Conference from July 17 to 20 in San Diego, California. This year, the conference will include more engagement from the American Society of Anesthesiologists and anesthesia professionals, increasing its perioperative value. Registration is open at *facs.org/qsc2025*.

Clinical Congress 2025

I also would like to highlight the postgraduate courses, education program, and panel sessions at Clinical Congress each year in colorectal and all other surgical disciplines. Please join us in Chicago, Illinois, from October 4 to 7. See more at *facs.org/clincon2025*. Registration will open soon! []

Dr. Patricia Turner is the Executive Director & CEO of the American College of Surgeons. Contact her at executivedirector@facs.org.

Critical View of Safety Minimizes Risk of Bile Duct Injury

Tony Peregrin



With 750,000 to 1 million laparoscopic cholecystectomies (LCs) performed in the US each year, the procedure is one of the most commonly performed operations and considered the gold standard for removing a troublesome gallbladder.¹

Previous page:

Dr. Visser teaches students to perform laparoscopic liver surgery in Sri Lanka.

Right: Dr. Visser operates with a colleague. WHILE COMPLICATIONS, specifically bile duct injuries (BDIs), are rare, occurring in approximately 3 per 1,000 procedures performed, the rates have increased since the widespread use of LCs began in the early 1990s.² These cases are unsettling for both patients and surgeons alike—specifically because LCs are so widely performed and complications are, therefore, relatively unexpected.

"Cholecystectomy is obviously at the very core of general surgery," said Brendan C. Visser, MD, FACS, professor and chief in the section of hepatobiliary and pancreatic surgery at Stanford University School of Medicine in California. "It's supposed to go smoothly—but it can also be a very difficult inflammatory situation that is then a hard problem to solve. This is the type of operation where people, if it doesn't go well, are quick to ascribe blame, but nobody ever gets a pat on the back for a cholecystectomy that's well performed even in a difficult setting."

BDIs can potentially lead to diminished quality of life or death for some patients and is a situation that can leave the surgeon feeling powerless if they have to turn the patient over to someone else because they lack the skills to remedy the nicked or burned bile duct.

"It's that sense of 'How could it happen—and now I'm powerless to solve it,'" explained Dr. Visser. "This situation could leave surgeons feeling vulnerable and lead them to question their own skill set or judgment because it's not supposed to happen."

Typically performed as an outpatient procedure, LCs usually result in a quick return to full activity with minimal pain and overall excellent outcomes. However, patients experiencing an adverse complication like a BDI could potentially face an altered life trajectory. Specifically, these patients may need to endure numerous re-interventions/hospital visits, not to mention the potential for both shortand long-term mortality as high as 20.8%, an increase of 8.8% above the cohort's expected age-adjusted rate of death.³

"I had a couple of bile duct injuries very early in my career in the early 1990s when laparoscopic cholecystectomies first started," said L. Michael Brunt, MD, FACS, director of the Department of Surgery's Section of Minimally Invasive Surgery at Washington University School of Medicine in St. Louis, Missouri. "Fortunately, the patient outcomes were good, but it certainly affected me emotionally for a considerable period of time. This is something that you'll never forget, and the transition to practice for surgeons, even if they've done fellowship, is still a difficult and challenging one."

Dr. Brunt served as president of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) 2014–2015, during which he initiated and subsequently chaired the SAGES Safe Cholecystectomy Task Force. This group developed evidence-based recommendations for safe cholecystectomy and the prevention of BDIs titled, "Safe Cholecystectomy Multi-Society Practice Guideline and State of the Art Consensus Conference on Prevention of Bile Duct Injury During Cholecystectomy."

Subject matter experts from five top surgical societies—SAGES, Americas Hepato-Pancreato-Biliary Association, International Hepato-Pancreato-Biliary Association, Society for Surgery of the Alimentary Tract, and European Association of



Endoscopic Surgery—generated recommendations based on systematic literature reviews. Consensus was reached on 17 questions organized into six broad topics around cholecystectomy, including anatomic identification techniques, disease factors, surgical techniques, surgeon education, and intraoperative management of injury.¹

Some of the key recommendations focus on the best use of intraoperative biliary imaging, indications on when to refer patients with a confirmed or suspected BDI to an experienced surgeon, and what the preferred approach is for ductal identification.

"The first question in the document states that the 'Critical View of Safety' is the preferred method for ductal identification during a laparoscopic cholecystectomy," said Dr. Brunt. "If there is one thing that surgeons can do in their individual practice to minimize the risk of BDI, it would be to understand and apply the Critical View of Safety on every case when possible."

Three criteria are required to achieve Critical View of Safety: Clear the hepatocystic triangle and fibrous tissue, separate the lower third of the gallbladder from the liver, and identify two (and only two) structures connected to the gallbladder.²

"One of the things that's very interesting about videos of LCs in which bile duct injuries have occurred is they look very similar case after case after case," said Dr. Brunt. "You can see that obviously there's been a misappreciation of the anatomy. There's no critical view that's been obtained—and that's why other methods of identification, such as the infundibular technique, are considered a significant error trap."

The recommendations also suggest surgeons conduct "a momentary pause to confirm the criteria







This image shows a class III injury with a portion of the bile duct resected.

for Critical View of Safety has been attained before clipping or transecting ductal or arterial structures."

"We don't use this enough in surgery—take an intraoperative pause before you burn your bridges at any given point in an operation," added Dr. Brunt. "For cholecystectomies, before you clip and cut the cystic duct and artery, take a step back and take a fresh look in order to reassure yourself that, 'Yes, this looks right, what I'm looking at is correct." The other essential point is that when it's not possible to obtain the Critical View of Safety due to inflammation, or because the hepatocystic triangle cannot be safely dissected, then the approach should be altered, preferably to subtotal cholecystectomy either laparoscopic or open.

You've Encountered a BDI-Now What?

BDIs often occur due to a failure in correctly identifying the patient's anatomy. Some experts have suggested that approximately half of all patients have typical anatomy of the extrahepatic ducts, which means the other half could have anatomic variations due to a variety of factors.⁴

With this in mind, surgeons routinely take the necessary precautions, including planning for difficult cases with intraoperative imaging and engaging in the Critical View of Safety during the procedure.

Unfortunately, BDIs can still occur, and the operating surgeon should not hesitate to stop the procedure, and depending on the case, transfer the patient to a colleague with experience in BDI repair.

"The operating surgeon should be able to say that 'We're 48 hours post-op and I don't like what I'm seeing in this clinical situation," said Dr. Visser. "I need help. I want to get this patient evaluated or transferred to a center that has the ability to get it repaired in an expeditious fashion, which will diminish the length of the episode, the costs, and the morbidity for the patient."

Dr. Visser described some key "principles of repair" for BDIs. In the preoperative stage, the surgeon should conduct a complete diagnosis of

the extent of the injury and engage in "conservative timing" (or delayed repair) in the face of uncertainty and insufficient data regarding, for example, inflammation or drainage. At the intraoperative stage, surgeons should localize all ducts, trim to healthy duct, and engage in a "meticulous biliary enteric anastomosis technique, with side-to-side anastomosis [Hepp-Couinaud technique] where possible."⁵

He also explained that preoperatively, it's critical that surgeons understand what they're getting into. "And what I mean by that is you have to delineate the nature and extent of the injury, both to the duct itself and regarding the possibility that there may be a vascular injury that's associated with it. You have to be able to know confidently that when you're in the operating room that you're prepared for the problem that you face."

A topic within the principles of repair that continues to generate debate among surgeons is the issue of when to operate: early versus late BDI repair.

Dr. Visser suggested that the early repair of BDIs (within 4 or 5 days typically) is warranted only if the patient is stable and medically optimized, is free of acute inflammation, and did not suffer vascular injury during the initial LC procedure. The justification for a delayed repair approach includes a delay in recognizing the situation by the initial surgeon, a delay in transfer to an appropriate center, time needed to completely characterize and drain the complex injury, and the presence of vascular injury.

"Both sides of the debate are trying to strike a balance between two opposite motivations," said Dr. Visser. "One approach is motivated by the desire to solve the episode for the patient in order to return them to their pre-cholecystectomy health as quickly as is feasible. And the motivation for the delayed repair is sometimes practical and often unavoidable—to make sure that the inflammatory process and degree of injury has fully demarcated itself to the point that the repair will be the best durable long-term repair." The principles of repair apply to both early and delayed repair. Considerations for delayed repair could include additional financial costs to the patient and healthcare system, as well as diminished quality of life, including issues related to mental health well-being.

"This debate will never quite go away," Dr. Visser said. "I think there are reasons to try to get repairs in early, and there are very strong reasons to delay in other circumstances and it's always a question of judgment for the individual case and which is the better pathway, given that there are downsides and upsides to both approaches."

Robotic-Assisted Cholecystectomy and BDI Repair

Due to the enhanced precision and dexterity enabled by this technology, robotic-assisted cholecystectomy and BDI repair are feasible approaches that feature smaller incisions, reduced pain, and quicker recovery times.

"Robotic-assisted procedures are done increasingly frequently across the spectrum of general surgery, and that includes cholecystectomy," said Dr. Brunt. "There's no reason per se that the robotic approach should have a higher rate of injury except, perhaps, during the learning curve. But I think the most important thing is that these recommendations and principles, such as the Critical View of Safety, don't change whether you are doing this laparoscopically or robotically."

Dr. Visser noted that there is a smaller number of surgeons that have both experience in BDI repair and a robotic surgery skill set.

"I'm a surgeon who does complex operations robotically, and I find it to be a useful tool," he added. "I think there absolutely is an appropriate application of the robot to repair bile duct injuries, but I think the application of this technology should always fall back on those same principles of repair. I do see videos of surgeons who are getting there with While BDIs are statistically low-frequency events, they nonetheless occur with some regularity due to the high frequency of the cholecystectomy. These events can be devastating even for surgeons well beyond the learning curve.

the robot and thinking that, because its minimally invasive, the rules don't quite apply."

While the benefits of robotic surgery have been demonstrated—including the enhanced ability for surgeons to navigate around a heavy abdominal wall in high-BMI patients—studies comparing the safety and efficacy of LCs and the robotic-assisted approach seem to indicate the latter continues to be an evolving intervention.

A study published in 2023 examining a decade's worth of outcomes (2010–2019) from Medicare claims data revealed that robotic-assisted cholecystectomy was associated with an increased risk for BDI (0.7% versus 0.2%), and overall rates of postoperative biliary interventions were significantly higher in patients undergoing robotic-assisted cholecystectomy.⁶

More recently, an article published in January 2025, also analyzed BDI rates for Medicare patients (n = 737,908) who underwent laparoscopic or robotic cholecystectomy for an additional 2 years (2010–2021). Investigators found BDI rates to be significantly higher for robotic-assisted procedures, while outcomes and readmission rates were found to be similar for both LCs and robotic-assisted cases.⁷

In an editorial that accompanied the 2023 study, Dr. Brunt emphasized the importance of the Critical View of Safety and other recommendations and noted the use of intraoperative cholangiography and near-infrared imaging technology are potentially beneficial adjuncts to robotic-assisted cholecystectomy.

"I don't believe that robotics will increase the risk of duct injuries," said Dr. Visser. "I think early publications that suggest this may be the case is due to the fact that surgeons are using the robot on the most complex gallbladders, which could elevate the risk of BDIs. I think the vision and stabilization that are afforded by the robot will likely contribute to reducing bile injuries with time."

Discussing BDI with Patients

When a BDI occurs, it is recommended that surgeons communicate honestly and compassionately with the patient and their family, explaining that BDIs are a known complication that can be unavoidable even in skilled hands, and provide detailed information regarding potential treatment pathways and any anticipated risks.

"We should speak with sympathy in our voices about the patient's situation, but also honestly about the operating surgeon's situation who participated in that original cholecystectomy," advised Dr. Visser. "And speaking in a way that is not dishonest yet sympathetic sets a tone where the patient feels they are truly being cared for and that this is not about ascribing blame."

Surgeons, who are typically expected to project confidence with their patients, should avoid projecting a level of self-assurance that could imply that—because they are responsible for fixing someone else's error—they are somehow better than the operating surgeon.

"It's very easy to slip into that language unintentionally if you're not consciously doing the reverse," said Dr. Visser. "I think you should speak about it as a situation that makes your heart ache, but that it is, in fact, fixable and that is why you're here, and we're going to do everything we can to make sure this episode is as short as possible and, ultimately,



results in no long-term challenges for the patient."

Developing a culture of trust and empathy for patients with a BDI also should involve intentional mentoring of residents and other trainees.

"From the very beginning, when we accept a patient transfer, the residents understand that communication for bile duct injuries has to come from the top down and that their directive is not to speculate or answer questions," Dr. Visser said. "They are informed that the language we use to speak to each other and the patients—and that we use in the charts—should not imply causality or fault. We were not present for the operation as it occurred and that it is not for us to judge what was done or if there were opportunities to do something differently. I think this approach can really assuage what otherwise might be a growing sense of anger in the patient in terms of 'How could this happen to me?'"

Peer Support Can Ease Feelings of Inadequacy

While BDIs are statistically low-frequency events, they nonetheless occur with some regularity due to the high frequency of the cholecystectomy. These events can be devastating even for surgeons well beyond the learning curve.

"All surgeons have been through serious adverse events, and we should not adopt a mindset of feeling like you have to bear the burden all on your own," Dr. Brunt said, adding that most institutions have robust peer support programs designed to help surgeons overcome feelings of powerlessness and self-doubt.

"Every time there is a complication like this it leaves scars on the heart of the operating surgeon," said Dr. Visser. "It is important to advocate for the patients, but it is also important to give the operating surgeons a little bit of grace in how we talk about these events. I think we're at a good time in human history to actually be sympathetic to our colleagues and partners and friends when these injuries occur."

Tony Peregrin is the Managing Editor of Special Projects in the ACS Division of Integrated Communications in Chicago, IL.

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The Critical View of Safety shows two structures entering the gallbladder the hepatocystic triangle cleared of fat and fibrous tissue; and the lower gallbladder taken off the cystic plate.

ERAS Protocols Are Proven Effective, but Implementation Is Challenging

Matthew Fox, MSHC





For a surgeon, the most challenging part of treating a patient may be the time from initial incision to wound closure.

FOR A PATIENT, THE MOST DIFFICULT PART of the surgical process is—in most cases—recovery, including managing the pain, discomfort, potential nausea and vomiting, and returning to normal function.

With patient-centered care now a mandate, the surgeon and surgical care team are more closely aligned with the wants and needs of the patients in all phases of care, and efforts are being made to implement enhanced recovery after surgery (ERAS) protocols in an increasing number of cases.

ERAS protocols are standardized perioperative programs designed to reduce surgical stress, improve recovery, and have the patients return to functional health status more quickly. Most surgeons have an awareness of enhanced recovery, but what is the state of this multidisciplinary approach to perioperative care today, and what comes next?

