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ACS/Bulletin

AMERICAN COLLEGE OF SURGEONS

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FEATURED

September 19

ACS Comments on CMS Proposed Rules for 2024

The Centers for Medicare & Medicaid Services (CMS) released proposed rules for 2024 that could have implications for surgeon payment, inpatient versus outpatient procedures and coding, and more. See how the ACS responded.

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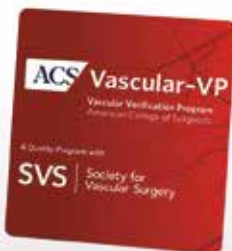


September 19

ACS and SVS Release Standards for Outpatient Vascular Care

The ACS, with the SVS, has released new standards for outpatient vascular centers to help them provide optimal care.

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September 11

Cognitive Screening in Older Patients May Help Optimize



Lindsay Flynn-Houston, MD, FACS

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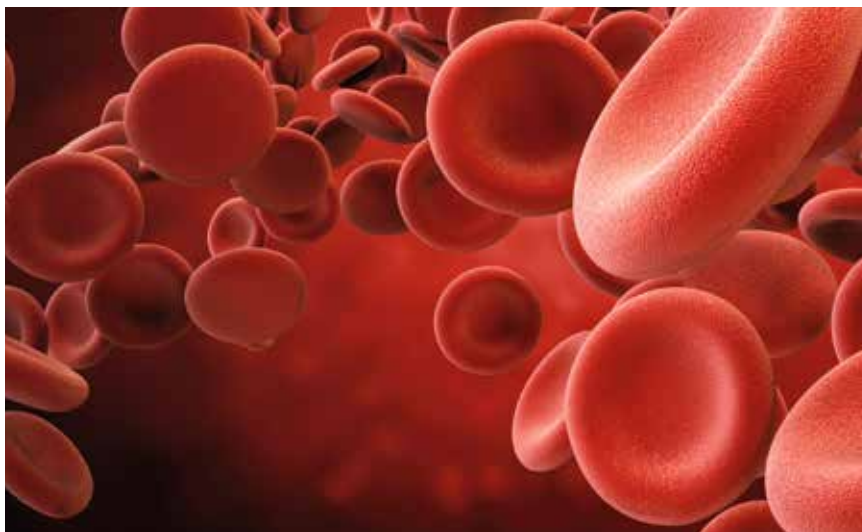
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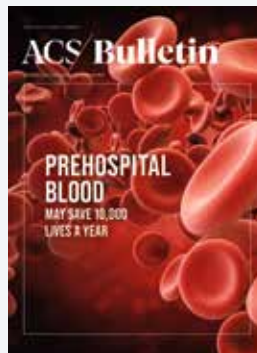
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The ACS in Action: Engaging More than Just Surgeons

Patricia L. Turner, MD, MBA, FACS

executivedirector@facs.org



IN THIS COLUMN, I often highlight the many resources for education, practice, career development, networking, and camaraderie that the ACS offers to surgeons and surgical trainees in every discipline, practice type, and career stage. This month, I want to focus on how we engage with surgical patients and other nonsurgeons in our sphere of influence.

Each year, we reach surgical patients and the public via directed educational offerings and engagement with the media. In addition to ensuring that surgeons

and surgery are well-understood and well-positioned, these efforts fulfill our mission to “heal all with skill and trust” by promoting the health and safety of all.

Mainstream Media

One essential way that the ACS reaches a broad population is by participating in the national discourse on healthcare. The mainstream media is a key venue for providing information to millions of Americans, particularly those in older age groups who may have the most pressing surgical needs. Sharing ACS insights through traditional media outlets helps ensure the public is well-informed and retains a high level of trust in our profession.

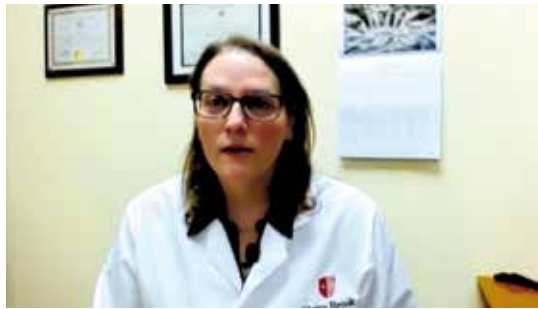
Overall, the ACS was mentioned more than 32,000 times in mainstream media stories in 2024, an increase of 55% over 2023. ACS-affiliated surgeons, programs, and achievements appeared in a wide range of outlets. For example, coverage of the Age Friendly Hospital Measure, a Centers for Medicare & Medicaid Services standard largely based on aspects of the ACS Geriatric Surgery Verification

Program, appeared in several publications, including *Modern Healthcare*. A story on the origins and current use of the ACS Advanced Trauma Life Support® program appeared on the Peabody Award-winning podcast *Radiolab*. In addition, research articles published in the *Journal of the American College of Surgeons* were mentioned more than 1,900 times in the news media in 2024.

As a key part of our media engagement, we organize multiple annual media tours during which ACS-affiliated surgeons offer on-air interviews about topics important to surgery and public health. In 2024, several surgeons completed media tours on cancer awareness, urging the public to take steps toward prevention, undergo screenings, and recognize signs and symptoms. In total, these appearances reached some 30 million potential viewers (a key metric for television appearances) during our colorectal cancer awareness tour, nearly 41 million potential viewers for our lung cancer awareness programming, and 178 million potential viewers for breast cancer awareness programs.

Stop the Bleed

American College of Surgeons 



The May 2024 national tour for Stop the Bleed Month reached nearly 34 million potential viewers. Additional articles have covered notable Stop the Bleed trainings and lifesaving interventions using Stop the Bleed skills (the case of an emergency medicine physician who rescued a New York subway train conductor after a sudden stabbing).

Trainings

The Stop the Bleed program, which teaches skills that bystanders can use when responding to bleeding emergencies, is another key piece of our public outreach. We collaborate with schools, workplaces, first responders, community organizations, and legislators to ensure that individuals from all backgrounds can learn this essential information. So far, we have engaged nearly 5 million learners in 169 countries with the help of more than 170,000 instructors.

Last October, we launched a version 3 pilot of the training, which includes an updated, richly illustrated curriculum design to help all learners attain

these lifesaving skills. I highly recommend this course to all interested individuals. Learn more at [StoptheBleed.org](https://www.stopthebleed.org).

Resources for Patients

The ACS also connects with the public by offering information directly to them. Last year, the Resources for Patients section of [facs.org](https://www.facs.org) was redesigned to improve accessibility and expand content. These web pages now offer plain-language advice to patients on how to prepare for surgery, what to expect on the day of a procedure, and how to approach the recovery process. The ACS Strong for Surgery program, our prehabilitation resource for patients and hospitals, is available there, as are resources for patients and families facing emergency surgery. The link to ACS Resources for Patients can be shared with any patient or caregiver who may benefit.

Social Media


In 2024, ACS social media accounts generated 10 million total impressions across X (formerly Twitter), Instagram, LinkedIn, and other platforms.

While the audiences following the ACS social media accounts are predominantly surgeons and surgical trainees, some posts share information for nonsurgeon audiences as well.

Get Involved

We welcome surgeon input into our ACS outreach efforts. If you are an expert in your area and are interested in volunteering for a virtual media tour, please contact our public information team at pressinquiry@facs.org.

Join Us for the Leadership & Advocacy Summit

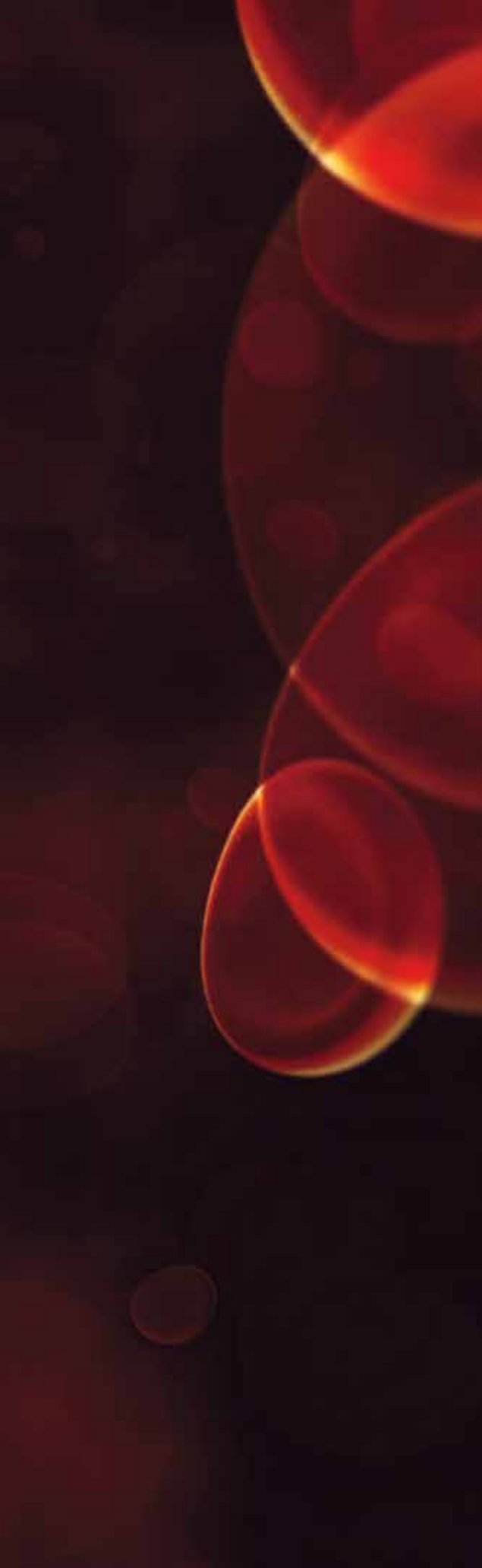
Communicating with the public is a form of leadership, and we encourage all surgeons to engage with us on developing leadership as well as skills in communicating effectively with legislators. To that end, each spring, the ACS holds its Leadership & Advocacy Summit in Washington, DC. Please join us. Register at [facs.org/summit](https://www.facs.org/summit). 

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

Paula I. Denoya, MD, FACS, participates in a media tour for Colorectal Cancer Awareness Month, and Timothy W. Mullett, MD, MBA, FACS, speaks with a reporter about lung cancer.

**IMPROVING ACCESS TO
PREHOSPITAL
BLOOD
MAY SAVE 10,000
LIVES A YEAR**

M. Sophia Newman, MPH

A vertical strip on the left side of the page features a microscopic view of red blood cells. The cells are shown in various stages of focus, with some appearing sharp and glowing with a warm, reddish-orange light, while others are blurred in the background. The overall color palette is dark, with the red of the cells providing a strong contrast.

The first blood transfusion occurred shortly after English physician William Harvey discovered the circulatory system in 1628.¹

THAT TRANSFUSION, a small, rough injection of blood from one human into another, offered little clinical help. But blood transfusion remains a potent clinical intervention, and for many decades, uncountable advancements have improved clinical outcomes and saved many lives.

What's the next step in ensuring that patients experiencing exsanguination survive?

At the ACS, it is the promotion of an approach to blood transfusion abandoned decades ago and revived this century: whole blood, provided as soon as possible after bleeding starts. Through the ACS Committee on Trauma (COT), the College is advocating for universal access to prehospital blood, preferably whole blood, for all patients.

At a news conference held during Clinical Congress 2024, Jeffrey D. Kerby, MD, PhD, FACS, the Brigham Family Endowed Professor and director of the Division of Trauma & Acute Care Surgery at The University of Alabama at Birmingham (UAB) Marnix E. Heersink School of Medicine, and Chair of the COT, explained the need for prehospital access to blood.

“We have an opportunity to save thousands of lives a year with a single intervention,” said Dr. Kerby. “Trauma is the leading cause of death for patients under age 45, and bleeding to the point of exsanguination is the leading cause of death in that population. Whole blood can have a major impact on our trauma patients.”



Surgeons work together in the operating room. (Credit: The Board of Trustees of The University of Alabama for UAB)

Why Blood Isn't Always Whole

Developments in transfusion amid armed conflict are an essential underpinning of the history of transfusion. During World War I, when a surge in patient needs compelled innovation, the first program of widespread blood transfusion came into use.¹ Full-scale blood banking was first used during World War II; by the Vietnam War, the US military moved into the use of blood components.

This approach became possible in 1940 after Edwin Cohn, a

“THERE’S NO NEED TO DO MORE STUDIES. THE DATA ARE VERY CLEAR. PREHOSPITAL BLOOD SAVES LIVES.”

Dr. John Holcomb

biochemistry professor from Harvard Medical School in Cambridge, Massachusetts, developed fractionation, the process of breaking down plasma into components and products.¹ This process was seen as a vital upgrade of the use of whole blood because it improved efficiency. A single unit could now be used to help multiple patients, rather than just one, by giving each the plasma, platelets, or red blood cells they needed.