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State of the Art

ERAS is a nascent area of focus for healthcare, having been introduced in the 1990s (then referred to as "fast-track recovery," which emphasized speed of return to functionality¹); it was formalized in the 2000s, led by groups such as the ERAS Society.

Myriad data and thousands of research studies have been conducted on the beneficence of various ERAS initiatives, and studies continue to emphasize their scope and effectiveness. Recent evidence continues to refine how enhanced recovery is conceptualized, but modern understanding reiterates that interventions span the scope of care.

The interventions can include carbohydrate loading and smoking cessation in the preoperative phase, minimally invasive techniques and euvolemia in the intraoperative phase, and early feeding and mobilization and opioid-sparing analgesia in the postoperative phase.² When successfully implemented, the protocols are shown to be effective.

"Contemporary research shows that we have better clinical outcomes such as reduced length of stay, readmission, and complications, which many times lead to better patient satisfaction," said Jennifer Holder-Murray, MD, FACS, FASCRS, a colorectal surgeon, vice chair of quality integration, and surgical director of the Center for Perioperative Care at the University of Pittsburgh Medical Center (UPMC) in Pennsylvania.

A cursory literature review, focusing on only the last few years, suggests that enhanced recovery protocols can make a difference in quality indicators and patient experience across surgical domains—from colorectal surgery³ to cardiac surgery,⁴ from hip and knee arthroplasty⁵ to cesarean sections,⁶ and from craniotomies⁷ to emergency laparotomy.⁸

And even as these disease- and system-specific data continue to grow, high-quality literature reviews are strengthening the argument for the foundational impact of enhanced recovery by presenting the average estimated outcomes of these interventions.

Khara Sauro, PhD, an associate professor at the University of Calgary Cumming School of Medicine in Alberta, Canada in 2024, was the lead author on a meta-analysis of randomized clinical trials the highest level of evidence for effectiveness of interventions—that explored the impact of ERAS on length of stay, readmission, and complications.⁹

"The findings of our systematic review were that enhanced recovery decreases hospital length of stay on average by about 2 days, which is remarkable, and can decrease complications by about 30%," Dr. Sauro said, adding that the protocols did not increase readmission.

"I think what we can glean from both this study and some of the other research that we've done around synthesizing the evidence for ERAS is that this is a viable option for improving the quality of care for patients who are undergoing surgeries that are guided by ERAS guidelines," she said.

Spanning Specialties, Aggregating Improvements

Despite differences in each discipline's anatomical area of focus, core ERAS elements are mostly similar across specialties.

Cardiothoracic surgeon Daniel T. Engelman, MD, medical director of the cardiac surgical critical care unit and inpatient surgical services at Baystate Health in Springfield, Massachusetts, and founder and president of the ERAS Cardiac International Society, explained that cardiac surgery ERAS protocols also focus on goal-directed fluid therapy due to the large amount of fluid given during the cardiac procedure.

"Other than that, our enhanced recovery protocols are remarkably similar," he said. Looking at fasting before surgery as an example, he noted that surgeons from every specialty now say that prolonged fasting should be avoided.



"We used to tell everyone to be NPO after midnight, no matter what time their surgery was—but that left patients miserable and slightly dehydrated, which didn't help their kidney function. We've since learned that giving carbohydrate loading up to two hours before surgery reduces glucose variability, improves metabolism, and helps prevent dehydration. The body needs carbohydrates to manage the stress of surgery," he shared.

Regardless of the intervention, patients can benefit by incorporating additional elements. As Dr. Engelman noted, the aggregation of marginal gains—a concept introduced by the British cycling team¹⁰—can provide for many smaller changes that lead to a large overall positive effect.

"By decreasing opioid use through multimodal analgesia, we can remove the breathing tube sooner, mobilize patients more quickly, reduce the risk of delirium, and help bowel function return faster. Ultimately, patients leave the ICU and get out of bed earlier. A small change upstream can improve everything downstream," he said.

Care does need to be taken to ensure that patients are experiencing the maximum benefit of each intervention, however, and that they are working together, like a finely made soup.

"Patients benefit from a whole 'recipe," Dr. Holder-Murray said. "It takes a lot of good ingredients to make the soup and ensure components together all enhance each other, thus achieving a better result by working together synergistically."

And while the positives of these primary outcomes are self-evident and plentiful for surgeons and patients, the reduced length of stay, lower rate of complications, and other outcomes are also proving to have an important secondary outcome—reducing costs for hospitals and health systems. The data vary widely based on the procedure, but studies suggest that the cost savings could be in the thousands of dollars per patient.¹¹

"We want to show payers that investing upfront in these protocols yields a significant return," Dr. Engelman said. "Avoiding readmissions, rehabilitation stays, and skilled nursing facility admissions by getting patients home sooner ultimately saves substantial costs on the back end."

Start Early, Build Multidisciplinary Team

Some of the most important modern developments in the understanding of a successful ERAS program have been in finding the right time to introduce interventions and building the team to conduct the daily work before, during, and after an operation.

For timing, the right time is simple—enhanced recovery should be a consideration from the very first point of contact between the surgeon and the patient. To create an effective and sustainable program and one that starts the patient down the path of enhanced recovery as early as possible, it is critical that surgeons and their support staff build multidisciplinary teams.

"We often focus on the postoperative phase, because many of our colleagues haven't been fully aware of what can be done before or even during surgery," Dr. Engelman said. "Patients would arrive in the hands of perioperative specialists, and we'd do our best with the situation as it stood. But if we truly want to get this right, it needs to begin the moment a surgeon first meets the patient in the preoperative setting."

Starting with basics of smoking cessation, exercise, nutrition monitoring, and protein supplementation, patient education can have a dramatic impact on a patient's preparedness for surgery—something that the ACS supports through its Strong for Surgery[®] checklist system that screens for risk factors that can lead to postoperative surgical complications.¹²

To create an effective and sustainable program and one that starts the patient down the path of enhanced recovery as early as possible, it is critical that surgeons and their support staff build multidisciplinary teams.

"The first and foremost thing needed is for a surgeon, the hospital, or a specialty to find a multidisciplinary care team that is engaged and then get buy-in from the core team," Dr. Holder-Murray said.

"The team doesn't need to be huge, but it needs to have a few people who can make a difference and whose voices are positive," she added, noting that in her work to implement ERAS at UPMC, she and an anesthesia colleague sought out nursing unit directors, a preoperative nurse leader, a pharmacist, and some office staff for their initial team.

Although it started small, its members were

influential in their spaces and were able to create successful enhanced recovery workflows. From there, they took efforts to share their successes in changing surgical dogma.

A strong, effective team is particularly important for ERAS because healthcare and surgery have historically been siloed between aspects of patient care.

"We had a physical therapy team, a nutrition team, pharmacy, physicians, advanced practitioners, and nurses—but each operated in their own silo, following separate hierarchies, and writing their own orders," Dr. Engelman said. "We're trying to bring that all together where everybody has a piece of this care, but everybody is pushing in the same direction. There's a big push toward multidisciplinary rounding with a person from each of these teams rounding together with the patient."

Compliance, Audit, and Feedback

Despite a growing record of success, implementation of ERAS programs and subsequent compliance with the protocols are not seeing the penetration into health systems that reflect the positive findings.¹³

Compliance with ERAS protocols is a focus of Dr. Sauro's work, which has found that even in recognized enhanced recovery centers of excellence, there are struggles with adhering to standards.

She noted that her team has worked through a Canadian Institutes of Health Research grant on research using data from their province, which is population-based and complete. They compared it with data from both Switzerland and the Netherlands to see how compliant care is across multiple types of surgeries.

"Even in these centers of excellence where there's a lot of buy-in for ERAS, compliance is only moderate," she said.

Dr. Sauro, whose background is in implementation science, said that for broadly applicable interventions like enhanced recovery, it is important to understand barriers and facilitators to implementing and maintaining innovation.

Because there is a paucity of data on the barriers to using enhanced recovery protocols, Dr. Sauro and her team developed some of their own through surveys and found that barriers are familiar to those seen in implementing other medical guidelines:

- Knowledge: Lack of awareness that ERAS guidelines exist for a certain type of surgery and understanding of recommended care
- **Resources**: Insufficient resources available to deliver care, especially as healthcare systems are increasingly strained
- **Institutional support**: Lack of top-down support and influence of healthcare leaders who express their desire to align with ERAS guidelines

"Creating strategies to overcome those barriers and leverage any facilitators, like the belief in benefits from implementing ERAS, are what's going to improve the implementation and compliance with guidelines," Dr. Sauro said, adding that as compliance increases, so does the improvement in patient outcomes.

As with many aspects of modern medicine, especially in the evidence-based quality improvement that the ACS and other pillars of healthcare oversee, some of the most effective facilitators for success are audit and feedback.

"In implementation science, we know that that audit and feedback are very effective at sustaining an intervention. When you start rolling out ERAS guidelines, if there is that audit and feedback element, it's more likely to continue to be successful and can support slight changes in the pathways as needed," Dr. Sauro said.

While an effective audit can continue successful program integration, its lack thereof can quickly lead to a less-effective process, or even a reversion to the pre-intervention state. "You have to audit these interventions continuously every month," Dr. Engelman said. "It's essential to track the outcomes, because the moment you take your eye off the process, things start to regress."

Data and feedback—and making sure to share success stories about enhanced recovery—also are key for increasing resources and institutional support, which go hand in hand.

"Success builds on success, so share your wins," Dr. Holder-Murray said. "That helps to create buyin from executive leadership, and when you can demonstrate something that they see impacts not





only patient care, but also the dollars they need to care for more patients—then it's meaningful to them. They really see value in higher quality of care and lower cost of care together. Sharing your success stories in ways that speak to them is important."

Even with a preponderance of evidence, some surgeons may not be fully invested in changing their practice or going outside their comfort zone. In those cases, Dr. Engelman said, surgeon champions can appeal to their colleagues' desire to not be an outlier.

"It turns out that physicians, especially surgeons, don't like to be outliers, and if they see that surgeon A is getting their patients home quicker and using less opioids, and they are surgeon B who is using more opioids, and the patients are in the hospital a little longer, they will change their behavior," he said.

Looking Forward

Two thoughts become clear when reviewing the latest best practices and research in ERAS—the protocols are effective, but a lack of implementation and compliance are holding them back from achieving maximum patient, surgeon, and health system benefit.

At Baystate Health, Dr. Engelman and his colleagues are working to reduce friction in implementation by providing clear instructions to care teams. They have been publishing turnkey order sets on topics, including surgical site infection, prevention, and management of postoperative atrial fibrillation after surgery, ^{14,15} and other topics for cardiac surgeons in peer-reviewed journals that are free to access.

"We provide programs with specific bedside orders to implement enhanced recovery—not just general recommendations to limit opioids," he said. "We outline the exact medications, dosages, and order sets so they can easily integrate them into their electronic medical record systems."

There is a similar refrain elsewhere—to increase the scale and spread of enhanced recovery protocols, they need to be packaged in a simple, easier-toaccess manner.

"We are developing a toolkit that will make it easier for sites to implement ERAS guidelines. Having tangible tools that they can rely on, which are evidence-based in implementation science, but are also pragmatic and practical, is key," Dr. Sauro said.

Implementing a full suite of ERAS protocols can be a complex undertaking due to the many changes that would be required in pre-, intra-, and postoperative processes, but patients could receive benefits if a hospital is able to follow a few key principles.

Dr. Sauro shared that she and her team are involved in research aimed at highlighting a limited number of key elements that will provide surgeons and patients with considerable benefit right away.

"The other elements are critical as well. But if you

"It starts before surgery, and it continues afterward. As surgeons, we need to lead this effort from beginning to end, but it takes a team to sustain."

Dr. Jennifer Holder-Murray

can only do so much, here's what you should do, and ideally that will make it easier to implement ERAS at more centers, especially the centers that may not have the resources or money to implement them otherwise," Dr. Sauro said.

Dr. Holder-Murray emphasized that successful patient care starts long before the patient arrives in the OR. "It starts before surgery, and it continues afterward. As surgeons, we need to lead this effort from beginning to end, but it takes a team to sustain. Sometimes we must step back and realize that there are many components here and other people that are going to execute various components, and then we must rely on those colleagues to further drive the message and drive the ERAS practice—realizing the patient's success is key."

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FEATURE

PENNSYLVANIA AMBULANCE SERVICE

LEADS TO MODERN DAY EMS

Megan Fulton



In November 1954, at the 40th Clinical Congress, past-Chair of the ACS Committee on Trauma (COT) Robert H. Kennedy, MD, FACS, delivered the Oration on Trauma, calling for the need to improve two of the biggest weaknesses in trauma care: transport of the injured patient and prompt, efficient first aid.

Previous page: Freedom House Ambulance Service employees attend their first day on June 16, 1968, at Presbyterian University Hospital in Pittsburgh, Pennsylvania. (Credit: Heinz History Center)

Right:

Freedom House Ambulance Medical Director Dr. Nancy Caroline (left) and paramedic John Moon sit in a newly equipped ambulance. (*Credit: National EMS Museum Subject Files, NEMSM-0001 Date: c. 1968*)



THIRTEEN YEARS LATER, these inefficiencies would be addressed, and an emergency response system would begin to take shape in the US.

During the 1960s, Pittsburgh, Pennsylvania, was a city in dire need of economic rejuvenation. In the predominantly Black Hill District, most individuals fell below the poverty line and were deemed "unemployable" by welfare offices.¹

The Freedom House Enterprise, a nonprofit created by a grant from the federal government,² sought to provide economic stimulation to those in the Hill District by preparing them for employment through increased opportunities for job training.

CREATING OPPORTUNITY

At that time, Peter Safar, MD, an anesthesiologist, was instrumental in the proliferation of improved acute and critical care throughout the US. In 1957, alongside James Elam, MD, Dr. Safar established the initial steps to CPR,³ including



inventing the ABC method, the head tilt and chin lift maneuver, and mouth-to-mouth resuscitation.

Dr. Safar founded the first intensive care unit at Baltimore City Hospital and co-founded both the Society of Critical Care Medicine and World Association for Disaster and Emergency Medicine. His drive to develop emergency response services, however, had a much more personal beginning.

In 1966, now at the University of Pittsburgh and galvanized by the death of his 12-year-old daughter from cardiac arrest following a severe asthma attack,⁴ Dr. Safar turned to Freedom House Enterprises. Together, they not only developed standards for emergency medical technicians (EMTs) but also trained residents of the Hill District to become EMTs.

In 1967, Freedom House Enterprises started an ambulance service and marked the beginning of a new age in emergency care. The Freedom House Ambulance Service paramedics were the first to be trained to administer emergency care onsite beyond first aid in the US. Dr. Safar was responsible for overseeing the entire project and named Nancy Caroline, MD, medical director.

"Freedom House did something others didn't or wouldn't perform advanced procedures in the field. They were bringing care directly to the patient," said Peter E. Fischer, MD, FACS, a trauma surgeon and current chair of the COT's EMS Committee. "Treatment at the point of injury drastically increases the likelihood of survivorship."

HUMBLE BEGINNINGS

Until the 1960s, most emergency medical care was provided by law enforcement or funeral homes.⁵ For acute medical conditions like seizure, stroke, or heart attack, untrained people and underequipped vehicles could mean the difference between life and death. "Before the late '60s and early '70s, emergency response was purely about moving patients. Little to no care was delivered," said Michael J. Sutherland, MD, MBA, FACS, who, before becoming Senior Vice President of Member Services at the ACS and a trauma surgeon, was an EMT in Baton Rouge, Louisiana.

Dr. Safar's 32-week program worked with recruits from the Hill District for more than 300 hours, training them in anatomy, physiology, CPR, advanced first aid, nursing, and defensive driving.⁶ By using donated and refitted ambulances—which inspired the designs used today— Freedom House paramedics created a way to provide emergency care en route to hospitals.

In their first year, the Freedom House Ambulance Service responded to almost 6,000 calls and transported more than 4,500 patients. In data collected by Dr. Safar, these paramedics saved 200 lives.⁶ Dr. Peter Safar, from the University of Pittsburgh, trained Freedom House attendants, equipped the ambulances, and assured quality control. (*Credit:* University of Pittsburgh)

"THIRTY YEARS AGO, A PARAMEDIC IN THE FIELD NEEDED TO TALK TO A DOCTOR 100% OF THE TIME TO DELIVER CARE. IT'S PROBABLY 1% TODAY."

Dr. Michael Sutherland

MULTIPLE FACTORS AT PLAY

Throughout history, there have been versions of emergency response systems. Dominique-Jean Larrey, Napoleon Bonaparte's chief physician, developed such a system for French soldiers. The Union soldiers created another to evacuate the injured during the Civil War. But no system had ever been formalized in the US.

Leading up to the 1960s, treating heart disease, stroke, trauma, and cancer were the most important public health initiatives because of the common belief that they formed much of the public health burden.⁷ Trauma specifically was identified as a crisis due to the steady increase of traffic accidents, eventually leading Congress to pass the Highway Safety Act of 1966.

Members of the COT and the Subcommittee on Transportation of the Injured were instrumental in changing the face of EMS. Citing the Highway Safety Act, COT leaders pointed out the failure to include built-in guidelines for proposed action on EMS.⁸

It was projected that 350,000 deaths from heart disease and thousands of trauma-related deaths and injuries could be mitigated by rapid, quality care. Data presented alongside the American Medical Association and the American Heart Association showed that only 7% of EMS vehicles met design standards, and 35% of staff had minimally acceptable training.⁷

"EMS has been going through an intentional evolution," said Dr. Sutherland. "Paramedics didn't always have the independent ability to perform certain prehospital care, but now most of it has been given a protocol. Thirty years ago, a paramedic in the field needed to talk to a doctor 100% of the time to deliver care. It's probably 1% today."

Freedom House paramedics, who first were deployed in the 1960s, provided a crucial service for Pittsburgh residents. The program became a national model for emergency medical transport and care.





LOCAL SUCCESS, NATIONAL CHANGE

The Freedom House Ambulance Service continued its work into the 1970s and its profile as a leader in emergency response grew. At its height, it had 35 crew members, received 7,000 calls a year, and its leaders had established the National Registry of Emergency Medical Technicians.

The crew introduced physicians around Pittsburgh to ambulance work, which allowed the paramedics to learn how to transmit EKGs, use air casts to stabilize injured bones, and administer Narcan.⁹ Freedom House further expanded its paramedic training to include intubation, defibrillation, and intravenous drug administration.

In June 1967, J. D. Farrington, MD, FACS, authored a *Bulletin* article titled "Death in a Ditch," which was the first time a physician had formally outlined the minimum equipment that should be available on emergency vehicles.

"The ACS helped develop the first equipment list, and the COT still to this day has a part in the revisions," Dr. Fischer said. It includes tools to practice procedures trailblazed by Freedom House paramedics.

Basic equipment like oxygen masks, gauze, and cervical collars are stored alongside advanced life support equipment like laryngoscopes, defibrillators, and monitoring devices. Dr. Sutherland specifically noted the advances in using AEDs and the transition to treating cardiac arrest in the field without transporting the patient since the time of the Freedom House paramedics.

In 1973, the US Department of Transportation and President Gerald Ford's administration created an interagency council⁶ on emergency medical services. Dr. Safar was brought on to a five-person committee, and shortly thereafter, the Emergency Medical Services Systems Act of 1973 was passed.

FINDING A PATH FORWARD

While EMS vehicle readiness has been optimized by paramedics with the highest training and the most robust equipment, there are still major challenges in the form of workforce development and access to care.

"In many states, EMS isn't considered an essential service like police or fire departments," said Dr. Fischer. "A lot of them are still volunteer agencies, and volunteerism is dwindling. There are places where you call 911 and no one comes."

This obstacle presents great difficulties for a key population in the US—rural communities. If the availability of ambulances

The defibrillator allowed the Freedom House Ambulance Service in the late 1960s to detect and monitor heart rates for emergency patients. Freedom House paramedics became the first to gather data using tools such as this and transmit the information to the hospital over the radio while in transit (Credit-Heinz History Center)



This model of Resusci Baby and tools of resuscitation were used by Dr. Peter Safar to train Freedom House ambulance paramedics and others. (Credit: Heinz History Center) goes down, resources go down, and the need to transfer patients for more severe issues becomes a larger problem.

There have been strides to address some of these barriers for rural populations, but major questions remain. What happens if your hospital is underresourced? What happens when the already limited resources are fully utilized?

"In bigger cities like San Francisco or Chicago, EMS is part of the fire department. In addition to their ambulances, they can put medics on fire trucks to bring care to the patients quicker," explained Dr. Sutherland. "But if you're in a small town or county with only one or two ambulances, that's not possible."

There is an effort to push paramedics further into the field, but they are in short supply. As the delivery of care gets more expensive, driven by increases in the cost of ambulances and medical supplies, paramedics' pay has lagged behind.

"Medicare reimbursement doesn't adequately cover the cost of the delivery of care," said Dr. Sutherland.

ZERO PREVENTABLE DEATHS

Prehospital care has been a discussion point at the ACS since the 1920s when the COT was the Committee on Fractures and there were debates over how to treat and transport those with broken bones.

For Warren C. Dorlac, MD, FACS, a trauma surgeon, COT Vice Chair, and prehospital trauma medical director for the National Association of Emergency Medical Technicians, addressing these issues in prehospital care is paramount.

"Most patients die in the prehospital setting," he said. "Some deaths are nonpreventable—if you get decapitated or hit by a train but some are. Approximately 25% of prehospital deaths are potentially preventable."

Rural communities are not the only settings that can have issues with prehospital care. "Traffic and weather are universal problems that can play a significant role in delaying care," explained Dr. Dorlac. "Every state has weather events—hurricanes, tornadoes, earthquakes, which can vastly impact the ability of EMS to find you in an emergency." But, on the quest to achieve zero preventable deaths, there are actions we can take.

Bystander intervention, like ACS Stop the Bleed and emergency notification systems, are two small ways to help EMS. The potential of emergency notification systems is currently being studied at length by ACS Fellows and Future Trauma Leaders.

Pushing advanced life support, like whole blood, closer to the point of injury to prevent secondary injury is where EMS

PARTS OF HISTORY WILL INEVITABLY BE LOST TO THE FIRE OF TIME, BUT HONORING THESE TRAILBLAZERS AND THE WAYS THEY IMPACTED PUBLIC HEALTH IS IMPORTANT.

is the most critical, a strategy Freedom House put into practice. All these elements working together help improve the likelihood of survivorship. But the most important thing anyone can do is prevention.

"Wear a helmet, wear a seatbelt, drive the speed limit," said Dr. Dorlac. "The best way to protect yourself is to do the right thing first."

FIRE OF TIME

The work of the Freedom House Ambulance Service and the strides it made for paramedics set a standard still used today. Parts of history will inevitably be lost to the fire of time, but honoring these trailblazers and the ways they impacted public health is important.

Bringing advanced life support care directly to the patient is a relatively new practice in the US and will continue to change as the needs of the populations they serve change. The Freedom House Ambulance Service, Dr. Safar, and the COT changed the trajectory of prehospital care, and though the Freedom House Ambulance Service has been discontinued, its legacy lives on. (B)

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Beyond Weight Loss, Heart Health Improves after Bariatric Surgery

Tony Peregrin

TAMMY L. KINDEL, MD, PHD, FACS, FASMBS, recipient of the 2020–2025 George H. A. Clowes Jr., MD, FACS, Memorial Research Career Development Award—which is supported through contributions to the ACS Foundation with funding from The Clowes Fund, Inc.—recalls treating a patient in his mid-30s with severe obesity, high blood pressure, and obstructive sleep apnea who had developed heart failure.

The patient was using continuous positive airway pressure therapy for obstructive sleep apnea and, despite taking multiple medications for his heart failure, did not recover normal cardiac function and was listed for a heart transplant. However, he was hesitant to undergo bariatric surgery—even though the procedure could mean he no longer required a heart transplant.

"There really was no further medical treatment that was going to give him a chance to improve his heart function," explained Dr. Kindel, director of the Bariatric Surgery Program at Froedtert Hospital and the Medical College of Wisconsin (MCW) in Milwaukee. "Studies suggest that there is a 50% chance of meaningful cardiac recovery after bariatric surgery."

After several conversations explaining the potential risks and benefits of surgery, particularly related to his cardiac function, the patient eventually had bariatric surgery. A year after surgery, the patient is on significantly less medication, he's taking walks with his kids, and he is no longer listed for a heart transplant.

Dr. Kindel received the Clowes Award, which supports the work of a promising young surgical investigator, for her research project, "The Role of GLP-1 in Cardiac Recovery after Bariatric Surgery in Obesity-Induced Heart Failure." The award consists of a stipend of \$45,000 for each of 5 years and is Dr. Tammy Kindel operates on a patient.

"We used 2 years of the Clowes funding to reinvigorate the laboratory and rebuild our animal colony. Without that funding, this exciting and important project could not have continued."

Dr. Tammy Kindel

Dr. Tammy Kindel shows excitement to begin her day in the OR. open to an ACS Fellow or Associate Fellow who has completed an accredited residency in general surgery, vascular integrated surgery, cardiothoracic integrated surgery, or plastic surgery.

Clowes Award and Rebuilding a Rodent Colony

Dr. Kindel was presented with the Clowes Award at the height of the COVID-19 pandemic, which turned out to be fortuitous.

"At our institution, like so many basic science laboratories during the COVID shutdown, we were not permitted to continue active research studies," explained Dr. Kindel. "We had developed a very unique rat colony at MCW partnering with the rat genome core that is not available anywhere else in the country. This grant allowed me to start over and rebuild this rat genome experiment to study how loss of a specific cellular receptor affects cardiac function after bariatric surgery. We used 2 years of the Clowes funding to reinvigorate the laboratory and rebuild our animal colony. Without that funding, this exciting and important project could not have continued."

Using animal models of obesity and metabolic disease, Dr. Kindel's research endeavors to go beyond bariatric surgery and weight loss, which has been proven to enhance cardiovascular health, to examine the role of surgery in changing gut hormones, bile acids, and microbiome signaling that are linked to improved heart health.

Protected Time for Research

Dr. Kindel's preliminary research was supported by the Clowes Award, a KL2 (an award housed within the Medical College of Wisconsin) and a K08 award, the latter two of which were funded by the National Institutes of Health (NIH). The aim of all three awards is to support career development for early career researchers in the form of staffing, supplies, salary, and protected research time.

"These awards are designed to help clinicianscientists, in my case, surgeon-scientists, have dedicated time that is protected away from our




Dr. Tammy Kindel and her team perform a potentially life-altering bariatric procedure on a patient. clinical duties," said Dr. Kindel. "This funding, from sources such as the Clowes Award, provides the opportunity to expand the scope of our work faster, accelerate research results quicker, and offer additional salary support for research staff. I need a strong research team present every day in the wet laboratory to continue research studies while I'm in bariatric clinic or the operating room. This type of research requires a dedicated team effort to move the science forward."

Dr. Kindel's preliminary research data, supported in part by the Clowes Award, led to a \$2.2 million R01 award funded by the NIH/ National Heart, Lung, and Blood Institute to expand her cardiac studies. "Without the Clowes financial support, it is unclear whether I would have been able to transition my K08 to my R01 project, especially given the COVID-19 pandemic and delay in research across the country," she said. "Documenting to the NIH that the American College of Surgeons believed in our research project line and was willing to continue to fund our work provided a strong track record of success and reliability as a principal investigator. Funding has a way to beget more funding."

Dr. Kindel received the 5-year R01 grant (2022–2027) for the project titled, "Identifying Gut Microbiome Mediated Mechanisms for Diastolic Dysfunction Improvement after Bariatric Surgery."¹ Heart failure with preserved ejection fraction is

closely associated with obesity, with no treatment known to decrease cardiovascular mortality.

Her project focuses on understanding how bariatric surgery improves heart function in patients with obesity-related heart failure and will lead to the development of new surgical and nonsurgical therapies for this disease.

A primary goal of Dr. Kindel's current research, which is supported by the R01 grant, is to collect biospecimens from patients with heart failure with preserved ejection fraction before and after sleeve gastrectomy in an effort to verify that the mechanisms involved in the animal models correctly translate to human patients, which in turn, supports the use of metabolic surgery as treatment for obesity-associated heart failure.² "We believe that sleeve gastrectomy causes unique changes to both the enterohepatic circulation of bile acids as well as gut microbiome which beneficially helps patients with obesity-associated heart failure."

Far-Reaching Implications

Dr. Kindel's research has examined other facets of how the microbiome is tethered to heart health specifically how certain antibiotics administered at the time of bariatric surgery can alter the gut flora, resulting in an improved resolution rate of hypertension for patients.

"We've determined that the gut microbiome is driving some of the improvements in blood pressure after bariatric surgery that is independent of weight loss," explained Dr. Kindel, who started her work in this area with rats and mice because it is possible to carefully control diet, calorie intake, activity, and metabolic disease in rodent models. These animal models revealed improved hypertension control with surgery versus calorie-restrictive diets. With work supported by the Clowes Award, they then were able to show in an animal model a direct causation between the changes in blood pressure after surgery and the gut microbiome.

To translate these animal findings to humans, Dr. Kindel conducted a retrospective analysis of adult bariatric patients who underwent surgery between 2012 and 2016. The results indicated that a single dose of prophylactic perioperative, intravenous clindamycin was associated with significantly increased resolution of postoperative hypertension. This was followed by a randomized controlled trial of one antibiotic versus another at the time of Roux-en-Y gastric bypass.³

"We found that a single antibiotic given at the same type of bariatric surgery is affecting how the gut microbiome beneficially repopulates long term to improve blood pressure," she said. "We're very excited about the mechanisms as it gives us some potential therapeutic targets to magnify at the time of surgery to improve cardiovascular outcomes for our patients."