In 1961, plasmapheresis was created, enabling separation of plasma,¹ and by the end of the Vietnam War, use of fractionated blood products for trauma care had become standard. For the next 40-some years, protocols typically advised a mix of crystalloid, packed red blood cells, plasma, and platelets—with the latter three ideally but most often not present in a 1:1:1 ratio, as they are in whole blood.

In some ways, separating blood into component parts proved a triumph. Fractionation

advanced scientific knowledge of the importance of specific blood components and led to innovations in the treatment of diseases such as hemophilia. Component usage also eased logistical constraints because of fractionated blood products’ longer shelf life (50 days or more versus 35 for whole blood) and the option to freeze plasma. These blood products also are an improvement on resuscitation with crystalloid fluid solutions that lack oxygen-carrying capacity. Citing weekslong complications often seen with large-volume, crystalloid-first resuscitation strategies, Dr. Kerby said, “In resuscitation, we now equate crystalloid to poison.”

However, even blood component resuscitation may deliver inferior outcomes relative to whole blood. US Army Colonel Jennifer M. Gurney, MD, FACS, who is chief of the US Department of Defense Joint Trauma System and active in ACS advocacy on whole blood access,



shared her own experience in trauma care.

“Any military surgeon will say this to you: when you transfuse warm, fresh, whole blood, it’s like a religious experience,” said Dr. Gurney. “The physiology of patients who are bleeding to death changes almost instantly, and you feel like you’ve got another few minutes to fight for that patient in terms of getting hemorrhage control.”

Shifting Back to Whole Blood and Delivering It Faster

Indeed, the “religious” experience of using fresh, warm whole blood led to the movement back to using whole blood more widely. During the conflicts in Iraq and Afghanistan, the US military shifted to the use of whole blood in combat surgical hospitals and forward surgical teams, in part to facilitate transfusions via immediate donations from onsite military personnel.

The outcomes related to this shift were highly compelling. A 2022

study led by Dr. Gurney found that in a cohort of 1,105 injured military personnel, the adjusted odds ratio of mortality at 6 hours after injury was 0.27 (95% confidence interval, 0.13-0.58) for those who received warm fresh whole blood, compared with those who received component therapy only.² In other words, for every patient who survived after receiving blood components, four patients who received whole blood survived. The outcome aligns with the findings of earlier studies, which found improvements in 24-hour and 30-day mortality with whole blood use.³

The strong improvement in patient survival with the use of warm, fresh whole blood prompted a shift to the nearest practical equivalent, stored low-titer O whole blood, in civilian practice.

This change in the civilian population also resulted in positive outcomes. For example, a 2024 study of ACS Trauma Quality Improvement Program data on 12,275 patients found

those who received whole blood showed a 13% decrease in the odds of 4-hour mortality for each 10% increase in the ratio of whole blood to total transfusion volume.⁴ Additional studies have had similar results.⁵

But it is a combination of whole blood and timely care that offers the greatest positive impact. A 2024 cohort study in *JAMA Surgery* found that transfusion of whole blood was associated with a 60% decrease in mortality at 24 hours in patients who’d received the whole blood early as an adjunct to massive transfusion with component products (versus after such transfusion).⁶

Access during ambulance care may be even more impactful. A study published in 2021 in *Transfusion* found that prehospital use of whole blood was associated with less intense shock on arrival in the emergency department and less mortality than a comparison group who received no prehospital transfusion, even though the

The emergency department of UAB Hospital (Credit: The Board of Trustees of The University of Alabama for UAB)



Access related video content online.



WHAT SURGEONS CAN DO TO ADVOCATE FOR PREHOSPITAL TRANSFUSION AND WHOLE BLOOD USE



CONNECT with the ACS COT, including its EMS committee and leadership in your region.



ENGAGE with the Prehospital Blood Transfusion Initiative Coalition.



LEARN MORE about the EMS scope of practice in your state, including current and pending blood use protocols.



USE ACS RESOURCES to contact your local policymakers on this issue.

cohort receiving blood was more severely injured than the comparison group.⁷

“There’s no need to do more studies. The data are very clear. Prehospital blood saves lives,” said John B. Holcomb, MD, FACS, a professor in the Division of Trauma & Acute Care Surgery at the UAB Marnix E. Heersink School of Medicine at the ACS news conference.

Challenges to Implementation

The move to a resuscitation concept emphasizing the use of prehospital blood, particularly whole blood, remains an open question for some. A session at Clinical Congress 2024 included a debate on the use of whole blood, raising two important concerns: alloimmunization and blood wastage.

The first issue, alloimmunization, can occur when a patient with Rh-negative blood receives Rh-positive blood, triggering an immune system response that creates IgG antibodies. If a transfused female patient with Rh-negative blood later becomes pregnant with a fetus that has Rh-positive blood, these antibodies can cross the placenta and destroy the unborn child’s red blood cells. Hemolytic disease of the fetus and newborn is potentially lethal and can require intensive treatment.

Of course, for female patients with Rh-negative blood experiencing a bleeding emergency, the choice may

be possible alloimmunization later versus a fatal outcome immediately—and few have trouble choosing.

One survey of 107 women who had experienced alloimmunization (including 32 who had birthed infants with hemolytic disease of the fetus and newborn and 12 who had experienced fetal or neonatal loss) found robust support for whole blood transfusion.

Most notably, the respondents said they would accept alloimmunization if it created as little as a 4% better chance of survival.⁸ Additionally, a 2024 *Journal of the American College of Surgeons* study found the rate of alloimmunization is between 3% and 20% in female patients with Rh-negative blood types.⁹ Given that approximately 2.9% of US residents are women and girls of childbearing age (15-44 years) who are Rh-negative, population-level risk of alloimmunization may be as low as approximately 9 per 10,000 persons who require a blood transfusion.

Summarizing these findings in a presentation at Clinical Congress, Luke Neff, MD, FACS, an assistant professor in the Department of General Surgery at Wake Forest University School of Medicine in Winston-Salem, North Carolina, called alloimmunization “a boogeyman we don’t have to be afraid of.”

Meanwhile, concerns about wastage connect to the very reason fractionated blood



Dr. Jeffrey Kerby (center) and Dr. John Holcomb (right) stand with colleagues at UAB. (Credit: The Board of Trustees of The University of Alabama for UAB)

products were originally created: to ensure donations were used before expiration by directing components to patients in need, extending shelf life with improved preservatives, and freezing plasma.

In her Clinical Congress presentation, Barbara A. Gaines, MD, FACS, the Edwin Ide Smith Professor of Pediatric Surgery and chief of the Division of Pediatric Surgery at The University of Texas Southwestern School of Medicine in Dallas, and surgeon-in-chief at Children’s Health in Dallas, suggested that hospitals with low need for blood-based resuscitation, including pediatric hospitals, often find that “wastage can be high.”

Dr. Gurney conceded wastage occurs in military contexts, calling it “the cost of readiness,” before adding, “We don’t ever want to waste blood. It’s a precious resource.”

However, according to Dr. Kerby, wastage among adult patients in

civilian settings using whole blood in both emergency medical services (EMS) and hospitals can be resolved with adequate system design.

“The southwest Texas region has a whole blood program, and they have whole blood in their ground ambulances,” said Dr. Kerby. “They’ve shown very nicely that the paramedics can, indeed, identify patients who need it, so they’re not wasting it. They also have a rotation system. If a unit of whole blood in a ground ambulance is not being used as it gets closer to its expiration date, they cycle it back to the hospital.”

Improving Access through Advocacy

The concerns about blood wastage—and with it the cost of each unit of lost blood—connect to broader challenges associated with the use of blood in prehospital settings. Key issues include the need to ensure that EMS agencies can receive

reimbursement for prehospital transfusions, as well as the administrative challenges of developing new blood programs.

“I think most people are not aware that ambulances don’t carry blood,” said Dr. Kerby. To implement blood use on ambulances, replacing the crystalloid solutions now in use in many paramedic units requires changes to institutional policy, training, and infrastructure.

Implementing a whole blood program on ambulances would entail revising regulations and laws on EMS scope of practice to permit paramedics to use blood, a step that must be taken in individual US states.

In 2021, the National Highway Traffic Safety Administration released a National EMS Scope of Practice Model to guide state-level scope-of-practice legislation and regulations. The model included an “interpretive guideline” suggesting that paramedics may “maintain infusion of blood or

blood products” with case-by-case medical director approval;¹⁰ however, it did not include any mention of initiating blood transfusion for exsanguinating patients on scene or enroute to hospital care.

Nonetheless, by fall 2024, 38 US states began permitting EMS units to initiate blood use in the field. The change is likely attributable, at least in part, to advocacy by the Prehospital Blood Transfusion Initiative Coalition. This group brings together representatives from organizations focused on trauma care, surgical care, emergency medicine, EMS, blood banking, and other aspects of this issue, including the ACS COT, to advance research, policy, and implementation of prehospital blood protocols.

“I think the coalition has done an excellent job regarding raising awareness of this issue

in individual states and pushing the advocacy efforts necessary to effect change,” Dr. Kerby said.

Updating regulations to permit usage is only half the battle, however. Despite scopes of practice that include blood use, only about 1% of all EMS units carry blood at present. The reason is simple: there is a strong, unmet need for EMS agencies to receive reimbursement for blood use.

The payment structure for ambulance services currently is based on transportation, not the services provided while enroute to the hospital, “no matter what they do for that patient,” Dr. Kerby noted.

This revenue model means that there is often no option to add blood to ambulances, no matter how lifesaving such a step may be for the populations served.

The solution to this issue is two-fold, according to Dr. Kerby.

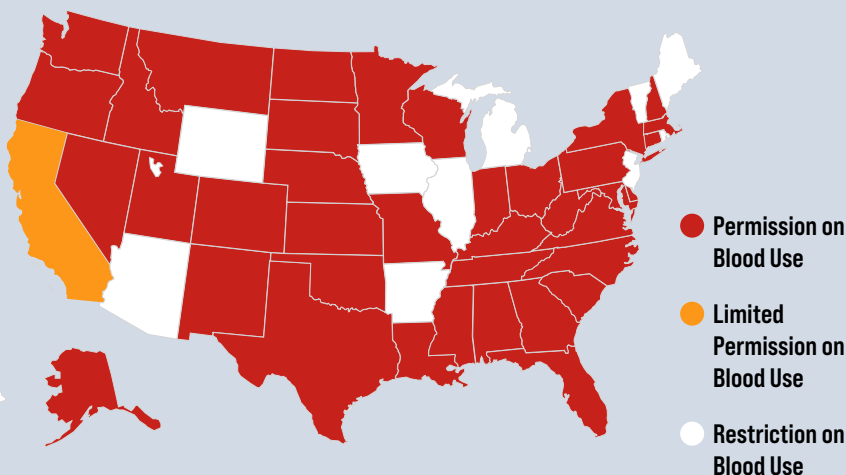
First, funding for individual EMS agencies via city and state governments and philanthropic funding sources may ease the financial burden of blood implementation for individual EMS agencies. Second, the US Centers for Medicaid & Medicare Services can definitively update federal regulations to include reimbursement for blood usage on ambulances, a solution that would extend to all EMS agencies nationwide.

The need is particularly acute in underserved areas. Notably, about half of all automobile accidents occur in rural areas, where only about 20% of the US population resides. As a result of this high vulnerability and long travel times, those in rural areas have particularly strong needs for EMS units to include the capacity for blood in resuscitation. Yet rurality also often constrains EMS agency funding, making the need for assistance particularly acute—and unlikely to be fully solved without change in reimbursement models nationwide.

Here, too, the ACS is engaged in legislative and regulatory advocacy, partnered with “a long and very inclusive list of representatives who are all banding together to develop some uniform talking points and a targeted strategy for what the ask is,” said Dr. Kerby.

The presence of a strong coalition, along with early successes, may bode well for the advancement of a reimbursement model that makes prehospital transfusions, particularly with whole blood, accessible to all patients.

STATES WITH PERMISSION ON EMS USE OF BLOOD IN THE FIELD



“THERE ARE NOT A LOT OF INTERVENTIONS THAT WE CAN DO THAT SAVE 10,000 PATIENTS A YEAR.”

Dr. Jeffrey Kerby



What Universal Access Might Achieve

If universal access to prehospital blood were implemented in the US, how many lives might be saved? At the ACS news conference, Dr. Holcomb said 10,000 lives per year.

“I wholeheartedly agree with the statement,” Dr. Kerby said, explaining how multiple statistical analyses had generated that number of prospective rescues.

He pointed out that this number of lives shows the effort to deliver universal prehospital access to blood may be a uniquely potent way to help patients in need: “There are not a lot of interventions that we can do that save 10,000 patients a year.” **B**

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Emergency medical personnel transport a trauma patient on a gurney in a hospital hallway. (Credit: The Board of Trustees of The University of Alabama for UAB)

Who's on Call? Emergency Cross-Cover of Surgical Specialties Is Growing

Matthew Fox, MSHC





CONSIDER THE FOLLOWING SCENARIO: A 65-year-old man presents to the emergency room with recent onset severe left lower quadrant pain. He hasn't had a bowel movement in 2 days and does not recall passing flatus recently. He has localized peritonitis and is tachycardic, but blood pressure is normal. Labs show a white blood cell count of 17 and lactic acid of 2.