Dr. Kindel noted that the broader application of these findings is that many decisions made by clinicians at the time of gastrointestinal surgery such as administering antibiotics and other pharmaceuticals—can affect gut microflora, and in turn, cause unanticipated negative or positive patient outcomes. "We tend to not think about all of the short-term medications we use at the time





of surgery (such as antacids, antibiotics, pain medications, anti-emetics) that can have substantial long-lasting effects on how that surgery works. However, gastrointestinal surgery and specifically bariatric surgery is unique, in that on the one day of surgery, we are potentially repopulating the gut microbiome for the long term due to the new anatomy. This can impact multiple different systems including immune function, metabolic disease, and cardiovascular health, to name a few."

Challenges of Being a "Triple Threat" Surgeon

As is the case for many surgeon-scientists, Dr. Kindel's work at the patient's bedside informs her role as a researcher. "The clinician-scientist asks the most relevant questions because we're taking care of the patients every day. It's been very rewarding to take some of the problems or questions that we have, such as 'Why is one person's diabetes getting better and another person's not? or 'Why does it seem that one surgery works better than another?', study them systematically in the lab, and then translate those findings back to the patients. It's a very full circle moment as a surgeon and scientist." Unfortunately, the struggle for the surgeonscientist to succeed as a "triple threat" surgeon who can operate, teach, and conduct research is often tied to challenges in obtaining funding.⁴

"Surgeon-scientists are historically viewed differently than other clinician-scientists because it is well known that part of our time is spent in the operating room," said Dr. Kindel. "As surgeons, we have unpredictable days despite our best efforts where a patient emergency requires us to be at the bedside or in the operating room and not in the laboratory. Having funding mechanisms like what the College is able to provide supports the surgeonscientist specifically to maintain critically important research efforts and yet provide the essential patient care that is mandatory in our specialty."

Pursuing funding opportunities, such as the awards supported by the ACS, requires perseverance.

"Apply and reapply. Never give up just because you're not funded the first time," advised Dr. Kindel. "It's very rare, in today's world of limited funding opportunities, to expect that you're going to hit a home run the first time."

Clinicians with a demonstrated track record for successfully obtaining funding typically share similar support systems, namely strong mentorship and guidance from leadership. Dr. Kindel advises early career surgeons in particular to avoid submitting

an application before reviewing a colleague's or mentor's application for a similar type of grant.

"None of us knows how to do this right the first time and keep in mind each grant mechanism has a unique interest, mission, and value set. Young investigators should not rush a grant application. They should take the time to study their mentors' success, as well as write and rewrite until they have a clear and concise grant application," she said.

Dr. Kindel's future research efforts—based on data related to the impact of bariatric surgery on the entire inflammatory state of the body, oxidative stress, and inflammatory cytokines—will assess the unique combination of gastrointestinal surgery with cognitive decline in obesity.

"We are interested in expanding our findings of sleeve gastrectomy in reducing oxidative stress to Alzheimer disease, a disease increased in patients with obesity and driven by oxidative damage," Dr. Kindel shared. "We believe if we can treat midlife obesity and metabolic disease with bariatric surgery, we may have a very beneficial effect on long-term cognitive function and, hopefully, help people who are at risk for Alzheimer disease."

To learn about the basic requirements and obligations associated with the Clowes Award, visit *facs.org/clowes*.

For more information about the ACS Foundation, the programs it supports, and how to contribute, go to *facs.org/foundation*.

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Dr. Tammy Kindel discusses the importance of developing individualized, patient-specific treatment plans.



Dr. John Armstrong

All Surgeons Can Help Advance a National Trauma and Emergency Preparedness System

John H. Armstrong, MD, FACS Eileen M. Bulger, MD, FACS Warren C. Dorlac, MD, FACS Jeffrey D. Kerby, MD, PHD, FACS

Injury affects every community in the US and is the leading cause of death for people under the age of 75 and the principal cause of death of children and adults up to age 45.

THERE ARE NEARLY 200,000 deaths each year from injury—the same "size" as the populations of cities such as Ft. Lauderdale, Florida, Rochester, New York, and Salt Lake City, Utah.

Injury care is organized locally and to a lesser extent, regionally; yet, despite multiple calls for almost 60 years, starting with the 1966 report of the National Academy of Sciences, *Accidental Death and Disability: The Neglected Disease of Modern Society,* we remain without a national trauma system (see Figure 1, below).

Instead, the US continues to have a fragmented and incoherent patchwork of trauma centers, hospitals, emergency medical services, rehabilitation organizations, and public health agencies. Beyond daily injuries, we face mass casualty incidents from natural, industrial, and intentional sources, in which physical injury predominates. Further, the potential for combat casualty repatriation looms on the horizon from large-scale combat operations not seen since World War II. The military health system will need help to manage combat casualties that may exceed 2,000 per day within the first 100 days of conflict.

For more than 100 years, work done by the ACS Committee on Trauma (COT) has improved the care of injured patients by defining and verifying standards for care through *Advanced Trauma Life Support, Optimal Resources for Care of the Injured Patient,* and the *Trauma Systems Consultation Guide:*



Figure 1.

Decades of reports and research show a concerted effort to develop a national trauma system in the US. Essential Elements, Framework, and Assessment for State and Regional Trauma Systems. Combined, the application of these standards has decreased the risk of dying from injury at trauma centers and in trauma systems. Trauma centers and systems function as learning communities, consistently assessing their outcomes through data to improve care in communities, regions, and states.

The ACS sponsors two key sources of aggregated trauma patient data, the National Trauma Data Bank[®] (NTDB[®]) and the ACS Trauma Quality Improvement Program[®] (TQIP). These programs have contributed to trauma quality research and performance improvement within trauma centers, healthcare systems, and regions.

Figure 2. The NTEPS

Blueprint provides background information on the impetus for a National Trauma and Emergency Preparedness System, the request to Congress, strategic elements, and proposed structure and governance.

ACS Committee on Trauma

National Trauma and Emergency Preparedness System (NTEPS)

V.2.0

The ACS COT created a 12-page blueprint for a National Trauma and Emergency Preparedness System (NTEPS) that originated through work completed by its Advocacy Pillar in 2022.

NTEPS 2.0 was updated and approved by the ACS Board of Regents in February 2025 (see Figure 2, below). This version broadens the context and refines the structure for NTEPS by articulating the aims of this national trauma system and strategies for accomplishing these goals. This viewpoint article highlights what you can do to help move NTEPS forward.

Getting to Know NTEPS 2.0

NTEPS 2.0 envisions a system of timely, accessible, and high-quality trauma care that serves communities and everyone who is injured, spanning injury prevention activities, prehospital and trauma center acute injury care, rehabilitation, and return to home and work.

The system applies to the individually injured, mass casualties, and mass population events. NTEPS supports a connected network of Regional Medical Operations Coordinating Centers (RMOCCs) to align the distribution of daily injured patients and mass casualties, as well as resources, across trauma centers and non-trauma acute care hospitals.

An RMOCC is an entity that coordinates daily disposition of trauma patients and scales to balance mass casualties and critical resources across the healthcare system.

There are five core NTEPS functions: public health readiness, standards, performance improvement, research, and public outreach.

These functions mutually reinforce each other and are intended to reduce rates of injury, enhance survivability and attenuate disability among all injured patients, maximize critical survivability in mass casualties, and accelerate research collaboration to advance injury care and prevention.

NTEPS recognizes the need in mass casualty and population events for a coordinated response



by public health, emergency management, and healthcare systems across geographies for casualty clinical disposition and deployment of medical assets.

Public health readiness includes the coordination of patient/casualty movement that scales for mass casualty events, situational awareness through a comprehensive, time-sensitive data system of critical data elements (e.g., patient/casualty volumes, hospital bed capacity, and EMS resources), mutual military-civilian healthcare response, and surveillance for emerging state, regional, and national events.

Standards focus on the establishment of best practices informed by evidence for injury prevention, field triage, emergency response, acute hospital care, rehabilitation, and recovery. These standards also concentrate on the verification process for trauma system standards across the continuum of care, delivery of clinical consultation within regional and state systems, and delineation of optimal resources for the care of injured patients within a specified geography.

Performance improvement remains important for trauma system operations, just like it is in trauma centers. It serves as the basis for an annual needs assessment to define system gaps in trauma and emergency preparedness, evaluates operational readiness within regions and states, uses riskadjusted benchmarking for system improvement, provides rural hospital support, and offers state EMS system assistance.

Research enhances maintenance of a national trauma dataset the includes all elements along the injury, care, and recovery timeline and establishes a mechanism for the coordination and funding of research with dissemination of findings.

Public outreach engages communities, regions, and states in injury prevention activities, supports ACS Stop the Bleed training and kit placement, and develops awareness of how trauma systems improve the care of the injured patient. NTEPS 2.0 core functions are guided by five principles. The NTEPS should:

- Have administrative and regulatory oversight through RMOCCs
- Span the medical response to daily trauma and mass casualty incidents
- Strengthen the role and involvement of EMS
- Reflect a collaboration of trauma and community stakeholders from the private and public sectors
- Be a learning healthcare system that reviews system data, identifies gaps, and applies performance improvement and research methods to drive system change

The proposed structure for NTEPS 2.0 is based on a network of RMOCCs. The RMOCC is the organizing private-public entity and includes acute medical care, public health, emergency management systems, the military health system, and the National Disaster Medical System. It coordinates daily trauma patient and mass casualty movement for load balancing across trauma centers and hospitals and manages critical resources. By operating daily, RMOCCs are conditioned to scale rapidly for mass casualty response (see Figure 3, page 45).

RMOCCs can link horizontally and vertically to form state and federal levels of medical operations coordination. Such neural networks become state and federal Medical Operations Coordinating Centers (MOCCs), from which the core elements of NTEPS can emerge. The most efficient way to develop NTEPS is through state and national integration of RMOCCs.

Resources for RMOCCs start with an agreement among all stakeholder participants for data-sharing and decision-making. From this agreement, optimal resources are determined for administrative staff, physical space with connection to the local/ regional emergency operations center (EOC) is set up, an information technology platform with

NTEPS 2.0 core functions are guided by five principles.

Have administrative and regulatory oversight through RMOCCs

2 Span the medical response to daily trauma and mass casualty incidents

Strengthen the role and involvement of EMS

4 Reflect a collaboration of trauma and community stakeholders from the private and public sectors

5 Be a learning healthcare system that reviews system data, identifies gaps, and applies performance improvement and research methods to drive system change

reliable, secure, and rapid information flow is established, a communication system that connects the RMOCC, EOC, and all stakeholders is secured, performance improvement processes and research staff are organized, and funding for daily and surge operations is secured. Funding sources include the federal Hospital Preparedness Program, local and state appropriations, business contributions, and healthcare organizations.

Surgeons' Role in NTEPS Development

ACS members are essential advocates for NTEPS development, which requires a multipronged advocacy strategy at community, state, and national levels. Advocacy initiatives inspire hearts and minds to act by expanding influence and gaining the attention of decision-makers in the public and private sectors. Injury care and prevention improve the quality of life in communities, and as a former Speaker of the House of Representatives observed, "All politics is local."

Get Started

- Review the NTEPS 2.0 blueprint and the March 2025 *Journal of the American College of Surgeons* RMOCC commentary.
- Shine a spotlight regularly on your trauma system (inclusive of EMS) by hosting visits with your public officials and business leaders.

- Meet with your local public health department director to discuss the vitality of injury care and prevention in your community.
- Visit your local EOC to discuss trauma system support of Emergency Support Function 8 (Public Health and Medical).
- Engage with your healthcare coalition to review trauma system action for readiness and response.

Completing this initial work positions you for a conversation about NTEPS and RMOCCs with your hospital executive and governing body leadership.

Advance the Cause in Your State

- Deliver ACS Stop the Bleed training and kits frequently across communities in your state and in your state capital.
- Meet your state legislators in district to discuss the relevance of RMOCCs for state readiness and response.
- Present an overview of RMOCCs to your state hospital association leadership.
- Engage your state committee on trauma, state ACS chapter, and state medical association to emphasize the necessity of a vibrant state trauma system and RMOCC development.
- Ask your state health department for an initial or follow-up ACS Trauma Systems Consultation.

The ACS COT Regional Committee has created an RMOCC workgroup to share further ideas for spread of RMOCCs in states.

Promote Federal Action

- Send a SurgeonsVoice email to your members of Congress to ask for their support of ACS priorities in reauthorization of the Pandemic and All-Hazards Preparedness Act (PAHPA). These priorities include continuation of (1) the Hospital Preparedness Program with a requirement that funded entities sustain capabilities for coordination of regional medical operations within a coalition or between multiple coalitions within close proximity; and (2) the MISSION ZERO grant program for support of military-civilian trauma training partnerships.
- Visit your legislators in district offices during House and Senate recesses to share the NTEPS blueprint,

ask for reauthorization of PAHPA with inclusion of ACS priorities, and request stable appropriation of these programs.

- Visit your legislators and their staff in their Capitol Hill offices in Washington, DC.
- Verify that your hospital is a participating facility in the National Disaster Medical System.
- Engage with military treatment facilities, Veterans Administration hospitals, and regional disaster health response systems within your area to enhance response for mass casualties and large-scale combat casualty repatriation.

The COT seeks collaboration for NTEPS advocacy with trauma professional and other medical societies, healthcare industry organizations, and external stakeholders in business, education, and nonprofit services. National standards for RMOCCs are being developed by the COT Trauma Systems Pillar.

Optimal care for injuries in daily life, mass casualties, and mass population events requires a systems approach that brings together local, state, and regional systems in a data-driven framework for continuous readiness, performance improvement, and research.

After 60 years of reports about the problem, professional societies and the private sector have exhausted what they can do to generate a national trauma system. NTEPS, expressed as a network of RMOCCs, is the best approach to reduce death and disability from injury. ()

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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Figure 3.

The RMOCC facilitates patient flow from prehospital point of injury to initial care facilities and transfer between lower-level trauma care/nontrauma acute care hospitals and Level I and II trauma centers.





Dr. Satyan Shah

Is This Really about Tape? What Our Systems Reveal about Institutional Trust

Satyan K. Shah, MD, FACS

I was recently pondering something seemingly mundane while on rounds.

IT WAS 7:00 PM, and I needed tape—3-inch cloth tape, to be specific—the kind many urologists use to secure catheters with a mesentery. But I was pensive because of what happened next.

After finding the patient's nurse, I walked halfway down the ward with him to the supply room. I swiped my badge to enter and then made several attempts at a fingerprint scan before the medical dispensing system finally granted us access. It took another minute to scroll through the registry to find the patient and open two doors—all of this effort for a roll of inexpensive tape. Sound familiar? It's the same

process many hospitals employ to

distribute routine supplies—gauze, spirometers, and even, syringes. But I couldn't stop thinking about why a surgical floor would safeguard such a basic item. Inventory management makes sense. Accurate billing is logical. But is that all? Did the hospital think doctors might waste the tape? Hoard it? Or take it home? I felt uneasy over these possibilities. Uneasy because they indicated a lack of trust. In the days ahead, I began to question other common practices, like why I was constantly waving my badge around the hospital. It made perfect sense to enter the operating room or park in the employee garage. But I was having a harder time understanding why a badge was necessary to access the conference and break rooms.

As it happened, the next day, I had several surgeries scheduled. My first stop was at the automated scrub dispensing machine. I scanned my badge and retrieved a pair of purple scrubs. Except this time, a medium pair had been mistakenly stocked in the large slot. So, I scanned my badge a second time to return them for credit, and that's when my attention turned to a small video camera recording the scrubs as they fell into the bin. It was a camera similar to those used to deter criminal behavior at airports and casinos. Did hospital leadership think people would deposit hospital gowns (which aren't locked up) to earn scrub credits? My heart sunk. I was starting to feel like a pat down was coming next.

I chuckled at the irony of hospitals trusting surgeons to perform complex procedures, but not to return their scrubs. With all the background checks, licensing boards, and credentialing committees, it seems fairly unbelievable that physicians may be thought of as potential petty thieves. Perhaps the Hippocratic Oath needs to be updated with a pledge to not steal hospital property. Incidentally, many years ago, scrubs were kept on open shelves in the locker room. It may be hard for someone in 2025 to imagine, but the system worked well. Did surgeons occasionally take a pair home to wear on call? Yes. But that was the exception as most changed back into dress clothes after the OR. It was rare to have a size missing, which is why I was bothered by the machine's video camera and the faux pas scrub color.

Here's another irritation I have experienced: reinvented hand-washing audits. Many hospitals now require physicians to wear a special badge as part of the electronic hand-hygiene surveillance system. Special sensors on the dispenser in patients' rooms sense provider compliance. Lest one forget, it gives an audible/visual alert as the physician approaches the patient, typically with red lights and beeps. Although wellintentioned, this kind of alert has the potential to erode patient trust in their physician, no matter how compliant subsequent hand hygiene is thereafter.

Some may argue these grievances are simply a result of modernization, which conveys necessary information to hospital leadership. But it's notable that security and compliance are often touted in the marketing of many of the products and systems described herein. As for the issue of theft, it would be naïve to think any system could fully eliminate it. It is a critical mistake to implement policies that potentially mischaracterize the majority of healthcare providers.

In this time of increased focus on physician wellness, hospitals must

guard against sending messages of mistrust. Wellness measures should include an assessment of the effect new technology has on employees. These changes may help foster "vertical bonds of trust" that hospital leaders need.1 As Clara Berridge, PhD, MSW, a gerontologist from the University of Washington in Seattle, said, let us be careful of treating physicians like "suspects who have to be deterred from bad behavior."2 It's prudent to keep this in mind, even if there are a few among us wearing scrubs as pajamas and using their dirty hands to box gifts with cloth tape. **B**

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Disclaimer

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

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US Navy Surgical Teams Fight to Save Lives on WWII Amphibious Warships

Matthew D. Tadlock, MD, FACS André B. Sobocinski, MLS

This year, we commemorate the 80th anniversary of the end of World War II.

WHILE MUCH HAS BEEN WRITTEN about the roles of US Navy and Army noncombatant hospital ships used during the war, the lifesaving services of medically augmented, grey-hulled amphibious warships, also known as Landing Ship Tanks (LSTs) is less well known.

Large, and difficult to maneuver, LSTs were flat-bottomed combatant vessels approximately 50 feet wide by 328 feet long, with high vertical sides, specifically designed to support amphibious operations. While their crews typically referred to them as "large slow targets," LSTs were perhaps the most versatile naval vessels of WW II.

The LST closed logistical gaps during amphibious operations in Europe (including Anzio and Normandy) and the island-hopping campaigns in the Pacific.¹ Not only did these vessels bring troops, tanks, and other war material ashore, LSTs became critically important casualty evacuation and treatment platforms. Very quickly it was realized by Allied forces that LSTs augmented with surgical capability were needed to provide lifesaving, farforward surgical care during amphibious operations.

US Ship LST-464

Beginning in 1943, the US Navy began adapting LSTs into designated medical ships. Among the first to hold this designation was USS *LST-464*. In June 1943, while assigned to the Seventh Amphibious Force in the Pacific Theater of Operations (PTO), it was refitted to provide much needed combat casualty care and other medical capabilities and redesignated as a combatant vessel with hospital capabilities, *LST(H)-464* (see Figure 1, page 49).



In addition to the 60 hospital bunk beds (organized in triple tiers) and four "surgical beds" for the most severely injured casualties, the ship had an OR, a sterilizing room, dental office, laboratory, dressing room, and x-ray room.² Later, an additional ward, sick officer quarters, outpatient spaces, and a formal medical stock room were established on the ship.²

The core staff included six medical officers and 35 hospital corpsmen. However, depending on the mission and location, additional medical officers and surgical teams (forerunners of today's fleet surgical teams) augmented the ship's roster of care providers. Over the course of its service in the PTO, the ship provided "the specialties of surgery, internal medicine, dermatology, urology, eye, ear, nose, and throat, neuropsychiatry, and anesthesia."^{2,3} While supporting operations in New Guinea for nearly 15 months, LST(H)-464 served as both a station hospital and evacuation unit. She also supplied emergency medical supplies, combat personnel, and nonmedical stores such as fuel and fresh water to units in the region. Prior to her departure, LST(H)-464 was formally organized into the 7th Fleet Blood Bank for US Army and Navy personnel, collecting 809 pints of lifesaving whole blood.²

Leyte Gulf Campaign

Fought October 23–26, 1944, the Battle of Leyte Gulf was the largest naval battle of WWII. It was also the first time in the war that Imperial Japan employed suicide "kamikaze" planes against enemy targets. Despite Allied victory at Leyte Gulf, fighting did not end, nor did the risk of kamikaze attack.

Figure 1.

LST(H)-464, San Francisco, circa 1945. US government photo, not in copyright. (Credit: Naval History and Heritage Command) Unlike unarmed white-hulled hospital ships, gray LSTs did not display large red crosses which could function as potential targets for kamikaze planes. They did, however, have a protective armament.

November 12 was the most challenging day for *464's* medical team when 137 casualties were admitted from three ships attacked by kamikazes. On November 14, 125 patients were admitted.²

Unlike unarmed white-hulled hospital ships, gray LSTs did not display large red crosses which could function as potential targets for kamikaze planes. They did, however, have a protective armament. LST(H)-464 successfully fought off kamikaze attacks on November 17, 24, and 26.²

During the Philippines campaign and during "strenuous and unremitting" duty, caregivers aboard the LST(H)-464 treated 4,846 combat casualties. After depleting its stores of whole blood, an additional 1,500 pints of whole blood were obtained from US Army soldiers in the region. By April 1945, whole blood was regularly available in the PTO, and the ship no longer had to serve as a blood bank.²

Combat Casualty Care at Sea

From 1943 to 1945, the medical units supporting LST(H)-464 cared for 8,236 hospital inpatients, 15,271 "dispensary" outpatients, and performed 655 major operations and 381 minor operations; 75% of all major operations were performed under spinal anesthesia with procaine. When necessary, general endotracheal anesthesia was performed with nitrous oxide and ether using a Heidbrink anesthesia machine.²

Regional anesthesia was also used and "found very useful and safer than general anesthesia."

Intravenous (IV) sodium pentothal was frequently used for orthopaedic surgery and removal of shell fragments and other foreign bodies. Open extremity fractures were treated with closed reduction, locally placed sulfa drugs in the wound, and IV plasma and penicillin. Large soft-tissue wounds were also treated with local and IV antibiotics and plasma transfusions. Burn patients were resuscitated with plasma and wounds were treated with Vaseline and burn dressings.²

Patient Movement

During amphibious operations, *LST(H)-464* would land on the beach, and open her bow doors to receive casualties.² Casualty evacuation by helicopter did not occur routinely until the Korean War (1950–1953). As such, to receive casualties from other ships, patients were placed in rigid wire baskets called Stokes litters. This device was invented by future US Navy Surgeon General Charles Francis Stokes MD, FACS (1863–1931), after his experiences transporting casualties between ships during the Spanish-American War (1898).

While necessary, ship-to-ship patient movement was described as "slow, dangerous, and inadequate."² Patients were then transferred down ladders to the medical spaces,² another challenging patient movement evolution (see Figure 2, page 51).

Many unsung LST(H)s provided lifesaving damage control resuscitation and surgery on the war-torn beaches of Europe and the Pacific. During the battle



of Normandy (June 1944), 16 LSTs were specially designated as "emergency hospitals," evacuating more than 41,000 casualties.⁴ During the Battle of Iwo Jima (January–March 1944), four medically designated LST(H)s were used for receiving the war wounded, two for each US Marine division. At Iwo Jima, on D-Day alone, 2,230 casualties were evacuated by LST(H) between 9:00 am and 3:00 pm,⁵ or about six casualties per minute.

The spirit of these LSTs and their medical departments lives on in the modern US Navy's nine Fleet Surgical Teams designed to augment amphibious warship medical departments and provide forward surgical in support of US Marine Corps amphibious operations. (3)

Disclaimer

The views expressed in this article are those of the authors, and do not reflect the official policy or position of the US Government, Department of Defense, Uniformed Services University, or US Navy. **Dr. Matthew Tadlock** is an active-duty trauma/critical care surgeon in the US Navy and the Department of Surgery of the Naval Medical Center San Diego in California. He also is an associate professor at the Uniformed Services University of the Health Sciences and current President of the Excelsior Surgical Society.

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Figure 2.

Hospital corpsmen carry a casualty of the Normandy Invasion aboard an LST. US government photo, not in copyright. (Credit: Navy Medicine, photo 09-7912-54)

New ACS CoC Chair Sets Goals for Success

Laurie J. Kirstein, MD, FACS



I AM HONORED TO ASSUME THE ROLE of Chair for the ACS Commission on Cancer (CoC), and I am looking forward to a productive 2-year term.

During my tenure, I'd like to achieve three overarching goals:

- 1. **Increase the reach** of the CoC to cover more cancer patients across the country
- 2. Highlight the value of CoC accreditation
- 3. Increase engagement among CoC members

While approximately 75% of newly diagnosed cancer patients in the US receive care from a CoC-accredited

hospital, there are multiple ways in which we can increase those numbers and provide guidelineconcordant care to more people across the country.

One strategy is to increase access to care for programs that are already CoC accredited. To achieve this, we have a multipronged approach. In partnership with the ACS Cancer Research Program, a survey of social determinants of health has identified how our programs screen for barriers to care.

To overcome these barriers, we offered programs the opportunity to participate in Breaking Barriers, a national quality improvement (QI) project that helps identify local, modifiable barriers to cancer care. The Breaking Barriers Toolkit is provided to these programs in an effort to help them develop strategies that increase patient compliance with cancer treatment.

The data show that this approach works, and the CoC is working to increase the scalability and sustainability of these interventions.

Another way to increase access to care is to create pathways for programs that are not yet CoC accredited. For example, the CoC is creating accreditation guidelines for rural programs since they have unique compositions and needs, which may not fit into the standard accreditation model.

Likewise, pediatric accreditation has been revamped to better tailor requirements for programs that treat patients under 18 years of age, as this cohort has different criteria for staging and treatment.

With these projects, we can increase the CoC coverage of patients with newly diagnosed cancer and improve the quality of cancer care across the US. In fact, showing the relationship between CoC standards and improved oncologic outcomes is one of the ways we can demonstrate the value of CoC accreditation.

Value of CoC Accreditation

Recent studies reported improved local regional recurrence rates and cancer-specific mortality for patients with colon cancer and in breast cancer populations with high social vulnerability indices when treated at CoC-accredited facilities.^{1,2}

My goal is to continue research investigations demonstrating the improved outcomes for individual CoC standards and CoC accreditation in general. For example, recent Surveillance, Epidemiology, and End Results publications show a decrease in number of patients undergoing cancer screening compared to pre-pandemic levels, but these data are inclusive of both CoC- and non-CoC-accredited facilities.³

Since the CoC had a national return to screening QI project in 2021, along with the requirement for an annual screening event as part of accreditation, it is hypothesized that CoC Programs will have higher numbers of patients undergoing cancer screening, especially at programs that participated in the national QI project. The association with the cancer stage at diagnosis also will be investigated, which migrated during the pandemic.

Another way to demonstrate the value of CoC accreditation is by providing educational opportunities and mentorship for our programs.

The CoC has been leading multiple national QI projects, seminars, and courses to teach our programs how to effect positive change at their institutions. By walking them through the steps of how to create a problem statement, set goals, and create a framework to implement, study, and modify, the CoC has been assisting programs to be able to help themselves.

As one of my first projects as Chair, I am coediting a special issue for the journal *Surgery* which is dedicated to some of these amazing QI projects performed at CoC Programs. Over the next 2 years, I will continue to not only promote ways to teach and mentor our programs, but also to publicize their achievements.

Finding ways for CoC Programs to publish their work also promotes engagement. I speak for the CoC Member Council—the governing body of the CoC and ACS staff when I say we are grateful for the time, effort, and commitment our members and programs put into the CoC.

When first getting involved, the CoC Member Council can feel vast and nebulous, and members have approached me to ask how they can participate in council activities, and this is one of the challenges I want to undertake during my time as Chair.

Groups that actively engage their members in the exchange of ideas become more fruitful. There are so many smart, creative members of the CoC, who all bring unique perspectives and backgrounds. I hope to provide a platform for people to find their niche within the CoC.

As a first step to achieve this goal, at our CoC Member Council meeting during the 2025 ACS Cancer Conference in Phoenix, Arizona, time was dedicated to interactive brainstorming sessions. We broke into small groups that were facilitated by a senior member of the CoC or Cancer Programs and solicited ideas and feedback on how to increase the brand and value of the CoC. The groups also discussed how the CoC can effectively use patientreported outcomes data.

These discussions generated ideas and showed examples of how these issues can be addressed in a myriad of ways that had not been previously considered. There are CoC members who had not been as active in projects but are now involved in carrying some of these ideas to fruition. By providing this opportunity for active engagement, it created more opportunities for our members to find meaning in being part of the CoC.

As I look forward to my tenure as CoC Chair, it is with gratitude that I have this opportunity to make a positive impact on our membership, accredited programs, and of course, our cancer patients.

If you want to know more about the CoC or get involved, reach out to cpmembership@facs.org. (B)

Dr. Laurie Kirstein *is a breast cancer surgeon at Memorial Sloan Kettering Cancer Center in Middletown, NJ, and Chair of the ACS CoC.*

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Surgeons at Leadership Summit Rally for Progress, Purpose, and Impact

Jennifer Bagley, MA

In his presentation, Dr. Joshua Mammen discussed key considerations for successfully negotiating resources and support to be an effective leader. Surgeons from across the country gathered in Washington, DC, for the ACS Leadership & Advocacy Summit—an event that focused on developing exemplary surgical leadership skills and championing critical policies and legislation that will help shape the future of surgery and surgical patient care. THE MEETING, held this year at the Grand Hyatt Washington Hotel, April 5–8, served as both a training ground and rallying point for nearly 500 surgeons dedicated to meaningful engagement and advancing the profession.