Recent screening colonoscopy revealed a circumferential partially obstructing mass in the descending colon, which on biopsy, yielded a diagnosis of adenocarcinoma. Staging suggested local disease only.

He was scheduled for an elective partial colectomy the following week, but imaging today suggests a perforation with locally contained free air near the mass.

There is an on-call general surgeon in the hospital, but no colorectal surgeon is immediately available. However, the patient could be transferred to a nearby hospital with a colorectal surgeon.

Who should address this patient's acute surgical needs: a general surgeon in the hospital or a colorectal surgeon after transfer?

In a country with a strained surgical workforce but also a patient population that values surgical specialization, the question of whether a general surgeon can and should handle an emergency surgery or a surgical complication that may fall into

the scope of specialist is not uncommon.

General surgeons are, definitionally, a cohort of surgeons trained to manage broad-based surgical disease processes, including colorectal, bariatric, hepatobiliary, thoracic, trauma, endocrine, vascular, and breast pathologies. At the same time, each of these surgical areas also has highly trained specialists to attend to a more defined set of surgical diseases.


The critical role of each category of surgeon is rarely, if ever, the subject of debate, but in urgent and emergent situations or for patients suffering from acute complications, there is increased emphasis on that question: Who is the right surgeon for this job?

As expected, the answer to that question is not straightforward.

Timing and Specialization

There has been a growing body of research suggesting that timing of emergency surgery, including emergency general surgery (EGS) procedures, is one of the most critical predictors of patient survival.

Looking through vectors, including extant emergency surgery-specific outcomes research, the delays in care that can take place due to transfers suggest that timing is paramount for conditions that can fall under the general surgeon's or specialist's domain.¹⁻³

 Access related video content online.



Likewise, there is a plethora of data indicating that surgeon specialization has an observable impact on the outcomes of individuals with specialty surgical emergencies. Research on emergency colorectal,⁴ thoracic,⁵ gynecologic,⁶ and pediatric surgeries,⁷ suggests that a specialist surgeon can be expected to produce superior outcomes, ranging from minimizing surgical site infections to decreasing mortality.

Patients who require emergency surgery or who experience a complication will have their surgeons needing to balance two maxims—the critical need to address a surgical emergency in a timely manner and knowledge that surgical specialization can play a role in outcomes.

Real versus Ideal

General surgeons and specialists alike recognize that nuance is needed to address this duality, but an emergency is an emergency for a reason—and many surgeons are equipped to handle this phase of care.

“All surgeons, from general surgeons to acute care surgeons to colorectal surgeons and beyond, are perfectly equipped to manage the acute emergency and stop the infectious or ischemic process,” said Justin L. Regner, MD, FACS, a general and acute care surgeon who is trauma medical director and associate professor of surgery at Oregon Health & Science University in Portland.

In most cases, a patient should get lifesaving care in a timely fashion rather than delaying treatment to wait for a specialist, which is an approach that specialists also support.

“In patients with septic shock, free air, and hemorrhage, I would want the general surgeon who’s best trained and closest to them to manage it,” said Kristina K. Booth, MD, FACS, a colorectal surgeon and associate professor of surgery at The University of Oklahoma Health Sciences in Oklahoma City.

What complicates the issue is that each general surgeon will bring their own level of comfort and

experience, which is almost always going to be more variable than the expertise of a specialist—expertise largely driven by experience.

There are general surgeons who perform just as many emergency colon resections as colorectal surgeons, and so they may be comfortable managing such an emergency and have good outcomes. Data show that, overall, general surgeons perform more colectomies than colorectal surgeons in the US.⁸ But there are borderline cases where a specialized surgeon may be able to deliver superior outcomes as reported by the research.

“In some areas, it is clearly appropriate to send a patient to a colorectal surgeon when there is something that can wait 24 to 48 hours and is within the specialty of colorectal surgery, like left-sided cancers and inflammatory bowel disease,” Dr. Booth said.

Even for the emergency colectomies that are regularly performed by general surgeons, recent research indicates that procedures performed by colorectal surgeons result in less morbidity and mortality.⁹

But something worth keeping in mind, Dr. Booth said, is that the optimal outcomes from a specialist do not mean that a general surgeon won’t provide lifesaving care.

“While a colorectal surgeon may have lower surgical site infection rates due to their experience, an infection is, of course, preferable to a patient who loses their life because nobody was there to operate on them,” she said. “Improving outcomes of emergencies and complications is about optimization, where a general surgeon should be at least competent to address a patient’s needs, while a specialist should be able to provide definitive care.”

This is a core issue at play when considering the role of a general surgeon in an urgent or emergent situation—balancing the reality of a situation with the idealized view of the situation.

“Ideally, if you have someone with a colon complication, you will find a fellowship-trained surgeon who has performed thousands of colon

“All surgeons, from general surgeons to acute care surgeons to colorectal surgeons and beyond, are perfectly equipped to manage the acute emergency and stop the infectious or ischemic process.”

Dr. Justin Regner

surgeries to lead,” said Alexander R. Raines, MD, FACS, a general surgeon and associate professor at The University of Oklahoma Health Sciences. “But there isn’t always that surgeon in the area when and where the patient needs them, even while they have access to capable general surgeons who may have different but equally valuable experience.”

Dr. Raines agrees with the perspective that timing does, in general, take precedence over delaying care for a specialist, and knowing how to make the call on immediate surgery versus waiting is a skill in and of itself.

“This is where the art of medicine comes into play—what is that time cutoff? Surgeons love to have rules, spreadsheets, and flow charts that tell us exactly what to do and when to do it, but those do not always exist. Is the specialist an hour away or 5 hours away? Can surgery safely be delayed? You need to weigh all the factors, and it’s difficult because there is often not one right answer,” he said.

Importance of Resources

The prevalence of general surgeons performing emergency specialty operations points to an ongoing issue in healthcare throughout the US—limited resources to address the growing health needs of the population.

Surgery is incredibly resource-intensive, so access to these resources—which includes surgeons themselves—is paramount. But resources are not distributed equally, and not all practice settings are created the same.

“It’s not just the skills of cutting and sewing,” Dr. Raines said. “In fact, the cutting and sewing is usually the easy part. It’s the resources around it that can really make a difference. These emergency patients are often going to need an ICU to care for them. They may need other specialists like interventional radiologists or nephrologists or cardiologists to manage the other pathophysiology that exists alongside the surgical condition.”

The divide in resources is particularly clear when looking at access to care for patients in small and rural communities, a setting that often requires a general surgeon to oversee any kind of emergency or complication. From hysterectomies to carotid endarterectomies to thyroidectomies,¹⁰ a rural surgeon may be responsible for a variety of procedures and must be able to temporize the emergent condition before transferring the patient.

But in a strained healthcare system, surgeons working in rural, suburban, urban, or any area in between can find a patient in a situation that necessitates immediate action.





“I’ve taken calls from community hospitals where we’re not in their usual catchment area or their usual referral pattern, but they’ve called all their customary places, and all of them are full,” Dr. Regner said.

“They’re trying to find someplace to get the patient safely, and every time they call a hospital and hear a ‘no,’ that’s another 5 minutes or 10 minutes that that patient is not receiving care. And if they’ve made four, five, six attempts at transfer calls—that patient may be in that emergency department now for up to an hour or longer and still not have any resolution or direction on how to get out of that situation,” he continued.

When surgeons and beds are limited, it is critical that a competent and qualified surgeon is available wherever a patient ultimately arrives when their emergency can no longer wait to be treated.

Growing the Workforce, Skills

While general surgeons can address many of the specialized emergent needs of surgical patients and complications, a specialty surgeon can be expected to provide better outcomes, on average. An obvious potential solution would be to increase the number of specialists who are trained and available throughout the US, as there is a recognized deficiency.¹¹ The sheer scale of such an undertaking, however, calls into question its feasibility.

Looking at the urgent colectomy as an example, the numbers are stark. A recent study of more than 70,000 urgent colectomies from 2020 to 2022 showed that 76% were performed by general surgeons, meaning colorectal surgeons performed only a quarter of the procedures¹² while also having fewer complications and mortality.

But there is another important figure to consider—there are only about 2,000 board-certified colorectal surgeons in the US.

“You probably would need double the number of colorectal surgeons in the US to have all emergency colon pathology taken care of by colorectal surgeons,” Dr. Regner said. “And that’s just not doable in the foreseeable future.”

With 2024 match data showing that 117 positions for colorectal surgery were filled that year,¹³ there would need to be a notable increase in positions and no specialists retiring to reach the goal of having twice as many colorectal surgeons practicing in the US in the next 10 to 20 years.

Demand for bariatric surgery has increased markedly alongside obesity rates in recent decades (a recent and potentially temporary dip due to availability of GLP-1 agonists notwithstanding¹⁴), with more than 100,000 additional surgeries taking place in 2022 versus 2016.¹⁵

“Even if we could produce enough colorectal surgeons to have them in every small community, individual surgeons are going to lose their expertise if they're not practicing a high volume of colorectal care.”

Dr. Kristina Booth

“The number of bariatric surgery patients is rising astronomically, while the number of bariatric surgeons is not,” Dr. Raines said.

With complications relatively high in this population, patients are going to need specialty care, and either more specialists will need to be trained or “surgeons are going to need to be able to be familiar with those conditions,” he explained.

Another consideration is that, even if more specialists are trained and hired throughout the US, the increased prevalence may not be uniformly beneficial across patient populations. While access is one part of the problem, there needs to be some consideration of the fact that what keeps an expert an expert is performing a high volume of surgeries and the ability to maintain that volume, Dr. Booth noted.

“Even if we could produce enough colorectal surgeons to have them in every small community, individual surgeons are going to lose their expertise if they're not practicing a high volume of colorectal care,” she said.

One solution that may be more attainable in the near future is to increase the abilities of existing surgeons to address the gaps in emergency surgical care, and this is an area where organizations such as the ACS play an important role.

To recognize and bolster the provision of emergency surgery that can fall into a general surgeon's

responsibilities, the ACS and The American Association for the Surgery of Trauma created the Emergency General Surgery Verification Program (EGS-VP).

Launched in 2022, the EGS-VP addresses disease areas that have overlap with other specialties, such as gastrointestinal obstruction, diverticular disease, pancreatitis, and acute gastrointestinal bleed,¹⁶ and follows the model of a trauma center to guarantee that qualified surgeons are available at any time to handle an emergency.

An endocrine surgeon, gastrointestinal surgeon, or colorectal surgeon may be the ideal providers of definitive treatment, but surgeons at a hospital accredited by the EGS-VP are qualified to provide lifesaving care across the diverse scope of this area.

Another element that will be key to addressing gaps in access to emergency surgery is dedication to lifelong learning, which may be particularly important for general surgeons.

“There are very busy general surgeons who went through residency when bariatric surgery was not performed at such high volumes as it is now, but does that absolve them from the responsibility of knowing how to take care of bariatric anatomy? No, they are just as responsible as a fresh graduate. That's when providing ongoing education pathways becomes important,” Dr. Raines said.

Teamwork and Communication

As health system leaders, policymakers, and beyond work to grow the pipeline for specialists and improve broad-based training for generalists, there is an area where surgeons can create their own improvements that will benefit patients requiring emergency surgery—teamwork.

For a patient who is decompensating or in a critical health situation, teamwork could take on different forms. At a large academic center, an acute care surgeon or specialist may be able to handle the surgical process. In a smaller practice setting, an ICU intensivist and a general surgeon may need to consult with the specialist to understand the best temporizing measure.

“General surgeons are competent to address the operative and immediate perioperative factors in a colorectal emergency, but I think it is important for colorectal surgeons to be available for consult by eventually directly overtaking the care of that patient—but sometimes, you need to be available to have the operating surgeon simply run something by you. That’s also a role that I think a specialty surgeon can play,” Dr. Booth said.

“This is especially important if it’s not a situation where you can get them to a specialized center or surgeon. Discussing the case with somebody who may be an expert can ensure that the general surgeon is on the same page,” she said.

Creating the blueprint of the steps that need to be taken to ensure the patient has both the best care for their acute process and the surgical care to get into the tertiary center where they can do the definitive care can be a critical step in saving a life. That will require efficient and effective communication.

“We need to have a way of connecting both groups and everyone being okay with saying, ‘Based on what you’re telling me, this is how we would handle it. This is the antibiotic I would use; these are the volumes of fluid I would give; these are the vasopressors I would give, and these are your damage control surgical options,’” Dr. Regner said.

This process would allow the specialist to offer recommendations that can buy the patient time while leaving definitive surgery on the table, he added.

Path Ahead

General surgery seems to be at a crossroads when managing emergency surgical care and complications. General surgeons, acute care surgeons, emergency general surgeons, and several specialized surgeons overlap across disease conditions, practice settings, and geographic locations, among other factors.

According to Dr. Booth, an increasing focus on specialization could change expectations for general surgeons, suggesting that “as surgical fields

There is an area where surgeons can create their own improvements that will benefit patients requiring emergency surgery—teamwork.



become more subspecialized and more nuanced, the expectation for what general surgeons should manage may decrease.”