"The Leadership & Advocacy Summit inspired thoughtful reflection and sparked important conversations about our shared responsibilities-not only as surgeons, but as changemakers," said Michael J. Sutherland, MD, MBA, FACS, Senior Vice President of Member Services. "The meeting was one of curiosity and resolve and provided the opportunity to be surrounded by individuals who are passionate about transforming the healthcare landscape and unafraid to tackle the most pressing challenges. Events like this remind us that progress is possible when we show up, speak out, and work together with clarity and conviction."

Lifelong Surgeon Competency

Ahead of the summit, special preconference workshops were offered, including "Sustaining Lifelong Surgeon Competency." Todd K. Rosengart, MD, MBS, FACS, from Baylor College of Medicine in Houston, Texas, led a panel of experts who explored how best to maintain clinical and nonclinical competencies as a surgeon.

In front of a packed room, Dr. Rosengart introduced the session by offering a broad overview of the topic of maintaining lifelong competency for senior surgeons, while sharing research that demonstrated age-related declines in cognitive performance and surgical outcomes, as well as variability in competency among senior surgeons. Other professions, such as airline pilots and federal law enforcement agents, have addressed mandatory retirement and career transition planning.

"Captain Chesley Sullenberger was already preparing for his postcockpit career as a consultant. It is one of the reasons why he was so capable during the landing in the Hudson River," Dr. Rosengart said, adding that, similarly, the goal is to implement a comprehensive system of assessments, training, and alternative roles to help surgeons maintain competency throughout their careers.

The session also included a pro-con debate that Dr. Rosengart later described as "appropriately provocative." In the end, after exploring different models and approaches,

the presenters concluded that complexities are involved in



ensuring surgeon competency and a multifaceted solution that engages all stakeholders is needed.

What Do Healthcare Workers Really Want?

An additional workshop, "The Human Margin: Building the Foundations of Trust," with speaker Katherine A. Meese, PhD, from the HuMargin Group and The University of Alabama at Birmingham, also was well-attended.

Between employee burnout and disengagement and staff

"Join the band," Dr. Anthony Atala advised, while drawing a parallel to the success of The Beatles.

Dr. Sharon Stein (left) moderated the session "Emotional Intelligence as a Leadership Tool," in which experts highlighted the need for surgeons to develop selfawareness, selfregulation, and interpersonal skills.





Dr. KMarie King stressed the importance of staying curious and communicating effectively. departing from the healthcare field altogether, fostering a healthy and flourishing workforce is one of the biggest hurdles facing organizations today.

According to Dr. Meese, between 2020 and 2022, 54% of people who switched jobs in the healthcare and pharmaceutical industries did not return to the same industry. Also, among Gen Z individuals (born between 1997 and 2012) who currently are working in healthcare, 22% are planning on leaving the industry altogether in the next 1–3 years.

Dr. Meese examined key factors that predict whether healthcare workers will stay in their organizations, based on her research. Burnout is the top predictor, followed by trust in senior leadership, organizational support, and a sense of belonging. She highlighted that compensation is not the primary driver, but rather a means to an end—healthcare workers are willing to endure lower pay if the work environment is supportive and respectful.

At the same time, recognizing and appreciating employee contributions, even small ones, will help boost morale and retention. Providing individual recognition is more effective than group-level praise, Dr. Meese explained, while stressing that leaders should strive to be "worldclass noticers" of the good work happening around them.

KSAs + OKRs = Transformative Change

The Leadership Summit kicked off Sunday morning, with US Navy Captain (retired) Eric Elster, MD, FACS, from the Uniformed Services University of the Health Sciences (USUHS) in Bethesda, Maryland, presenting "Leading at the Federal Level—How Surgeons Lead in Big Environments."

Dr. Elster discussed his experiences leading change initiatives within the large and complex Military Health System (MHS) and the USUHS School of Medicine. He highlighted two case studies: 1) Ensuring clinical readiness across the MHS through the Knowledge, Skills, and Abilities (KSA) program developed in partnership with the ACS, and 2) Improving operations within the USUHS School of Medicine by implementing Objectives and Key Results (OKRs) to drive research productivity, mentorship, and educational outcomes.

In the first case, Dr. Elster described the challenge of maintaining critical wartime medical skills during peacetime, known as the "Walker Dip." The KSA program addressed this by establishing specific, measurable competencies for surgeons and other medical personnel, and validating their readiness through assessments and training courses. This approach was put to the test during the 2021 Kabul airport suicide bombing attack, where the KSA-trained teams performed exceptionally well.

"We can talk a lot about that incident. But what's key is the response of our teams and that there were 10 surgeons there, all of whom had been through the KSA program," said Dr. Elster.

In the second case, Dr. Elster leveraged the OKR framework to bring data-driven management and continuous improvement to the USUHS School of Medicine. By empowering department chairs and aligning goals across the organization, the school experienced significant increases in research funding (\$350 million to \$1.4 billion in 4 years), publications (64%), medical students who participated in research (33% to 80%), and student satisfaction (98%), as well as a successful accreditation review.

Throughout his presentation, Dr. Elster emphasized the importance of building buy-in, persistence, and data-driven decision-making when leading change in large, complex organizations, whether in the military or academic medicine.

"We live in a VUCA world volatile, uncertain, complex, and ambiguous—and I think every day it gets more VUCA. But in this uncertainty, these tools—KSAs and OKRs—present a blueprint for transformative change. I think we as surgeons are well poised to do this," he said.

Join the Band

In the next presentation, "The Impact of Surgical Disciplines United: House of Surgery," Anthony Atala, MD, FACS, added his perspective on the external challenges facing surgery and healthcare more broadly. Like Dr. Elster, he used history to contextualize present-day efforts and inspire future direction.

The College was founded in 1913 by Franklin H. Martin, MD, FACS, a gynecologist, with the goal of establishing professional, ethical, and moral standards for surgeons. Despite initial resistance, Dr. Atala explained, the ACS grew to become the largest surgical organization in the world with 93,000+ members.

Dr. Atala outlined the challenges

facing the House of Surgery, including administrative and regulatory burdens, decreased reimbursements, loss of autonomy, burnout, and workforce shortages. To address these challenges, he talked about the importance of unity among surgical specialties and the ACS acting as a collective advocate for surgeons.

While encouraging the audience, as leaders and aspiring leaders, to mentor and engage their colleagues to join the ACS, Dr. Atala emphasized that the College's continued success depends on the involvement of all surgical specialties. He drew a parallel to the success of The Beatles, who achieved greater success as a united group than as solo artists, to illustrate the power of collaboration and unity in achieving remarkable outcomes.

"If you take all their solo careers combined over 55 years, they sold a total of 270 million records. However, in their 7 years together, as a group, they sold 650 million records. So, let's work together. Let's join the band," said Dr. Atala.

Right Place, Right Time

Joshua M. V. Mammen, MD, PhD, FACS, from the University of Nebraska Medical Center in Omaha, continued the conversation about the importance of being a surgeon-leader. However, he acknowledged that for surgeons, there can be uncertainty and fear involved—at least early in the leadership journey. In his presentation, "Knowing Your Worth as a Surgical Leader and Negotiating Accordingly," Dr. Mammen shared that effective leaders must understand their own strengths and priorities and align them with their organization's goals. This starts with thorough research to identify key stakeholders, what the organization values, and the potential impact they can make.

It's crucial, too, to avoid pitfalls such as misaligned incentives or distractions, and to engage legal counsel to fully understand contractual obligations, especially exit terms. Throughout, leaders should consistently demonstrate their value and advocate for the support needed to drive success. Dr. Mammen also recommended using a proxy ("to take the emotion out of it") or bundling requests with others to strengthen the negotiating position.





Nearly 500 surgeons attended the Leadership Summit in Washington, DC.



When asked by an attendee about his own personal leadership experience, Dr. Mammen concluded the session by sharing, "Leaning in and actually showing up makes a big difference. I think that's a big part of the journey showing up and being given these opportunities when you're in the right place at the right time. But if you don't show up, you're never in the place at right time."

Raise Your Hand

In the session, "Career Development as a Surgeon: The Value of Advanced Degrees," KMarie King, MD, MS, MBA, FACS, from Albany Medical Center in New York, shared her personal leadership journey and provided advice, including embracing an open mindset, identifying a niche to own, managing up and leading down, staying curious, and communicating effectively, especially during conflict.

She outlined steps to becoming a leader, while also comparing different educational pathways and executive healthcare programs and providing recommendations on how to finance and select the right program.

"Raise your hand for leadership roles and take on challenges that you are tempted to complain about. Instead of going to the chair or CEO with a complaint, go with a business plan. Go with a vision statement. Go with your ideas documented so they can think 'This person is ready," said Dr. King.

EI Impacts Performance

The final session of the day, "Emotional Intelligence as a Leadership Tool," was moderated



by Sharon L. Stein, MD, FACS, from Case Western Reserve University School of Medicine in Cleveland, Ohio.

The panelists—Carlos A. Pellegrini, MD, FACS, from the University of Washington in Seattle, Mary T. Killackey, MD, FACS, from Tulane University School of Medicine in New Orleans, Louisiana, and Harry T. Papaconstantinou, MD, FACS, FASCRS, from Baylor College of Medicine in Houston, Texas—joined Dr. Stein in emphasizing the importance of emotional intelligence (EI) as a critical component of effective leadership, particularly in high-stress, high-stakes environments like healthcare.

Drs. Pellegrini, Killackey, and Papaconstantinou highlighted the value of self-awareness, self-regulation, empathy, and effective communication skills in navigating challenging interpersonal situations, both in professional and personal contexts.

The group also discussed how they became aware of EI and how it impacted their leadership approach. They talked about specific tools and strategies they have implemented in their departments, such as using personality assessments to better understand communication styles, fostering a culture of empathy and active listening, and addressing disruptive behaviors in a constructive manner.

Dr. Papaconstantinou revealed that his department embraced The Friendly Style Profile tool,

The world is "VUCA" (volatile, uncertain, complex, and ambiguous), according to Dr. Eric Elster, and tools such as KSAs and OKRs present a blueprint for transformative change.



which helped "create an opportunity for me to shift what my communication style was and dramatically improve communication and effectiveness."

Attendee Khuaten Maaneb de Macedo, MD, a general surgery resident from Boston Medical Center in Massachusetts and recipient of the 2025 ACS Massachusetts Chapter essay contest, described attending the Leadership Summit as "a truly incredible experience." She said: "It was an honor to have a seat at the table and engage in important conversations shaping the future of healthcare. The leadership portion of the summit was particularly impactful. It was refreshing to hear from speakers who emphasized the importance of leading with humility, foresight, empathy, and emotional intelligence. These qualities are essential in fostering effective systems, and I found the discussions thought-provoking."

Executive Director's Update

ACS Executive Director and CEO Patricia L. Turner, MD, MBA, FACS, provided a comprehensive overview of the College's strategic plan, key achievements, new leadership roles, current initiatives and priorities, and future plans.

She explained that the ACS is working to enhance its operational efficiency, leverage technology, and advocate more effectively on behalf of its members across all surgical specialties and practice settings. The goal is to ensure the College continues to lead the advancement of excellence in surgical care and support surgeons throughout their careers.

"We try to speak with one voice, and we represent all individuals, all practice types, all practice patterns, all specialties, in all locations. This is what brings the power to our organization, and your presence here helps carry that message forward," said Dr. Turner.

In looking toward the Advocacy Summit, Dr. Turner reminded attendees of the ACS's long history of advocacy, including examples dating back to World War I, and its continued efforts to be a trusted voice and resource for surgeons and policymakers on issues impacting the surgical profession and patient care.

"We are communicating with you—our members—to assess your current advocacy priorities. And then we are opening new lines of communication, while also continuing old lines of communication," said Dr. Turner. "We are trying to keep the dialog alive and open because that's the only way we can defend what's important to us as surgeons. It's our duty to protect our extraordinary profession." Attendee David S. Shapiro, MD, MHCM, FACS, a general surgeon from Connecticut, agreed, sharing that his most important takeaway from the summit was "If you don't speak up, then you have no voice."

Having been to a "handful" of ACS Leadership & Advocacy Summits, Dr. Shapiro explained that each one becomes more interesting, concerning, and empowering. "When we stand up for the House of Surgery, it not only becomes more stable, stronger, higher, and better, but remains surefooted on the foundation of its members. This summit should be attended at least once by every surgeon."

To hear more about the 2025 Leadership Summit from Dr. Sutherland and other presenters, listen to the May 2 episode of *The House of Surgery* podcast at *facs.org/houseofsurgery*.

The 2026 Leadership & Advocacy Summit will be February 28–March 3 in Washington, DC. 3

Jennifer Bagley is the Editor-in-Chief of the Bulletin and Senior Manager in the ACS Division of Integrated Communications in Chicago, IL. Leadership Summit attendees take time for meaningful moments of connection and collaboration

Calls for Unified Voice Are Heard throughout Advocacy Summit

Jennifer Bagley, MA

With the US just a few months into a new presidential administration and unprecedented change, surgeons are being urged to use a unified voice and leverage the College's collective influence to advocate for the profession and surgical patients.

Left:

Dr. Christopher Childers led a panel of experts who emphasized the need for surgeons to prioritize their own needs, understand their value, and actively advocate for themselves.

Right:

Surgeons broke into groups by state to discuss their plans for the in-person visits on Capitol Hill.







CHRISTIAN SHALGIAN, Senior Vice President of the ACS Division of Advocacy and Health Policy, welcomed more than 300 attendees to the Advocacy portion of the Leadership & Advocacy Summit, reminding them, "The work doesn't stop when you leave here this week."

In preparation for visits to Capitol Hill, attendees engaged in several informative panels and educational sessions that provided valuable insights into crucial policy issues, offered strategic guidance for effective advocacy, and allowed the opportunity to hear directly from experts and leaders involved in shaping healthcare legislation.

"I first attended the ACS Leadership & Advocacy Summit over a decade ago as an ACS resident scholarship recipient, which opened my eyes to the impact of strong advocacy and the importance of surgeon engagement in health policy," said attendee Kevin Koo, MD, MPH, MPhil, FACS, a urologist from Rochester, Minnesota. "Today, as Advocacy Chair of the ACS Young Fellows Association, I continue to return to the summit to advance my leadership, support the College's legislative priorities, and mentor the next generation of surgeon-advocates."