But the growing shortage of surgeons also may require generalists to have an increasingly broad-based knowledge to provide emergency care. No matter what the path ahead looks like, and whether that 65-year-old patient experiencing a colorectal emergency previously described is better served right now by a general surgeon or by waiting for a colorectal specialist, it will require working together.

“Our patients need surgeons to specialize in order to drive better outcomes, but we need more and more bridges built between these specialties so that everyone is connected to provide the best care at the right time,” Dr. Regner said. “At the end of the day, the only thing that really matters is not the specialization—it is doing what is right for the patient.” **B**

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FTL Celebrates 10 Years of Cultivating Next Generation Leadership

Tony Peregrin

Early career surgeons sometimes need a boost to stand on the shoulders of giants.

THE ACS FUTURE TRAUMA LEADERS (FTL) Program lends a helping hand to early career trauma and acute care surgeons by providing intensive training and impactful coaching opportunities that—so far—have empowered 48 participants to become leaders within their institutions, communities, and the ACS Committee on Trauma (COT).

Eileen M. Bulger, MD, FACS, Medical Director of ACS Trauma Education Programs, helped launch the FTL Program in 2015 as part of the Mentoring for Excellence in Trauma Surgery (METS) Program. Ten years later, the FTL Program

continues to offer a rare opportunity for surgeons who are within 5 years of fellowship completion to develop extended professional relationships with COT members in their specific areas of interest.

Projects led by current and FTL alumni focus on diverse areas such as guidelines and best practices development, trauma screening and treatment, resource assessment, data-based quality improvement, and advocacy.

“The idea for the METS Program came when I took over the COT Membership Committee in 2014, and I realized how hard it was for junior faculty



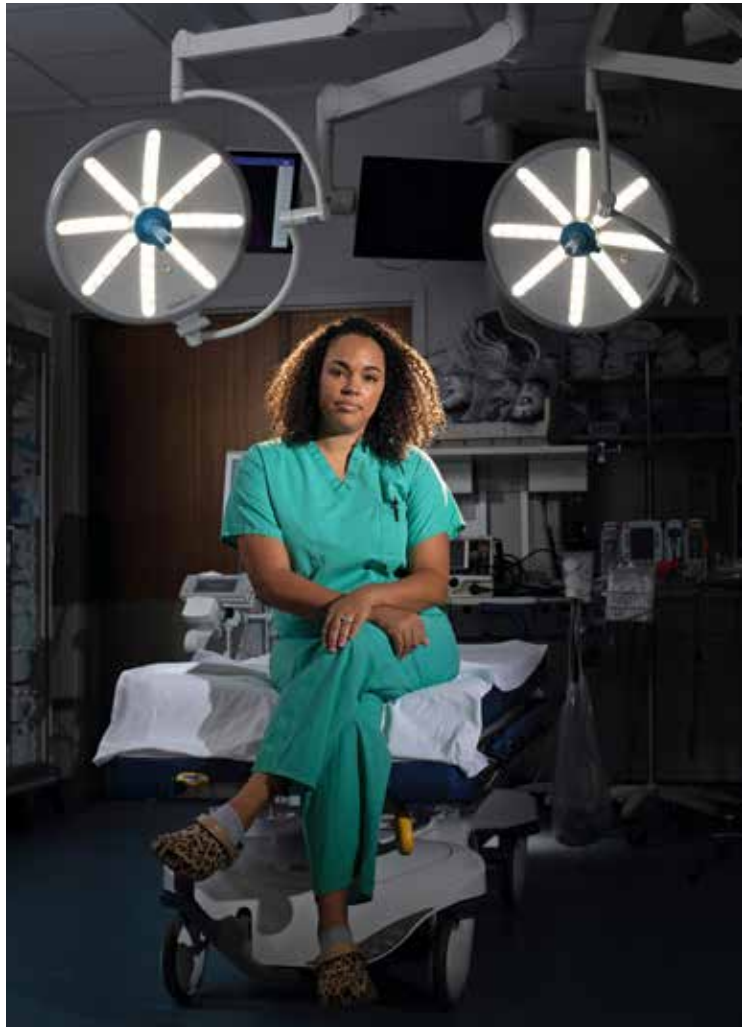
to get exposure to the COT early in their careers,” said Dr. Bulger, professor of surgery and chief of the Division of Trauma, Burns, and Critical Care at the University of Washington in Seattle and surgeon-in-chief at Harborview Medical Center in Seattle, Washington. “The number of positions on the COT was limited and so most people joining the COT were already well-established in their careers. Given the amazing breadth of work from the COT, I thought that we needed a program that would both engage the talent and enthusiasm of our younger surgeons and would support their career development through mentorship and engagement in COT activities.”

COT Chair Jeffrey D. Kerby, MD, PhD, FACS, agreed that this program has functioned as an essential pipeline for talented trauma surgeons to begin what hopefully will be a career-long commitment to the COT and its program areas.

“It is particularly satisfying to see other specialty program areas, like orthopaedic surgery and the military, fund FTL positions for its members. This is a true indication of how the FTL Program is viewed, and the experience is valued throughout the trauma platform of care,” said Dr. Kerby, the Brigham Family Endowed Professor and director of the Division of Trauma and Acute Care Surgery for the Department of Surgery at The University of Alabama at Birmingham (UAB) Marnix E. Heersink School of Medicine. “The 10-year anniversary is a wonderful time for us to pause and reflect on the success and growth of the program over time.”

The following profiles highlight the accomplishments of two FTL alumni and describe how the program generated leadership opportunities for each in the areas of firearm injury prevention and pediatric trauma readiness, respectively.

Left to right:
Cherisse D. Berry, MD, FACS (FTL alum),
Meera Kotagal, MD, FACS (FTL alum),
John H. Armstrong, MD, FACS (Advocacy Pillar Chair), Leonard J. Weireter Jr., MD, FACS (Past Vice-Chair, ACS COT), Laura N. Haines, MD, FACS (FTL alum), Lisa L. Schlitzkus, MD, FACS (Past YFA/COT Liaison), and Lenworth M. Jacobs Jr., MD, MPH, FACS (Past Program Director, Stop the Bleed)



Ashley Williams Hogue, MD, FACS FTL Class of 2023

Dr. Williams Hogue participated in a meeting at the White House in June 2024 to discuss strategies for addressing firearm-related violence in the US—a high-profile opportunity that she said was a result of her participation in the FTL Program.

“The FTL Program was pivotal in making this happen,” said Dr. Williams Hogue, an assistant professor of surgery at the University of South Alabama (USA) Frederick P. Whiddon College of Medicine in Mobile. “To be a part of that conversation, to be a part of this new movement, to really care for our patients in a preventive way was major.”

Executive Director and CEO Patricia L. Turner, MD, MBA, FACS, and Dr. Kerby represented the ACS at the meeting, which was hosted by the White House Office of Gun Violence Prevention and featured more than 80 healthcare leaders who underscored the importance of addressing

firearm-related violence as a public health crisis.¹ These leaders, including Dr. Williams Hogue, urged officials to continue gathering data on gunshot injuries to support the escalating need for community and hospital-based violence intervention programs.

One such program—Project Inspire—was founded by Dr. Williams Hogue in 2017.

Project Inspire is a program at USA Health that provides justice-affiliated youth with education, resources, and intensive trauma-informed mentorship. Participants also receive basic life support and Stop the Bleed training, take part in community service projects, and obtain professional development and career-specific mentorship.

Project Inspire has graduated 30 teens through the program to date, and some of those alumni were able to attend a meeting at the White House in August 2024, a few months after the firearm violence prevention summit.



“It is a very competitive program, but the return on investment is almost immediate. It is a game changer in terms of your career and the mentorship you receive.”

Dr. Ashley Williams Hogue

“This was such a full-circle moment,” explained Dr. Williams Hogue. “It allowed us to bring kids with their lived experiences to the White House to really see, hear, and be a part of advocacy at the highest level. This was one of my proudest moments of my career.”

The FTL Program provided Dr. Williams Hogue with the resources necessary to advance the work of Project Inspire.

“I knew pretty early on in my career as a resident that I was interested in injury prevention, particularly firearm injury prevention,” she said. “Being a part of the Future Trauma Leaders Program positioned me to talk to people who had already built hospital-based violence intervention programs, including those who are leaders on the national stage. Having that mentorship has allowed me to hone in on how to be most impactful in this work, how to create a plan, and how to tackle a goal in both the short term and long term.”

After developing a collaborative network of stakeholders at the federal, state, and local levels in an effort to mitigate the risk of firearm-related injuries, Dr. Williams Hogue’s work was recognized by receiving a promotion at USA—a notable accomplishment for an early career surgeon.

“Due to the recognition and opportunities afforded to me as an FTL, I have advanced quickly at my institution. In my second year as an attending surgeon, I was asked to step into a new role as director for the


USA Health Center for Healthy Communities. This type of promotion is really unheard of for someone at my level, but it certainly offers me the opportunity to do what I love—advocating for those who cannot advocate for themselves.”

The mission of the USA Health Center for Healthy Communities is primarily to “coordinate education, research, public service, and health activities to help eliminate health disparities, foster access to healthcare for underserved populations, and enhance the capacity of individuals to better participate in decision-making about their health.”²

In her first year as director of the center, Dr. Williams Hogue helped raise more than \$2 million in grant funding. “I’m super proud of that, but I am also super proud to be a partner with everyone at the center who is an expert in what they do, whether it is research, community engagement, peer support, or providing social services.”

Dr. Williams Hogue has some advice for early career trauma or acute care surgeons who are considering applying to the FTL Program.

“Apply no matter what. I didn’t think I was going to get it, but I applied anyway,” she said. “It is a very competitive program, but the return on investment is almost immediate. It is a game changer in terms of your career and the mentorship you receive. I feel like I’m walking in my purpose and doing the things that I’ve been put here to do.”

 Access related video content online.



“Just 4 years after starting the FTL Program, I am leading national quality improvement initiatives in collaboration with the COT and the EMSC that will incite meaningful change and improve care for injured children.”

Dr. Aaron Jensen

**Aaron R. Jensen, MD, FACS
FTL Class of 2017**

As the ACS COT liaison to the Emergency Medical Services for Children (EMSC) Innovation and Improvement Center (EIIC), Dr. Jensen’s leadership has been integral to improving pediatric trauma patient outcomes.

The EIIC’s mission is to “optimize outcomes for children across the emergency care continuum by leveraging quality improvement science and multidisciplinary, multisystem collaboration.”³ (The center is supported by the US Department of Health and Human Services Health Resources and Services Administration.)

“Our goal is not to recreate pediatric emergency systems, but to make sure that existing systems, which are optimized for adults, are also optimized for children,” explained Dr. Jensen, a trauma medical director at the University of California San Francisco Benioff Children’s Hospital in Oakland, a Level I pediatric trauma center. “Some of the research we’ve done with the EIIC has shown that only 65% of kids nationally have access to a pediatric trauma center within 1 hour, which means they’re going to have to get their initial trauma care at an adult center. And even kids who live close to a pediatric trauma center often go to an adult center first because it’s their neighborhood hospital and the families just drive them there.”

After being accepted into the FTL Program in 2017, Dr. Jensen started co-developing standards for the ACS Trauma Quality Programs, which included *Best Practices Guidelines for Trauma Center Recognition*



of Child Abuse, Elder Abuse, and Intimate Partner Violence, in addition to co-writing other guidelines addressing other trauma-related topics. This work, in addition to other research projects during his tenure as an FTL Program participant, led Dr. Jensen to realize his calling to improve pediatric trauma care quality.

“When the EIIC approached the ACS COT to nominate someone for the trauma domain co-lead role, my name came up,” he said. “My FTL Program work completely springboarded me into this position. Just 4 years after starting the FTL Program, I am leading national quality improvement initiatives in collaboration with the COT and the EMSC that will incite meaningful change and improve care for injured children. As a junior faculty member, the thing I desired most was the opportunity to get involved and contribute to the work that needs to be done.”

Within the COT, Dr. Jensen plays a key leadership role as a state vice chair for the COT Northern California region. The COT is divided into regional COTs, and each chair and vice chair helps manage the operation of programs, such as the Advanced Trauma Life Support® (ATLS®) Course, at the local level.



“I think, historically, the Committee on Trauma has primarily been a committee of more seasoned surgeons, and it took a long time for early career faculty to get engaged and get involved. The FTL Program really opens the door for people who want to learn about the inner workings of the ACS and who want to learn how policy is made,” he said.

The FTL Program’s application process is highly competitive. Dr. Jensen initially applied to the program as he was completing his fellowship as a first-year faculty member.

“When I finally got accepted into the program, I was just entering into year 3 as very early career faculty. I was still building my clinical practice, and so I was able to dedicate more time to the COT’s efforts and develop my own network and skillsets.”

About the FTL

FTL is a 2-year program that accepts six participants per year from as many as 60 or more applications submitted each cycle. A competitive application process is advertised in the fall to members of the COT, The American Association for the Surgery of Trauma, Eastern Association for the Surgery of Trauma, and the Western Trauma Association.

More information about the program and application process can be found at facs.org/ftl.

New FTL inductees all share a singular trait prior to being accepted into the program, according to Dr. Jensen, namely a demonstrated record of participation in initiatives that enhance the care of the injured patient.

“It’s called Future Trauma Leaders for a reason—It’s not Future Trauma Followers,” Dr. Jensen said. “FTL administrators want to see a commitment to improving trauma systems—and not just at your own center. They want to see that you’re an ATLS instructor, they want to see that you’re involved in leading regional Stop the Bleed campaigns, and they want to see that you’re involved in advocacy. Ultimately, they want to see that you’re not just sitting on the sidelines, but that you are involved in pushing these efforts forward because those are the types of people that we need on the Committee on Trauma.” **B**

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New Collaborative Aims to Reduce Impact of Climate-Driven Disasters on Cancer Care

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Record-breaking temperatures and recent devastating wildfires continue to underscore why climate change is one of the most pressing public health challenges of this century. When extreme weather events impact unprepared communities, disasters can happen.

IN A KEY STEP TOWARD BETTER UNDERSTANDING the impact of climate-related disasters on cancer care and identifying best practices in disaster preparedness and response, the ACS Commission on Cancer (CoC) and the American Cancer Society plan to launch a disaster risk management collaborative in the coming months.

Notably, the cancer care continuum—from prevention, screening, and diagnosis through treatment and survivorship—involves multiple interactions with the healthcare system, all of which can be disrupted by climate-driven disasters.^{1,2} As a result, patients with cancer are especially vulnerable to disruptions in access to care.

Specifically, as climate change increases the frequency and severity of extreme weather events, it becomes harder to prepare for and respond to unpredictable circumstances, further exacerbating the vulnerability of this patient population.

Previous research using the National Cancer Database—a hospital-based cancer registry jointly sponsored by the College and the American Cancer Society that includes 74% of cancer cases in the US—described how hurricane disasters disrupted access to radiation treatments and were associated with an increased risk of death for patients with non-small cell lung cancer, compared to similar patients treated at the same facility in the absence of a disaster.³

In this study, 1,734 patients exposed to a hurricane disaster had longer radiation treatment duration (66.9 versus 46.2 days, $p < 0.01$) and a 19% higher risk of death (hazard ratio [HR] 1.19; 95% confidence interval [CI] 1.07-1.32), compared to 1,734 propensity score-matched unexposed patients.³ Additionally, longer declarations were associated with worse survival.³

The impact of extreme weather events also may be experienced far outside of the immediately affected local region. For example, there were notable disruptions to medical infrastructure and the supply chain in 2024 when Hurricane Helene flooded an intravenous (IV) bag factory in Marion, North Carolina, which produces approximately 60% of the IV fluids used in the US.

When the plant was damaged and forced to close, it caused a nationwide shortage of IV fluids.

Similarly, in 2018, Hurricane Maria in Puerto Rico wiped out the electrical grid and devastated another key supplier of IV bags, causing widespread and critical shortages of this product for hospital systems across the US, including many cancer treatment facilities.⁴

Hurricanes are not the only climate-driven disasters that can result in disruptions to cancer care and poor outcomes. Proximity to wildfires increases the risk of exposure to air pollution and water and soil contaminated with the byproducts of burned materials, not to mention the challenges associated with the psychosocial and economic demands of rapidly changing evacuation orders.

A study published in 2023 showed that exposure to a wildfire up to 6 months after discharge following lung cancer surgery was associated with higher mortality risk, compared to unexposed patients.⁵

The research showed that 168,645 patients exposed to a wildfire up to 12 months after discharge following lung cancer surgery had worse overall survival compared to unexposed patients, with the greatest hazard seen for patients exposed between 0 to 3 months after discharge (HR 1.43; 95% CI 1.41–1.45).⁵

Climate change-driven increases in wildfire activity underscore the importance of leveraging existing research infrastructure for identifying populations at high risk from these events and for improving the ability of healthcare systems to prepare for and respond to threats posed by climate change.

With 2024 confirmed to be the warmest year on record,⁶ healthcare providers and other stakeholders must continue to proactively address the serious consequences that heat waves and other extreme weather events can have for patients diagnosed with cancer.

The risks faced by this vulnerable population are compounded especially in those with advancing age or those with limited access to resources.⁷ Adaptation strategies are needed to prepare health systems, communities, and patients for coping with the

consequences that extreme weather events have on cancer care delivery and outcomes.

These strategies should focus on healthcare infrastructure improvements such as facility upgrades, medical supply stockpiles, and data backup systems. In addition, early warning systems, community preparedness plans, patient support mechanisms, and flexible treatment schedules could help ensure continuity of care during disruptions related to extreme weather.

Health systems should implement targeted interventions to recognize and respond to the specific needs of their communities while ensuring equitable distribution of support and resources. Discriminatory policies and practices also can result in some patients receiving diminished or limited cancer care as they experience climate-related events.

Individuals from communities that are typically impacted first and worst by these conditions have developed innovative climate adaptation solutions that are relevant to the entire healthcare system. For example, the Centers for Medicare & Medicaid Services (CMS) now authorizes healthcare facilities to use microgrids as emergency power sources based on the experiences of the residents of Puerto Rico.

After Hurricane Maria devastated the electrical grid in Puerto Rico, residents experienced the limitations of relying on diesel-powered generators, which can be an unreliable source of power in these circumstances and can worsen health outcomes due to exposure to diesel exhaust.⁸

As evidenced by this real-world example, it is imperative that healthcare leaders move beyond simply recognizing how climate-driven events may exacerbate existing cancer disparities and develop strategies to mitigate the impact of climate change by learning from the experiences of others.¹

The capacity of healthcare systems to prepare for and respond to threats posed by climate change must be continuously re-evaluated to keep pace with the increasing unpredictability and severity of extreme weather events. CMS currently requires all participating facilities to have emergency



preparedness plans in place.⁹ However, there are no coordinated research efforts focused on sharing lessons learned or developing best practices for preparing for and responding to climate-driven threats to cancer care delivery.⁸

The new collaborative effort from the ACS CoC and American Cancer Society aims to make it easier to exchange ideas and information by creating a platform for developing, implementing, and disseminating emergency preparedness and response strategies. While some hazards are event-specific, many disaster risk management functions, including dealing with power outages, establishing patient transfer agreements, and managing challenges with accessing electronic health records, are similar.

This project will include a repository of current disaster risk-management practices and leverage diverse expertise from approximately 1,400 programs that have been invited to participate in other voluntary CoC National Quality Improvement collaboratives. The goal of these 12-month collaboratives is to improve the quality of care for cancer patients. Notably, the first collaborative was launched in 2021 to measure and reduce local cancer screening deficits after the COVID-19 pandemic.¹⁰

Results from this particular collaborative will be critically important to the development of a best practices toolkit that cancer programs can use to improve facility resilience, maintain high-quality cancer care, and reduce the risk to cancer patients whose communities experience disasters related to climate change. **B**

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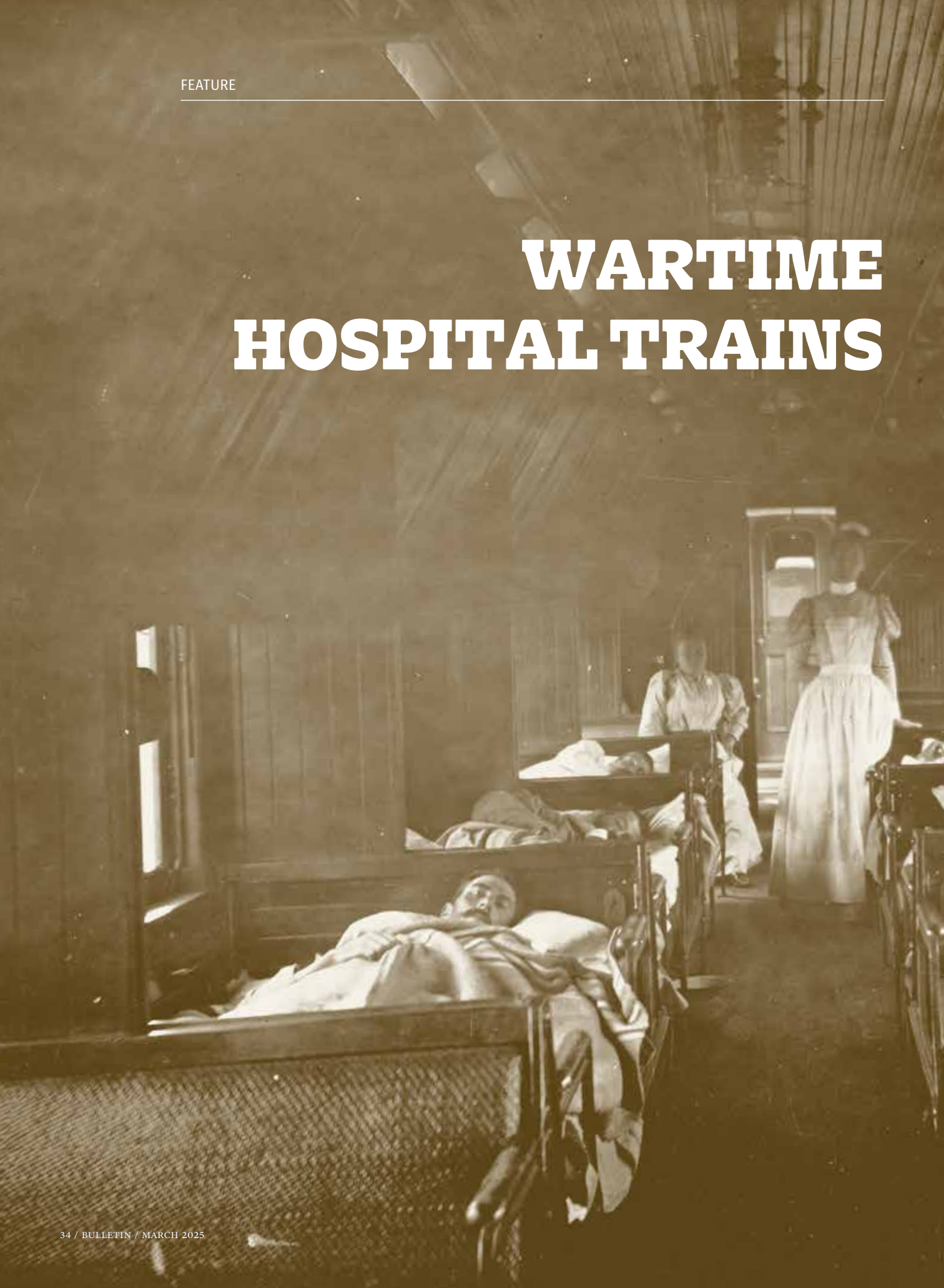
Left:

Residents watch the glow from a California wildfire in 2020.

Right:

Hurricane Maria in Puerto Rico caused downed power lines all over the island.

WARTIME HOSPITAL TRAINS



HAVE A TRACK RECORD OF SUCCESS

Alexandria L. Soto, MA
W. Sanders Marble, PHD
Justin Barr, MD, PHD



EDITOR'S NOTE: *This article is based on the second-place winning entry in the 2024 History of Surgery Poster Competition, which occurred in conjunction with Clinical Congress.*

Overleaf:

In October 1898, a hospital train begins a 90-mile journey from Camp Hamilton in Lexington, Kentucky, to Fort Thomas, Kentucky. Even 6 months after the war started, the train appears to be improvised from a passenger coach with litters balanced across seats. (Credit: US Army, AMEDD Center of History & Heritage photo collection)

IN FEBRUARY 2022, Russia invaded Ukraine, launching the largest assault on a European country since World War II. As combat erupted along the Russia-Ukraine border, frontline healthcare facilities faced compromised integrity and functionality. While the military evacuated uniformed personnel, civilians with injuries or preexisting medical conditions continued to require transportation and clinical management.

Confronted with an escalating crisis, authorities turned to a time-tested means of evacuation—the hospital train.¹ Outfitting railcars with more than 200 patient beds, a basic operating theater, pharmacy, dining center, and quarters for health workers reflected a broader trend of adaptability and innovation during wartime. This article traces the development and use of hospital trains from the 19th to the 21st century, relying on contemporary military medical documents from each conflict to unravel this history.

Advent of Hospital Trains

The Crimean War, a conflict between Russia and an alliance of the United Kingdom, France, Turkey, and Sardinia (1853–1856), represents the first use of military railroads in a major conflict. In 1855, after a fatal first winter, the British government financed the construction of a railway network across the Crimean Peninsula to ensure the dependable delivery of supplies and munitions to military posts.² Transportation by railway quickly proved highly advantageous, enabling the fast, safe, and large-scale movement of goods.

Shortly thereafter, the British and French armies loaded the returning empty trains with injured soldiers in need of evacuation. The military railway transported hundreds of soldiers daily, functioning as the first hospital trains. Although transportation on hospital trains was undoubtedly faster, it initially offered little in the way of comfort. Early hospital railcars were improvised cattle or freight cars padded with straw, pine needles, or blankets for cushioning during turbulent transportation. Ventilation was poor, and windows were often nonexistent, leaving soldiers in pain within a jostling dark box for miles.