Understand Your Value, Actively Advocate

In the panel, "Changing Healthcare Landscape at the Payor, Physician, and Employer Levels," moderator Christopher Childers, MD, PhD, from the University of Washington in Seattle, led a discussion covering the changing healthcare landscape and how it affects surgeons, particularly in terms of consolidation, private equity involvement, and changes in compensation models.

Overall, the panel emphasized the need for surgeons to prioritize their own needs, understand their value, and actively advocate for themselves. Jessica Minesinger, CMOM, CMPE, FACMPE, BBC, president and CEO of Surgical Compensation & Consulting in Troy, Ohio, stressed that surgeons must understand their compensation structures, negotiate for guaranteed base salaries, and advocate for themselves as valuable economic generators for their employers.

"We're in uncertain times right now. The cost of providing care is going up. The cost of everything is going up. And then the fee cut back makes it hard to imagine that there is respect for physicians, that physicians are valued, that patient care is valued," she said.

Another panelist, Ann Bittinger, JD, a physician employment agreement attorney, highlighted problematic provisions in employment contracts that can strip surgeons of their autonomy, such as noncompete clauses, disappearing base salary The Advocacy 101 panel session pulled back the curtain on how Congress works—and the impact of advocates and Hill staffers. guarantees, and burdensome tail insurance requirements. She advised surgeons to carefully review their contracts and push back against terms that limit their ability to practice medicine on their own terms.

"What company name is at the top of your employment agreement?" she asked, while also sharing warnings to fully understand which company you actually work for and whether or not your employer can sell you (or your contract, that is).

Digital Transformation

A hot topic in healthcare right now is digital transformation, which involves using technology to improve healthcare delivery, patient care, and operational efficiency. The panel session, "Digital Transformation and Evolving Surgery Policy," moderated by Gabriel Brat, MD, FACS, from Beth Israel Deaconess Medical Center in Boston, Massachusetts, addressed the importance of dealing with the digital divide, ensuring equitable access and digital literacy, and maintaining the human element in the patientprovider relationship as these new technologies are integrated into healthcare.

More specifically, the panelists— Sarah Gilbert, chief of staff to Rep. Neal Dunn, MD, FACS (R-FL), Genevieve Melton-Meaux, MD, PhD, FACMI, FACS, ACS Chief Informatics Officer, and Aliza Silver, JD, MPH, from Oracle—focused on:

 Payment models and reimbursement for digital care and artificial intelligence (AI)enabled technologies, and the need for new policies to enable coverage and adoption

- Cybersecurity and regulatory oversight of medical devices, with proactive, collaborative approaches between industry and government
- Data privacy, interoperability, and information exchange to improve patient care
- The role of Congress in keeping up with rapid technological changes, fostering public-private partnerships, and enacting flexible policies that enable innovation while prioritizing patient safety and trust
- Liability and risk management around the use of AI and autonomous technologies in clinical decision-making, and the need for transparency, explainability, and shared responsibility between providers, vendors, and regulators





Left:

While explaining that quality is multidimensional, Dr. Cliff Ko pushed for more than "just measuring outcomes."

Right:

Attorney Ann Bittinger explained the importance of putting on your oxygen mask before you can help others. In other words, "you cannot advocate for your patients if your own needs aren't met," she said.

Advocacy and Health Policy Abstract Competition

Residents and trainees contributed to the valuable summit content. Nine authors were invited to present their abstracts, and the top three were recognized:



Alexandra Hernandez, MD, from the University of Washington in Seattle—Evaluating the Affordability of Surgical Care in the Decade after the Affordable Care Act Anna White, MD, from the University of Nebraska Medical Center in Omaha—The Road Ahead: Examining Trauma Outcomes Post

Helmet Law Repeal in Nebraska

В

Alizeh Abbas, MD, from The University of Alabama at Birmingham—Empowering Patient Voices: Developing a Tailored Patient Engagement Technology Platform for Colorectal Cancer Screening in Rural Alabama

Quality Is Multidimensional

In another morning panel, "Advocating for Quality in Value-Based Care and APMs," Melissa Medeiros, MPP, from Hart Health Strategies Inc. in Washington, DC, led a discussion that underscored the complexity of improving quality and value in healthcare, and the need for a multifaceted approach that engages patients, providers, and policymakers.

Panelist Clifford Y. Ko, MD, MS, MSHS, FACS, Senior Vice President of the ACS Division of Research and Optimal Patient Care, highlighted several issues with current quality measurement approaches, including the use of poor metrics and unreliable data. He argued for a greater focus on building the necessary organizational structures and resources to support high-quality care, rather than just measuring outcomes.

"Quality is multidimensional," he reminded the audience, while also stressing that STEEEP—a widely recognized framework for improving healthcare quality—continues to guide quality measure development more than 20 years after it was first established. According to STEEEP, healthcare quality is defined by six domains:

- Safe: Avoiding harm to patients
- **Timely:** Providing care when it is needed
- Effective: Using evidence-based practices to provide the most appropriate care
- Efficient: Avoiding waste and using resources wisely
- Equitable: Providing care that is fair and just for all patients
- **Patient-Centered:** Respecting and responding to individual patient preferences and values

The day's final panel, "Advocacy 101," moderated by Matt Duckworth, from Hart Health Strategies Inc., revealed an inside look at the legislative process and the role of advocates and Hill staffers in Congress.

Panelists included Don J. Selzer, MBA, MD, FACS, from Indiana University in Indianapolis, and 2024 SurgeonsVoice Advocate of the Year, Shalgian, Catherine B. Hayes, MPP, from the GOP Doctors Caucus in Washington, DC, and Asha Samuel, senior health policy advisor to Rep. Ami Bera, MD (D-CA).

The session prepared attendees for the Capitol Hill visits by equipping them with practical strategies and insights to Dr. Genevieve Melton-Meaux joined the "Digital Transformation and Evolving Surgery Policy" panel to provide perspective on topics like data privacy, patient data ownership, cybersecurity, and regulatory oversight of medical devices.





The audience heard from Dr. Gabriel Brat who highlighted the need to bridge the digital divide and preserve the human connection in tech-enabled healthcare. enhance their advocacy efforts. Participants learned how to structure and conduct impactful meetings with lawmakers by emphasizing compelling patient stories and real-life experiences, rather than relying on facts and figures. This approach helps humanize complex healthcare issues and makes message more relatable and memorable.

Attendees also gained a clearer understanding of the inner workings of Congress, including the challenges of capturing lawmakers' attention amid competing priorities. The panelists stressed the importance of flexibility, tailoring messages to resonate with each audience, and developing ongoing relationships with congressional staffers—who often serve as gatekeepers and influencers in the legislative process. By focusing on advocacy techniques grounded in personal connection, credibility, and persistence, the session empowered participants to effectively communicate their concerns about critical issues and contribute to healthcare policy discussions on the Hill.

"Going to Capitol Hill with hundreds of Fellows to meet directly with legislators and policymakers was such an empowering experience. Over and over, we heard from members of Congress that the voices of frontline physicians are more relevant than ever in policy discussions. Sharing our firsthand stories about how to safeguard rural access to surgical care, reduce the administrative burden on our practices, and strengthen the surgical workforce is vitally important to advancing public policy through advocacy," said Dr. Koo.

Congressional Asks

As the day's series of thoughtprovoking presentations and panels drew to a close, staff members from the ACS DC office detailed the asks and provided background information in preparation for in-person visits to the Congressional offices. The attendees broke into groups by state to prepare for their visits and discuss the following issues:

- Stop cuts to Medicare physician payment
- Support the surgical workforce by addressing student loan debt
- Authorize and fund critical trauma programs
- Support \$10 million for neglected surgical conditions
- Improve cancer care and access for patients, and improve cancer research
- Reduce administrative burden and support surgeon well-being



Additional interactive advocacy training was provided to equip attendees with the knowledge, skills, and confidence to effectively engage in Hill Day. The training ensured participants were not only informed, but also practicing techniques for persuasive storytelling and strategic messaging to drive change.

"The advocacy component was powerful. In such a volatile time, it was meaningful to be able to sit together with the unwavering commitment to advocate for our patients. Going to Capitol Hill and bringing these pressing issues to the forefront was an empowering experience—one that reinforced the importance of our collective voice in shaping policy and practice," said attendee Khuaten Maaneb de Macedo, MD, a general surgery resident from Boston Medical Center in Massachusetts.

Several members of Congress— Reps. John Joyce, MD (R-PA), Raja Krishnamoorthi (D-IL), Buddy Carter, RPh (R-GA), and Kelly Morrison (D-MN), as well as Sen. Marsha Blackburn (R-TN) via recorded video—joined the summit and shared their thoughts on the important role surgeons play in advocating for critical healthcare policy issues that impact surgery and highquality patient care.

On Hill Day, 246 Advocacy Summit attendees representing 41 states participated in 218 meetings.

"My favorite part of Hill Day was running into groups of Fellows from other states as we crisscrossed Capitol Hill. Trading stories from our productive meetings with legislators, sharing the successes of our advocacy the energy was incredible. It's the reason I keep coming back to the summit, year after year," said Dr. Koo.

Dr. Maaneb de Macedo agreed, sharing, "In our field, connections forged are vital, and meeting these other passionate young leaders gave me a push to continue doing this work no matter the difficulty. We all supported one another throughout the summit and will continue to do so as we return to our respective institutions." The 2026 Leadership & Advocacy

Summit will be February 28– March 3 in Washington, DC. **B**

Jennifer Bagley is the Editor-in-Chief of the Bulletin and Senior Manager in the ACS Division of Integrated Communications in Chicago, IL. Dr. David Shapiro and other attendees take a quick selfie to celebrate a shared commitment to change.







246 Advocacy Summit attendees

41 states represented

> 218 meetings







Communal Forum Explores Synergies between Surgeons and Engineers

Tony Peregrin





Surgeons and engineers convened this spring at ACS headquarters in Chicago, Illinois—in a newly expanded 1.5-day format—to explore advancements in simulation technology with the aim of redefining approaches to innovative surgical education.

"WE HAVE EXTENDED the 2025 Surgeons and Engineers meeting this year because of the demand and due to the large number of abstracts that we received," said Ajit K. Sachdeva, MD, FACS, FRCSC, Senior Vice President, Education.

A 40% increase in the number of abstracts submitted this year yielded 15 podium presentations and 44 poster presentations—each focused on current trends in surgical simulation-based training.

"We look forward to this year's meeting leading to a productive dialogue, resulting in collaborations that will be very meaningful to our larger community," added Dr. Sachdeva in his opening remarks.

More than 130 surgeons,

academic and industry engineers, scientists, and others—including attendees from 10 countries attended the 2025 Surgeons and Engineers: A Dialogue on Surgical Simulation meeting, now in its sixth year.

New programming for the multidisciplinary meeting included strategies for building relationships between surgeons and engineers underscored by real-world success stories, the successes and challenges of 3D printing within the framework of surgical education, and a session examining practical applications for cognitive task analysis. A "speed-dating" exercise also was introduced this year in an effort to expedite networking opportunities for attendees.

Simulator Competition and Panel Spark Innovation and Collaboration

Building on the momentum of the inaugural competition last year, the 2025 Do-It-Yourself (DIY) Simulator/Model Competition featured 17 self-built entries illustrating the surgical simulation community's shared drive for creative solutions to enhance education and training.

A panel of surgeon and engineer judges evaluated each simulator/ model, and meeting attendees had the opportunity to vote for their favorite entry.

The first-place awardee was Layla Triplett, MEd, from Duke University Surgical Education and Activities Laboratory in Durham, North Carolina, for the "Inguinal

Previous page: The first place awardee for the 2025 Do-It-Yourself Simulator/Model Competition was Layla Triplett, MEd, for her entry "Inguinal Hernia Simulator."

This page:

Jeremiah Egolf, BSBME, of Boston Children's Hospital in Massachusetts, received the People's Choice award for "Open Spina Bifida Fetoscopic Repair Simulator."



Dr. John Paige moderated the Special Panel "How to Build Better Surgical Simulations: Part 3." Hernia Simulator." Jeremiah Egolf, BSBME, of Boston Children's Hospital in Massachusetts, received the People's Choice award for "Open Spina Bifida Fetoscopic Repair Simulator." (Competition participants were not required to be surgeons or engineers, and entries from simulator/model companies were not accepted.)

A Special Panel—"How to Build Better Surgical Simulations: Part 3"—served as an extension of panels presented at the 2023 and 2024 meetings and featured the perspectives of a surgeon educator, academic engineer, and industry engineer.

The panelists included Dmitry Nepomnayshy, MD, MSc, FACS, (surgeon educator) from the University of Massachusetts Chan-Lahey in Burlington; Doga Demirel, PhD, MSc, (academic engineer) from The University of Oklahoma in Norman; and Tansel Halic, PhD, (industry engineer) from Intuitive Surgical in Suwanee, Georgia.

Last year's surgeon-educator panelist, John T. Paige, MD, FACS, served as moderator of the 2025 Special Panel. He developed several discussion points for the session based on topics that were deliberated in 2024. Dr. Paige also is a professor of clinical surgery and director of wound care at Louisiana State University in New Orleans.

Strategies for overcoming barriers to conducting multiinstitutional studies related to simulator development was a key topic addressed by the panelists. An essential component of working across institutions and specialties is to bridge any potential communication gaps.

"It is critical for an engineer to ask clear and concise questions that help surgeons articulate their domain-specific requirements," said Dr. Demirel. "As engineers, our domain is different than that of the surgeon's domain. When surgeons have conversations about their work, they tend to use words that people outside of their realm might not understand."

Dr. Nepomnayshy emphasized the importance of gaining professional society support and securing project champions, particularly at the partner institution.

"Allow collaborators to feel a sense of ownership in the process, as if they are co-owners in a small business venture," explained Dr. Nepomnayshy. "If people have intellectual


ownership in the process, they often are more willing to go the extra mile on their own."

Developing standardizing metrics for simulator design and use was another topic considered by panelists. Metrics should be based on rigorous data and a universal understanding of how to define "good fidelity," which refers to how closely a simulator mimics real-world procedures, skills, and surgical setting.

"I think that the lack of agreement on what defines good fidelity is part of the difficulty associated with developing standardization," said Dr. Nepomnayshy. "From my perspective, nothing compares to using actual surgical instruments. So, if you're going to facilitate skills transfer from a simulator to the clinical environment, you should develop simulators that use real surgical instruments in some domain. Surgeons should be consulted at the beginning of the process, or more likely a consortium like the professionals gathered here today."

The session's final topic examined practices for reaching a consensus on learning objectives and protocols for simulator research and development. One suggested approach was to link metrics to learning objectives (instead of the reverse), with a specific focus on patient outcomes and goals for surgeon or trainee performance.

"Learning objectives should be a kind of living document," said Dr. Halic. "They need to be updated and changed regularly, and that requires a long-term commitment from multiple stakeholders rather than one silo of effort. Based on my experience, we should keep the outcomes at the core, then it'll be much easier to have a consensus of learning."