Introducing Purpose-Designed Railcars

Hospital trains were first deployed in North America during the early battles of the American Civil War (1861–1865), when control of the railways provided a significant military advantage. At that time, travel on the hospital train—also known as an ambulance train—continued to cause significant discomfort for the wounded. Efforts to improve these conditions led military forces to outfit passenger cars, rather than cattle or cargo cars, and employ dedicated medical attendants.

Later additions included integrating pharmacists, dressing stations, kitchens, and even mobile operating theaters. However, not all innovations were effective and safe. In 1864, *Harper's Weekly* described an attempt to improve the train's bumpy ride by suspending litters using India-rubber bands attached to metal rods, an arrangement that likely proved downright dangerous.



Renovating passenger coaches for medical care required significant time and effort. During the US Civil War, governments collaborated with railway companies to build purpose-designed railway carriages, ready for deployment as hospital trains. These models featured enlarged doorways for easy passage, formal patient beds with mattresses and bedding, and designated sleeping quarters for healthcare personnel.³

When traveling, hospital trains were generally marked with red flags to be seen during the day and red lights at night. During the course of the Civil War, more than 20,000 Union and Confederate wounded soldiers were transported by railway.⁴

Reuse, Recycle, and Reboard

Hospital trains continued to reappear in major and minor conflicts during the next century. In almost every instance, passenger trains were adapted until sufficient purpose-built hospital trains were manufactured. During the Spanish-American War (1898), for example, hospital trains were created out of modified Pullman sleeping cars, with the dining car functioning as the kitchen. These modified trains could transport up to 240 patients, two physicians, and 22 enlisted military staff at one time.⁵

The use of hospital trains expanded significantly during World War I, becoming the primary means of transporting wounded soldiers across Europe.⁶ At the beginning of the war, this mode of evacuating patients once again consisted of repurposed railcars. Military contractors stripped the interiors of the

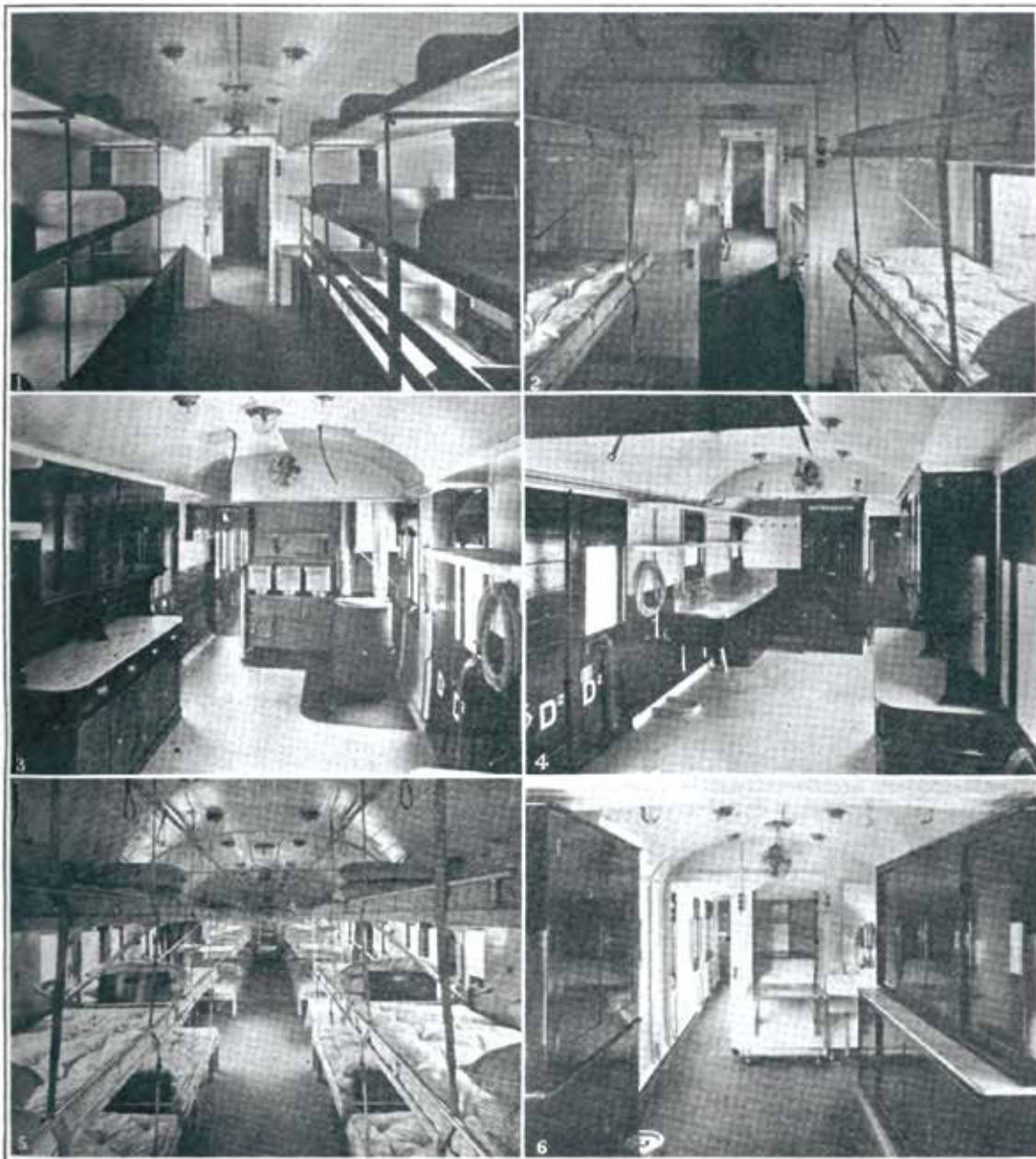
coaches, painted them white, covered the floors in linoleum and lead, and fastened pull-down cots to the walls. They designed the beds to be removed and used as stretchers if the need arose.

To maximize space, the dining cars featured collapsible tables, enabling healthcare providers to add more beds and increase the train's carrying capacity at a moment's notice.⁷

Water was warmed with gas heaters and moved through a steaming system for heat. Ventilation was achieved through the use of large electric fans, with ample circulation prioritized, especially in ward cars and lavatories. Equipment was sterilized using a steam jet.

In many cases, trains received aid at each stop in the form of reserve blankets, medical supplies, and clothing from the American Red Cross. Even when railcars were not configured as hospital trains, the railways transported soldiers, supplies, and equipment. For example, soldiers who did not need advanced

This sketch, published in 1864, depicts the interior of a hospital train from the American Civil War. India-rubber bands are shown supporting each litter, illustrating how they were used to reduce swaying and jolting of patients. (Credit: National Library of Medicine)



VIEWS OF AMBULANCE TRAIN

- | | |
|--|---|
| <p>1. Stores Car E.
3. Kitchen of Cars D1 and D2.
5. Ward Car.</p> | <p>2. Lying Infections Car A10.
4. Kitchen of Cars D1 and D2.
6. Pharmacy Car F—Dispensary.</p> |
|--|---|

These photographs, published in *The Medical Times* in May 1918, show a World War I hospital train.

wound care, such as those diagnosed with tuberculosis, were often transported in standard passenger cars. Whether with passenger cars or modified mobile hospitals, the railways are credited with transporting large numbers of soldiers from the forward combat zones to rear healthcare facilities. For example, during the Battle of the Somme in 1916, more than 33,000 British soldiers were evacuated across France in just 4 days using ambulance trains.

These trains often operated well beyond their intended capacity during this battle, largely due to the high-casualty rate.⁸ Medical trains were routinely pushed beyond capacity limits. With high numbers of wounded soldiers, US Hospital Train No. 18 evacuated more than 10,000 patients between July and September 1918. During the course of World War I, British hospital trains evacuated 3.4 million Allied troops in Europe.³



Contemporary accounts from Army Nurse Corps personnel stationed on World War I hospital trains described working on board railway cars as treating a “parade of faces.”⁹ Their work embodied intimate yet transient care, as patients were treated in their most vulnerable moments before evacuation to base hospitals.

Hospital Trains after the Great War

Despite the emergence of airplane evacuation in the 1920s and 1930s, trains remained a primary mode for transporting the wounded in the European Theater during World War II due to their ability to ferry more patients with higher efficiency over longer distances in any weather conditions. In 1944, Germany’s Battle of the Bulge offensive forced the rapid, unplanned evacuation of Allied patients. The 57th Hospital Train participated in this massive effort, and the healthcare workers even wrote a song about their work.

57th Hospital Train Song

*The rolling 57th rolls along the track
 Bringing all our wounded boys safely back
 Valiantly they fought
 Homeward they are brought
 On, the rolling 57th rolls along.*
 Chorus
*Rolls along, rolls along
 Oh, the rolling 57th rolls along
 We will feed them pills
 To chase away their ills*

*Oh, the rolling 57th rolls along
 We’re all kept busy running up and down the aisle
 Changing all their dressings in the latest style
 They have done their part
 It’s time for us to start
 Oh, the rolling 57th rolls along*

The use of hospital trains continued into the Cold War with the US Army strategically placing hospital trains throughout Germany in preparation for a potential Soviet invasion.

Unfortunately, one location where the US Army did not stockpile rolling assets was the Korean Peninsula. During the Korean War, casualties from frontline battalion aid stations flooded clearing centers and prompted the expansion of military hospital train detachments. Wooden Korean coach cars from circa 1860 were converted into railway ambulances.¹⁰ Makeshift litters lined the walls, and accommodations lacked comfort, not unlike the early Civil War trains.

Rather than relying on air evacuation, which was often hindered by multiple factors such as poor weather, casualty numbers exceeding transport capacities, and technical barriers, the majority of casualties during the Korean War were transported by trains (or trucks) from forward Mobile Army Surgical Hospitals to rear zones for further support and care.^{10,11} Eventually, the US shipped purpose-built ambulance railcars to the Korean Peninsula and deployed them in combat, replacing their improvised precursors.

An American Red Cross nurse stands next to an ambulance or railroad tram car loaded with wounded soldiers on stretchers at Saint-Etienne, Loire, France, during World War I. (Credit: Library of Congress)



An unknown unit repurposes a standard boxcar into an improvised OR, with portable equipment installed aboard a hospital train during the Korean War. (Credit: US Army, AMEDD Center of History & Heritage photo collection)

No other transportation modality can evacuate casualties as quickly, efficiently, safely, and comfortably as hospital trains. Given the track record of these trains, it is not surprising that Ukraine returned to medical train transportation in 2022. Partnering with Doctors Without Borders, the government implemented a hospital train system capable of providing both basic and intensive care, evacuating nearly 2,500 patients between March and November 2022.¹

The deployment of hospital trains has been most extensive when three conditions have converged: significant casualty volumes necessitating mass evacuation, established railway infrastructure, and contested or neutral airspace. Military conflict creates conditions conducive to the use of train ambulances. Given an increasingly unstable world, hospital trains likely will remain integral to future emergency response. **B**

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Surgeon Compensation Is Not on Pace with Increasing Student Debt

Angela D. Sickels, MD, and J. Bart Rose, MD, MAS, FACS

For many who choose to pursue a career in surgery, future earning potential may be an attractive aspect of the profession, although compensation is not typically ranked among the top priorities for aspiring surgeons.

THERE IS CERTAINLY a diversity of passions and motivations, both intrinsic and extrinsic, which propel surgical careers; ultimately, most have the common thread of developing the skills and abilities to be a healing force for humanity. This noble goal, however, is not without financial challenges, which can come as a surprise to early career surgeons who might assume there will be a significant financial payout once training is complete.

While a surgeon's income on average typically ranks near the top among career fields in the US, the student debt crisis has significant implications for these individuals. Current surgeon compensation models typically do not account for increasing student debt levels that continue to escalate with no ceiling in sight. This article provides the highlights of research conducted by the authors and our colleagues at The University of Alabama at Birmingham, which recently was published in the *Journal of the American College of Surgeons*, "Diminishing Returns: An Analysis of Surgeon Compensation in the Setting of Ever-Increasing Student Debt."

The Evolution of Student Debt

While student debt is increasing exponentially for higher education, in addition to any debt accrued from expenses associated with an undergraduate degree, medical education, in particular, is becoming increasingly expensive.

Notably, funding mechanisms for medical education have evolved drastically during the past 60 years. In the 1960s, many students were able to finance their medical education via family contributions and/or income from a research position or externship.¹ By the 1970s, more than half of all students were taking out loans to pay for medical school, and by the mid-1980s, more than 86% of students were graduating with debt.² Today, the average medical student graduates with approximately \$200,000 in student debt.³

Training Obligations and Income Potential

Additional compounding factors that exacerbate the problem of student debt for surgeons include the length of time required for residency training and an income potential that has stalled compared to the rate of debt accumulation. Surgeons, on average, will dedicate 10 or more years to formal professional training, during which there is very little income (particularly during medical school), or they are earning only a fraction of the salary that their peers with professional degrees or those with shorter residency training obligations are earning.^{4,5}

After training is completed, the starting salaries of hospital-employed surgeons are heavily influenced by the overall financial health of the practice environment, which in turn, is dependent on variables such as payer mix, region, and general overhead.⁶ Productivity compensation, typically based off of work relative value units, is also declining due to diminishing conversion factors that determine reimbursement. For example, the Medicare conversion factor in 2024 was less than it was in 1998 (<50% of inflation-adjusted dollars).⁷

Surgeon Debt and Income Trajectories

Taking these factors into consideration, our research group examined salary and education debt data from the Medical Group Management Association and the Association of American Medical Colleges datasets. To allow for more direct comparisons of salary and debt over time, inflation adjustments were made using the Consumer Price Index calculator from the US Bureau of Labor Statistics.⁸ Examining trends of debt and income over time, we found that in 1984, the median surgeon salary was \$111,287 annually, and corresponding median medical school debt was \$22,000.

In 2019, the median salary and debt were \$350,000 and \$200,000, respectively. After adjusting the 1984

The growth of student debt has significantly outpaced that of the surgeon's income and is poised to have increasingly detrimental effects on the financial standing of surgeons.

figures to 2019 dollars (salary of \$274,900 and debt of \$53,344), the 2019 figures represent increases of 214.5% for salary and 809% for debt. The resulting debt-to-income ratio increased sharply from 0.2 in 1984 to 0.6 in 2012 and has remained relatively constant since. Even after inflation adjustment, medical school debt has increased nearly four times in the past 40 years, while salaries have only increased by 25%.⁹

Potential Solutions

From a debt alleviation perspective, there are programs available for student loan forgiveness, usually contingent upon an agreement to practice in a nonprofit and/or underserved setting after training. Most notably, the Public Service Loan Forgiveness Program is one such program, which requires 10 years of qualifying payments, calculated as a function of current salary while practicing in the aforementioned settings, after which the remaining loan balance is forgiven.¹⁰

This is an attractive option for surgeons given the length of time required in a relatively low-paying residency. However, with ever-changing legislation surrounding student debt, it is unclear whether this option will be a reliable path in the future.

In terms of improving compensation models to favor surgeon productivity, pay-for-performance models have been proposed, emphasizing value-based metrics and quality care. However, these models disadvantage poor and low-resourced patients and hospital systems.¹¹ Lastly, there is a large portion of uncompensated work that surgeons undertake, including care coordination, quality improvement efforts, mentoring, research, and advocacy. Future compensation models should consider these factors in hiring packages, as their benefits to the healthcare profession overall cannot be overstated.

The growth of student debt has significantly outpaced that of the surgeon's income and is poised to have increasingly detrimental effects on the financial standing of surgeons. This problem requires innovative input from surgeons to develop

sustainable financial models that alleviate the debt burden and continue to improve equity and quality in care delivery. **B**

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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Surgeons Should Be “At the Table” in This AI Era

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

Successful surgery relies on many factors, including the surgeon’s decision-making and skill.

IF SURGEONS DON’T STEP UP TO INTEGRATE artificial intelligence (AI) into their work, what defines a successful surgery will be decided by others.

“Surgeons need to take the lead in integrating AI, defining how it affects their practice, and how they can use it to define and influence what good patient care means,” said Carla Pugh, MD, PhD, FACS, the Thomas Krummel Professor of Surgery at the Stanford School of Medicine in California. Dr. Pugh also is The Joint Commission’s first awardee of The President’s Fellowship for Healthcare Quality and Safety, a program for a highly qualified healthcare professional to collaborate with The Joint Commission to advance healthcare outcomes globally.

In the era of minimally invasive and robotic surgery, the psychomotor mechanical actions of the surgeon performing the procedure are recorded by the robotic platform. In addition, the moment-to-moment flow of the surgical procedure is recorded and archived. These technical motions and visual images can be evaluated to determine if the procedure was

completed successfully. There are important questions that need to be asked and answered by surgeons regarding these assessments, including:

- Who determines the performance standard for procedures captured and evaluated on a robotic platform?
- Who evaluates and correlates the “correctness” of the procedure with the outcome of the patient?
- Does a “correct” procedure always result in a positive patient outcome, and does a technically “incorrect” procedure result in a negative outcome?
- What are the consequences to these questions for the patient, surgeon, and the future of surgery?

Surgeons need to consider these and other questions related to the skill evaluations, and ideally they should be in positions of leadership going forward to help develop policy and standards, especially in the era of AI. It also is important to develop an ongoing awareness that the data are available to industry instrument manufacturers, insurance companies, and legal professionals.

As the director of the Technology Enabled Clinical Improvement Center at Stanford University, Dr. Pugh studies the use of simulation and advanced engineering technologies to develop new approaches for assessing and defining competency in clinical procedural skills.

I recently spoke to Dr. Pugh about AI, robotics, and expectations for the future of surgery. In setting the stage for our discussion, Dr. Pugh started by stressing the need to assess minimum competency and mastery in surgery, and provide appropriate measurement for both levels.

“We have to determine what the measures are, and we, as surgeons, need to lead the effort,” she said. “We need to give manufacturers guidance on what we need for our practice. If we don’t take the lead on which variables are important to use—for example, anatomical complexity or the synergy of the surgical team—those assessments will be missed.”

Dr. Pugh added, “There are lots of data streams that can give us insight into mastery in surgery and how we test mastery. No one wants to be minimally competent, but we can assess both—and we should. There is work to be done to quantify both. And we have a framework to guide us, which is the Olympics.”

She explained how standards of excellence are evolving in the Olympics: “What was a 10 in the 1970s is different than what was a 10 in 2024. The measurement hasn’t changed, but mastery performance has; therefore, the expectations for mastery have changed. In surgery, the metrics will likely arise out of a combination of human-derived and digital data. What will define mastery today will differ from what it was in 1980, and what it will be in 2040. If you don’t have explicit mastery metrics, you’ll never achieve a standard benchmark that can be used globally for accountability. This is the goal we want to achieve as a profession.”

I asked Dr. Pugh to share more about competency, privileges, and what evaluations will be based on moving forward.

“It would hurt our profession to have a very narrow view of mastery. Privileges should be based on minimal competency, not mastery. Not all surgeons need to be gold medal winners. What about silver and bronze? They are still winners. Competency may mean a 90% success rate for most patients for a specific disease process,” she said.

Dr. Pugh also reminds us that mastery should be defined at the team level such as with the Chicago Bulls basketball team.

“As an example, Michael Jordan and Scottie Pippen each had different expertise, but together, as part of a team, it worked because they had a mix of mastery that was complementary. You need a variety of mastery to achieve great patient outcomes. However, if we start focusing on mastery as the sole paradigm to judge surgeons and not teams and systems, insurance companies—and patients—will start cherry-picking surgeons, and this will hurt everyone. There is also a need to align surgeons’ skills with the metrics for specific disease processes,” explained Dr. Pugh.

“Competency is a base standard. You don’t need to win the Olympics to be a good athlete. And surgeons don’t have to perform at an Olympian level to be a good, quality physician. Industry should not define what affects our practice and how we define good patient care. That’s our job,” she said.

To get involved in the integration of AI in surgery, Dr. Pugh urges surgeons to educate themselves and look for opportunities to participate in their surgical field. “Find out who is talking about AI, and if robotics is applicable in your field, find out who is talking about the data and metrics,” she said.

“Surgeons need to understand the science, the barriers, and potential uses of AI and robotics,” Dr. Pugh said. “Surgeons need to be at the table, because AI will affect your practice.” **B**

Disclaimer

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

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History of Anesthesia Begins with Ancient Herbal Mixtures

Frederick H. Millham, MD, FACS

The challenge of providing anesthesia was foremost among the problems that humankind needed to solve in order to safely perform major surgery.

WESTERN MEDICAL HISTORIANS tend to place the origin of anesthesia with the use of volatile organic solvents such as diethyl ether and chloroform, in concert with nitrous oxide, following the demonstration of diethyl ether anesthesia at Massachusetts General Hospital in 1846.

While “Ether Day” (the first successful public demonstration of surgical anesthesia) is an epochal moment in surgical history, surgeons had, for centuries, sought a means to induce a pain-free state that would allow them to operate without causing excessive suffering.

Historical records indicate the use of various medicinal plants as anesthetics stretching back nearly to the beginning of recorded time, though accounts describing their efficacy are rare. There is an exception, however, in the tradition of plant-based anesthetics beginning in ancient China but finding its apotheosis in early 19th-century Japan.

There are published formulae for anesthetic concoctions (a liquid mixture of various ground plants used as a medicine) from the Islamic and

European medieval periods, best exemplified by “The Great Rest,” whose lengthy recipe contains mandrake and henbane, as well as opium.¹

Mandrake and henbane are rich in tropane alkaloids, including recognizable pharmaceuticals such as hyoscyamine, scopolamine, and atropine. These biopharmaceuticals account for the pharmacologic effects of these potions.

While such anesthetic formulae abound, there is little evidence of the clinical utility of these brews in Europe, the Middle East, or Central Asia. From the influential *The Canon of Medicine* by the Islamic philosopher-physician Ibn Sina (also known as Avicenna), to the influential medieval medical school of Salerno’s *Antidotarium Nicolai*, there are many similar recipes, but no accounts of their actual use in surgery.

Anesthesia Use in Ancient China

In Asia, however, there is evidence that herbal concoctions induced surgical anesthesia. Tradition holds that between 140 and 208 CE,



Figure 1. This illustration shows a successful induction of anesthesia for partial mastectomy using Mafutsusan.

corresponding to the time of Galen, Hua Tuo, a surgeon practicing in eastern China, performed visceral surgery under anesthesia using an herbal preparation he called Mafeisan.²

Recent efforts to reconstruct Hua Tuo’s recipe from medieval chronicles suggest that the difference between Hua Tuo’s concoction and those from the West was the addition of aconitum (also known as monkshood and wolfsbane).

This plant contains aconite, a powerful inhibitor of voltage-dependent sodium channels, responsible for the propagation of membrane depolarization. Aconite is a powerful neurotoxin and cardiotoxin. The lethal dose of purified aconite may be as little as 1–2 mg. This risk was well-known in ancient China, with *The Masters of Huainan*—a second-century CE historical chronical—stating: “For all things under heaven, nothing is more vicious than the poison of aconite,” and “Yet, a good doctor packs and stores it.”³

Though limited to Asia, Mafeisan was quietly employed by Chinese surgeons for centuries. It is in modern Japan where its use is best documented.

Seishu Hanaoka, a surgeon who had studied under both European and Japanese master surgeons, knew of the Chinese tradition of Mafeisan, and in the late 18th century, set out to develop a safe and effective formula for it.⁴

Experimenting first on his wife and mother, Dr. Hanaoka perfected the dosing of his herbs, reprising the work of Hua Tuo nearly 2 millennia before. Once he was able to anesthetize his family members safely in clinical trials in his kitchen, he brought the mixture to his clinic.

On October 13, 1804, Dr. Hanaoka performed a partial mastectomy on a 60-year-old woman under a state of general anesthesia produced by a cocktail he called Mafutsusan. Subsequently, he and his student Gendai Kamada performed numerous procedures with Mafutsusan, though limiting themselves to mastectomy, plastic surgery, management of fractures, and amputations.

Dr. Kamada would eventually publish a textbook describing the use of Mafutsusan in 1840, 6 years before “Ether Day” and 2 years



Figure 2.
A patient receives incomplete anesthesia in a urological procedure using Mafutsusan.

before Crawford Long, MD, anesthetized James Venable in Jefferson, Georgia. In addition to describing a general anesthetic technique for the first time, this text includes a list of risk factors for poor outcomes—an early risk stratification system that was years ahead of its time.

Dr. Kamada's illustrations of surgery featuring Mafutsusan, in some cases, suggest the successful induction of surgical anesthesia on an apparently unconscious patient (see Figure 1, page 49). But others that depict blindfolded patients restrained by large men, suggest that this technique may have had inconsistent efficacy (see Figure 2, this page).

Differences in potency of various crops of monkshood and datura flower no doubt led to variations in clinical efficacy of the mixture. The narrow therapeutic margin for aconite, where a small overdose would lead to cardiac arrest, must have made the use of Mafutsusan a difficult act of titration. This supposition is supported by Mafutsusan's complete disappearance from Japanese surgery after the introduction of diethyl ether and chloroform in the 1840s.