3D Printing and Promise of Enhanced Simulation Training

Presenting the pro perspective supporting the use and costeffectiveness of 3D modeling in surgical education was David (DJ) Traina, interim

Panelists debated the benefits and challenges of 3D modeling in surgical education.



director of technology for the University of Washington Medical Center's Clinical Additive Manufacturing Program.

"3D printing gives us an ability to provide patients or trainees with a more intuitive understanding of the state of anatomy or disease," said Traina in "Debate: Is 3D Printing Still Valuable in Surgical Simulation?," noting that these models can enhance informed consent conversations with patients.

"Of course, preoperative planning is where 3D printing shines in healthcare," he added, suggesting that patient-specific modeling can be used as a way for surgeons to practice ahead of time. "Surgeons can print out multiple approaches, multiple models of someone's anatomy and practice a case over and over in different ways and compare and analyze those approaches."

In terms of cost-effectiveness, Traina cited a study published in August 2024 by the American College of Radiology and the Radiological Society of North America, in which researchers examined a registry launched in 2020 that collected data on 3D printing performed in 20 US healthcare facilities. The study revealed that 3D printing in radiology saved an estimated 41 minutes or \$2,500 per case.

In addition to improvements in preoperative planning and the potential for cost savings, 3D-modeling digital designs are shareable, and many groups or labs often post their educational models and simulator designs online.

"It is almost the same thing as teleporting your simulator from one place to another, assuming you have a printer on both ends," said Traina, pointing out that segmentation and computeraided design software is not only less expensive today but more intuitive to use.

"My favorite example of this is when NASA emailed a wrench from Earth to the International Space Station's 3D printer," said Traina. "We can do the same thing with our simulators. We're an interdisciplinary group from all across the world, and we have the ability to share our simulators via email or Dropbox, which is super exciting."

Charles J. Aprahamian, MD, FAAP, FACS, surgeon-in-chief at Children's Hospital of Illinois in Peoria and managing medical director of pediatrics OSF Saint Francis Medical Center, provided the con side of the debate. "This is a cautionary tale for all of us here. Are we pursuing technology simply for technology's sake? Does a \$2,000 savings matter if the patient has a wound complication that costs \$40,000-\$60,000 on readmission? Ultimately, we need to do better at our job of surgery and taking care of people."

Dr. Aprahamian underscored the similarities—and redundancies between 3D modeling and crosssectional imaging, including computed tomography and magnetic resonance imaging, as both technologies use 2D data to represent 3D structures. He also pointed out limitations in the cost and availability



of materials for complex 3D models, especially materials that may not replicate the actual properties of human tissue.

"It's a matter of using the right tool for the right job—both technologies are outstanding. If applied correctly, you'll get the best outcomes at the best costs and the overall best value for the patients," he said.

Interdisciplinary Partnerships Stimulate Digital Health Innovation

The keynote address, "Forging Partnerships, Transforming Care: Engineers and Surgeons in the Digital Health Revolution," was presented by Bijan Najafi, PhD, MSc, professor of surgery at the University of California, Los Angeles (UCLA). Dr. Najafi also serves as the research director of the UCLA Center for Advanced Surgical and Interventional Technology, and he is codirector of the National Science Foundation/Industry-University Cooperative Research Centers Program Center to Stream Healthcare in Place.

Dr. Najafi outlined the evolution of digital technology in surgical care, including the introduction of whole-body CT scanners in the 1970s, the adoption of minimally invasive surgical techniques in the 1980s–1990s, the emergence of telemedicine in the late 1990s, and the rise of generative artificial intelligence (AI) starting in 2020.

"We are entering a surgical care era that is not just reactive—it is anticipatory and deeply individualized," said Dr. Najafi. "This digital revolution is not just about technology; it is about reimagining how surgeons and engineers collaborate to enhance surgical precision and transform the patient experience."

He suggested that surgeon proficiency is composed of two domains—technical skills (including hand dexterity and instrument use) and nontechnical skills (engaging (L) Mandayam A. Srinivasan, PhD, and (R) Gyusung I. Lee, PhD, Surgeons and Engineers program cochairs, introduce the keynote speaker (M) Bijan Najafi, PhD, MSc.



Panelists describe how the Cognitive Task Analysis process may be applied to surgical simulator research and development. in healthy postural ergonomics and managing stress levels). The current gaps in assessing both skills domains include insufficient measures that lack objective and quantifiable data and specifically for technical skills—a paucity of real-time feedback to identify dexterity weaknesses.

To bridge these gaps, surgeons and engineers have collaborated on technology-driven skills assessment via wearable sensors that examine hand motion and track postural ergonomics and stress levels.

Dr. Najafi cited a 2023 study that he coauthored examining sensor technology and its ability to measure dexterity for cardiac surgical proficiency. In the study, researchers found that sensor-based hand motion analysis can distinguish technical dexterity differences between experts and novices and suggested that "objective quantification of hand dexterity may be a valuable adjunct to training and education in cardiac surgery training programs."

The future of dexterity assessment is AI, according to Dr. Najafi, with some studies suggesting that AI-generated results correlate with sensorbased assessment regarding, for example, surgical knot-tying tasks. Human review of dexterity videos is time-consuming and labor intensive, and AI assessment could be incorporated into the review to expedite the process while maintaining accuracy, thus enhancing the learning experience for the trainee.

"The synergy between digital health innovations and

interdisciplinary partnerships is fostering a shift from static, retrospective assessments to dynamic, real-time feedback loops," Dr. Najafi said. "This evolution will not only improve training outcomes but will also elevate patient safety and operational efficiency in the surgical suite."

Applying CTA to Surgical Simulation Research

Panelists outlined the fundamentals of the Cognitive Task Analysis (CTA) process as it relates to surgical simulator development in the Sunday morning session. The speakers all from the University of Washington in Seattle—included Victoria Roach, PhD, David Hananel, BSEE, BACS, and Robert Sweet, MD, FACS.



"CTA is a methodology used to understand how experts perform highly complex tasks," explained Hananel. "It is the extension of traditional task analysis techniques that yields information about thought processes and the goal structures that underlie observable task performance."

Hananel's involvement with the CTA process began with a question posed by his director of engineering—What do surgeons mean by higher fidelity? "That simple question drove me to search for ways to document requirements in the language of educators as a middle ground and translate it into the language of engineers."

Dr. Roach provided a realworld example highlighting the CTA process in developing an interactive curriculum to teach trainees how to repair fullthickness injury to the ureter in both clinical and simulated settings. Due to the relatively low number of traumatic ureteral repairs per year, the need for skill maintenance was a demonstrated need. "We started with our cognitive task analysis by engaging three expert reconstructive urologists at the University of Washington," explained Dr. Roach. "These extended interviews deconstructed ureter repair procedures step by step, and for each step, we identified learning objectives, key metrics for completion, requirements for the physical simulator, training tips, surgical technique tips, and instrumentation tips."

According to Dr. Roach, the CTA process resulted in her team's development of a high-fidelity training system, with preliminary data supporting its validity for educational purposes.

Providing the subject matter expert perspective, Dr. Sweet suggested thinking of CTAs as a narrative because that is how the information is collected—as a series of discussions or interviews.

"Go into the CTA process with the mindset that you're presenting to watch a video of yourself doing surgery," he said. "Take the time to pause every 30 seconds or so and act as if the person you are meeting with, the engineer, has absolutely no background in the operation that you are performing. Remember to walk this individual through everything you are thinking every thought process."

The call for abstracts and content for the 2026 ACS Surgeons and Engineers meeting opens this month. The meeting will take place March 10-11, 2026, in Chicago. Check the ACS website regularly for updates. **(3)**

Tony Peregrin is the Managing Editor of Special Projects in the ACS Division of Integrated Communications in Chicago, IL.

Register for 2025 Quality and Safety Conference

Quality and Safety Conference July 17–20 | San Diego, CA HEALTHCARE PROFESSIONALS dedicated to raising the bar on the quality of surgical care and patient safety are invited to attend the 2025 ACS Quality and Safety Conference, July 17–20, at the Manchester Grand Hyatt in San Diego, California. Registration is now open at *facs.org/qsc2025*.

The 2025 conference marks 2 decades of collaboration, progress, and dedication to raising the standards of surgical practice and improving patient care. The 20th anniversary represents not only a celebration of collective achievements, but also an opportunity to envision the future.

The evolution of surgical quality and safety has been driven by those willing to innovate, adapt, and challenge the status quo. To match that ethos, the theme of this year's conference is "Embracing Change and the Future of Quality."

Sessions Will Look Forward—and Back

This year's sessions will reflect on the past, assess the present, and explore the future of surgical care, emphasizing the importance of adaptability, resilience, and quality improvement (QI) in surgery.

As always, the Quality and Safety Conference is a premier event for multidisciplinary and international collaboration, where healthcare professionals from around the world come together to share best practices, discuss challenges, and develop strategies to enhance surgical patient care.

This year's programming is designed to foster meaningful dialogue, connecting experts from diverse backgrounds to exchange insights on achieving high-quality care. These discussions will feature emerging and trending topics, including the future of registry concepts, artificial intelligence, and measurement and reimbursement.

Attendees also will be able to engage with staff from the ACS Quality Programs, including the National Surgical Quality Improvement Program[®] and Quality Verification Program, to learn how to meet and exceed standards.

Array of Workshops

Seven optional preconference workshops will provide hands-on experiences on a selection of relevant, focused topics (additional fees and registration required):

- "QI Basics" will teach the fundamentals of QI projects, including methodology, use of data, overcoming barriers, and more.
- "Learning from Failure in QI" will touch on why QI projects fail, how to prepare for failure, and strategies to overcome common barriers.
- "Become the Next Generation of QI Experts" will equip QI staff with the skills to drive real change.
- "Essentials for an Effective QI Project Team" will be a combination of lectures and small group breakout sessions that provide real-life strategies on building, maintaining, and salvaging teams that are formed to complete a QI project.

- "Anchoring Excellence: How to Build an Enduring Children's Surgery Verification Program and Onboard a New Crew" will provide an overview of Children's Surgery Verification, including components of the program, key leadership roles, the path to Children's Surgery Verification, and a discussion about common challenges.
- "Better Together: QI Experts and Surgeons" will detail strategies for overcoming barriers, engaging stakeholders, and driving lasting improvements in surgical quality.
- "Surgical Excellence for Older Adults: A Hands-On Experience" will explore the power of data-driven quality improvement, emphasizing its impact on patient outcomes and return on investment.

Networking Opportunities

Two dedicated social events are planned to foster interaction and collaboration among QI experts and stakeholders:

- The Welcome Reception will be held Friday, July 18, at the San Diego Air & Space Museum. As attendees explore exhibits showcasing phenomenal technological advancements, they will be able to take a moment to reflect on how far surgical care has come—and how much farther there is to go when embracing progress.
- The Abstract Reception will be held on Saturday, July 19, at the Manchester Grand Hyatt San Diego, and attendees will be able to engage with authors of leading research in surgical quality and safety.

An opportunity to earn Continuing Medical Education and Continuing Nursing Education credits will be available.

Visit facs.org/qsc2025 to learn more. 13

Member News

Ahuja Takes Over as Dean in Wisconsin



Nita Ahuja, MD, MBA, FACS, is dean of the University of Wisconsin (UW)-Madison School of Medicine and Public Health and chancellor for medical affairs at UW-Madison. A gastrointestinal oncology surgeon, Dr. Ahuja previously served as the William H. Carmalt Professor of Surgery and chair of the Department of Surgery at Yale University in New Haven, Connecticut, as well as chief of surgery at Yale New Haven Hospital and surgeon-in-chief for the Yale New Haven Health System, both in Connecticut.

Salim Is Chief of Trauma and Acute Care Surgery



Ali Salim, MD, FACS, has been appointed division chief of trauma and acute care surgery at Massachusetts General Hospital Academic Medical Center in Boston. Dr. Salim is a professor of surgery at Harvard Medical School in Boston and previously served as chief of the Division of Trauma, Burn, Surgical, and Critical Care at Brigham and Women's Hospital (BWH), where he has been since 2013. He also is co-medical director of the Gillian Reny Stepping Strong Center for Trauma Innovation at BWH.

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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.



Additional Member News items are available on *facs.org*.

Wolfe Leads Neurosurgery at Wake Forest



Stacey Qintero Wolfe, MD, FACS, is chair of the Department of Neurosurgery and the Eben Alexander Chair in Neurosurgery at Wake Forest University School of Medicine in Winston-Salem, North Carolina. Dr. Wolfe joined Atrium Health Wake Forest Baptist Medical Center in 2013 as director of neurointerventional surgery and residency program director. She built a hemorrhagic stroke research program and is co-principal investigator of the National Institute of Health StrokeNet regional center at Wake Forest Baptist.

Santos Chairs Surgery in Texas



Ariel P. Santos, MD, MPH, FRCSC, FACS, was appointed the Peter C. Canizaro Endowed Chair of Surgery at Texas Tech University Health Sciences Center (TTUHSC) in Lubbock. Previously, Dr. Santos, a tenured professor and board-certified surgeon in surgical critical care and general surgery, was chief of the Division of Acute Care Surgery and vice chair of the Department of Surgery at TTUHSC. He also is director of telemedicine in the TTUHSC School of Medicine and principal investigator for the TexLa Telehealth Resource Center. For the ACS, Dr. Santos serves on the International Relations Committee and chairs the Northern Texas Credentials committee.





The following articles appear in the May 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*.

Proceedings of the ACS Surgical Adhesions Improvement Project Summit

Dana Andersen, MD, David Wiseman, PhD, Deshka Foster, MD, PhD, and colleagues

The ACS Surgical Adhesions Improvement Project Summit was hosted in Washington, DC, in September 2024. A multidisciplinary group of international experts, including surgeons, researchers, regulatory professionals, industry stakeholders, and funding agencies, assembled to address the ongoing challenges of intraperitoneal surgical adhesive disease. The objective of the summit was to foster collaboration, enhance understanding, and develop standardized approaches to improve the prevention and management of surgical adhesions, ultimately aiming to reduce their burden on patients and the healthcare system.

Enhancing Accuracy of Operative Reports with Automated Artificial Intelligence Analysis of Surgical Video

Abhinav Khanna, MD, Tamir Wolf, MD, PhD, Igor Frank, 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 videobased 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.

Impact of ACS Geriatric Surgery Verification Program in Patients Undergoing Major Abdominal Oncologic Operation at a Cancer Center

Mercy Jimenez, MD, Omid Salehi, MD, Ponnandai Somasundar, MD, FACS, and colleagues

The goal of this study was to determine the difference in valuation of clinical effort between academic and nonacademic surgeons across general surgery subspecialties. Despite generating higher work relative value units (wRVUs) based on total cash compensation per wRVU, most academic general surgery subspecialties are compensated less than their nonacademic counterparts.

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² Quoted premium includes a 35% premium credit to the base policy rates. Premium Credits are reviewed annually by the Trustees of the ACS Insurance Trust and are based on the on the program's positive financial performance. The premium credit is guaranteed not to change.

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