However, reports of the end of Mafutsusan may have been premature. During the Cultural Revolution in China, shortages of ether led Yan Tau Wang, a surgeon at Xu Zhou Medical University, to use an herbal anesthetic recipe based on Mafutsusan. After first experimenting on himself to determine the correct ingredients and dosing, he used the herbal anesthetic in more than 46,000 surgeries, often in conjunction with the antipsychotic neuroleptic drug, Thorazine.⁵

Although, it is true that the greater safety and ease of administration of diethyl ether and other volatile organic substances would come to define surgical anesthesia for nearly 2 centuries, our surgical ancestors in Asia were able to induce surgical anesthesia using high-risk medicinal plants long ago, possibly as far back as the age of Galen at the beginning of the common era. **B**

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CoC Operative Standards Address Variations in Surgical Technical Quality

Alison S. Baskin, MD

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FOR MOST PATIENTS WITH CANCER, high-quality surgery represents their best chance of a cure. In 2023, more than 2 million people in the US were diagnosed with cancer, 60% of whom underwent surgery to treat or stage their disease.¹

High-quality cancer surgery comprises primary surgical resection aimed at achieving negative surgical margins and accurate lymph node staging, which informs subsequent treatment decisions. Effective primary surgical resection and lymph node staging lead to better oncologic outcomes through the combination of improved local cancer control and access to critical information to guide administration of appropriate adjuvant systemic and radiation therapy as indicated.

Differences in disease-specific and overall survival across hospitals have been observed for patients with many cancer types. While a significant amount of cancer care delivery research has been

conducted, it primarily has focused on diagnostic and staging processes and adherence to adjuvant therapy guidelines.

The inherent difficulties in measuring and reporting surgical technical quality—how well a surgeon performs an operation—have left the impact of variations in technical quality on patient outcomes largely understudied.

Targeting Variations in Surgical Technical Quality

To help decrease variations in surgical technical quality, the ACS recently published the *Operative Standards for Cancer Surgery* manuals.² The 134 published operative standards provide foundational, evidence-based recommendations on cancer surgery to help practicing surgeons perform high-quality operations with the goal of improving patient outcomes such as cancer-specific survival and quality of life.

Table. Current CoC Standards 5.3-5.8

CoC Standard	Cancer Type	Operative Standard
5.3	Breast	All sentinel nodes for breast cancer are identified using tracers or palpation, removed, and subjected to pathologic analysis.
5.4	Breast	Axillary lymph node dissections for breast cancer include removal of level I and II lymph nodes within an anatomic triangle comprised of the axillary vein, chest wall (serratus anterior), and latissimus dorsi, with preservation of the main nerves in the axilla.
5.5	Melanoma	Wide local excisions for melanoma include the skin and all underlying subcutaneous tissue down to the fascia. Clinical margin width is selected based on original Breslow thickness.
5.6	Colon	Resection of the tumor-bearing bowel segment and complete lymphadenectomy is performed en bloc with proximal vascular ligation at the origin of the primary feeding vessel(s).
5.7	Rectal	Total mesorectal excision is performed for patients undergoing radical surgical resections of mid- and low-rectal cancers, resulting in complete or near-complete total mesorectal excision.
5.8	Lung	For any primary pulmonary resection performed with curative intent, lymph nodes must be resected from the mediastinum (≥ 3 nodal stations) and ≥ 1 hilar station.

The ACS Commission on Cancer (CoC), which accredits approximately 1,400 US cancer programs that collectively treat 74% of all incident cancer patients, implemented six of these operative standards in 2020 as part of its national accreditation process.³ The current CoC operative standards target both primary surgical resection and lymph node staging and apply to five cancer types: breast, melanoma, colon, rectum, and lung.

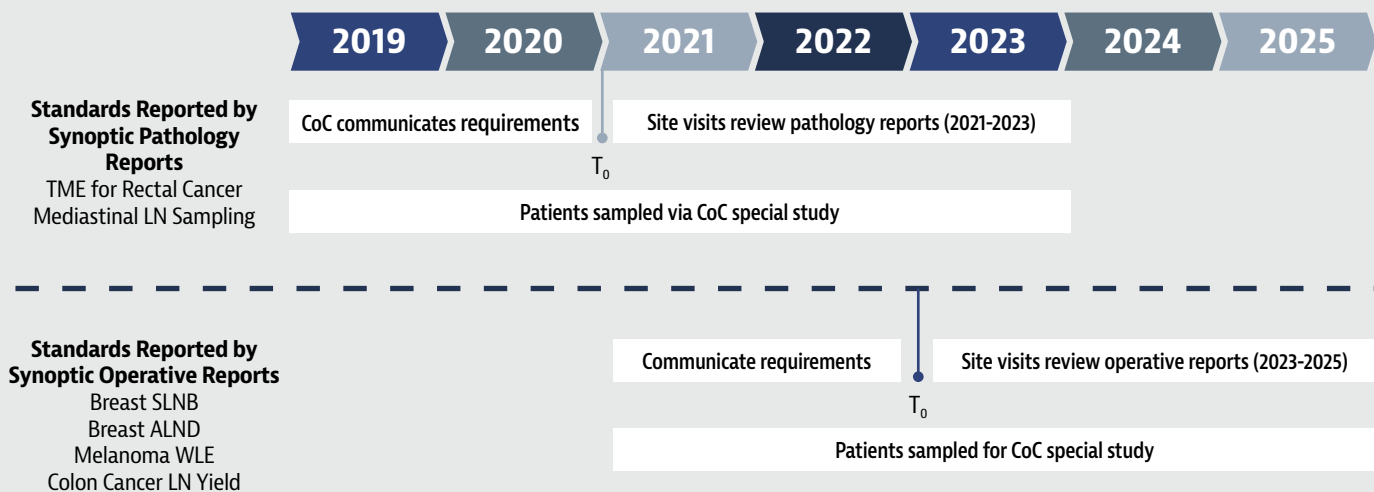
Evaluating Compliance and Impact on Cancer Outcomes

Patient-level compliance with the operative standards must be documented in operative or pathology reports that include specific responses in synoptic format. CoC sites are evaluated for compliance during their accreditation site visits. For each of the standards, CoC site reviewers

randomly select seven eligible operative cases to assess compliance. As of 2023, all CoC-accredited hospitals are expected to be at least 80% compliant with each standard.

The implementation of the CoC operative standards represents an unprecedented attempt to standardize surgical technical quality. Given the extensive reach of the CoC, this initiative has the potential to affect the care of millions of patients, influence the practices of thousands of surgeons, and shape major institutional investments in quality improvement. Although retrospective data suggest an association between operative standards and cancer outcomes, a causal link has yet to be established.^{4,5} Therefore, understanding whether implementation of the CoC operative standards directly improves oncologic outcomes is essential for guiding surgical cancer quality initiatives.

Figure. Overview of CoC Operative Standards Implementation



This timeline is according to ACS-planned data collection periods. T_0 indicates the point of required implementation, which differs between the operative standards reported by synoptic pathology reports (above dashed line) and synoptic operative reports (below dashed line).

Study Evaluates Implementation of CoC Operative Standards

The National Cancer Institute (NCI) awarded grant funding to support the Assessing and Evaluating the Operative Standards Program (AESOP) study (R01 CA288625), led by co-principal investigators Lesly A. Dossett, MD, MPH, FACS, from the University of Michigan in Ann Arbor, and Daniel J. Boffa, MD, MBA, FACS, from the Yale School of Medicine in New Haven, Connecticut. Drs. Dossett and Boffa are joined by co-investigators Ronald Weigel, MD, PhD, MBA, FACS, Medical Director of the ACS Cancer Programs, and Judy C. Boughey, MD, FACS, Chair of the ACS Cancer Research Program.

In collaboration with the ACS, this 5-year study leverages the CoC’s national implementation of the operative standards across a range of cancer programs to evaluate whether these standards can be widely adopted and whether they improve short-term cancer outcomes.

The study’s first aim is to assess the implementation of the CoC operative standards across cancer and hospital types using data collected during CoC site visits. The primary outcome is the overall compliance rate with the six CoC operative standards. Additionally, the study will identify associations between compliance and facility characteristics, including hospital size, surgical volume, and cancer program type.

The study also focuses on identifying barriers and facilitators to the implementation of the CoC operative standards, which will help explain any variability in compliance rates observed across facilities. Another aim of the study is to evaluate how the CoC operative standards impact short-term cancer outcomes. The study will perform a CoC Special Study to abstract key data elements not currently collected by the National Cancer Database (e.g., cancer recurrence) to determine whether the CoC operative standards improve cancer care.

Early Insights from AESOP Study

The AESOP study team has begun analyzing early compliance data for CoC Standard 5.7 on total mesorectal excision for rectal cancer and CoC Standard 5.8 on mediastinal lymph node sampling for lung cancer.

Data from CoC site visits conducted in 2022 and 2023 show that among nearly 500 eligible CoC sites, 88% were compliant with Standard 5.7 for rectal cancer. Furthermore, most noncompliant hospitals were close to achieving compliance, often needing just one or two additional compliant cases. However, early compliance data for CoC Standard 5.8 in lung cancer reveal more room for improvement, with about half of the sites being noncompliant. These results underscore the importance of the growing efforts of the ACS to provide hospitals and surgeons

with quality improvement tools and resources for CoC Standard 5.8.

In addition to assessing compliance with the CoC operative standards, the AESOP study team has sought to understand the perspectives of CoC site reviewers. Interviews with current site reviewers reveal their perceived roles as advocates, educators, and partners to the programs they visit. Future implementation strategies may leverage the relationships between CoC site reviewers and the sites to help improve compliance rates.

The CoC operative standards present a novel opportunity to improve cancer care by addressing variations in surgical technical quality. As we venture into uncharted territory, it will be important to study how these standards are implemented across different cancer types and hospital settings, and whether cancer outcomes are impacted.

The AESOP study will deliver critical insights on both fronts. Its findings will guide revisions to the operative standards and enhance implementation strategies across a range of cancer programs. Moreover, if the CoC operative standards demonstrate an improvement in cancer outcomes, this study will provide compelling rationale for expanding these standards to additional surgical procedures, both within and beyond cancer care. **B**

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Leadership & Advocacy Summit Provides Path for Surgeons to Lead Change

THE ACS LEADERSHIP & ADVOCACY Summit is early next month, taking place at the Grand Hyatt Washington, DC hotel, April 5–8. The meeting will be in person only; no virtual option will be available this year.

This two-part summit offers a comprehensive program, including dynamic sessions and compelling workshops designed to strengthen surgeon leadership skills, and interactive advocacy training with coordinated, in-person visits to Congressional offices to help advance healthcare policy and influence the future of surgery.

Registration for the 2025 summit is now open at facs.org/summit.

Leadership Summit April 5–6

The Leadership Summit—open to all US and international ACS members and nonmembers—begins Saturday evening, April 5, with a networking event, followed by a full day of programming on Sunday, April 6. ACS members may attend the Leadership Summit for free.

The comprehensive agenda for the Leadership Summit features a lineup of influential speakers and insightful sessions packed with real-world expertise, actionable insights, and strategic skill-building. Kicking off the morning session, retired US Navy Capt. Eric A. Elster, MD, FACS, from the Uniformed Services University of the Health Sciences in Bethesda, Maryland, will provide an interesting perspective on how surgeons navigate leadership in high-stakes environments—at the federal level, in particular—drawing from his extensive experience in military medicine.

Anthony Atala, MD, FACS, from the Wake Forest Institute for Regenerative Medicine in Winston-Salem, North Carolina, will follow with a session on the power of collaboration across surgical disciplines, reinforcing how unity within The House of Surgery™ can drive progress and innovation.

The morning will continue with Joshua M. V. Mammen, MD,

PhD, FACS, from the University of Nebraska Medical Center in Omaha, offering valuable insights on understanding one's worth as a surgical leader and leveraging that knowledge in negotiations—an especially relevant topic for surgeons at all stages of their careers. The panel session on the benefits of leadership in surgery, moderated by Kimberly M. Lumpkins, MD, FACS, from the University of Maryland School of Medicine in Baltimore, will offer a broader discussion on what it takes to lead effectively at every level.

Later in the day, the sessions will focus on developing and sustaining strong surgical leaders, beginning with KMarie King, MD, MS, MBA, FACS, from Albany Medical Center in New York, who will discuss the role of advanced degrees in career growth. E. Christopher Ellison, MD, FACS, from The Ohio State University College of Medicine in Columbus, will then address the critical topic of succession planning, underscoring its importance in ensuring the longevity and success of surgical programs and organizations. Dr. Ellison will explain how sustainability requires collaboration across all organizational components.

In addition, the summit will include a thought-provoking panel session on emotional intelligence as a leadership tool. Moderated by





On Hill Day in 2024, 215 Advocacy Summit attendees representing 39 states participated in 212 meetings.

Sharon L. Stein, MD, FACS, from Case Western Reserve University School of Medicine in Cleveland, Ohio, this discussion will feature esteemed panelists who will explore the role of emotional intelligence in their leadership journeys and share some of their favorite tools.

Throughout the day, attendees will have the opportunity to share best practices, while networking with ACS leaders and engaging with colleagues. Residents and trainees also will participate in the Advocacy and Health Policy Abstract Competition.

Three preconference, in-person-only workshops will be held on Saturday. These include:

- Leadership in Action: Making the Most of Your Communications Opportunities—From Published Research to Media Interviews
- Sustaining Lifelong Surgeon Competency
- The Human Margin: Building the Foundations of Trust

Preregistration for the workshops is required, and there is a fee for each.

Advocacy Summit April 7–8

Surgeon champions are instrumental in informing legislators about vital healthcare concerns and driving meaningful

improvements, all while expanding the ACS's presence and impact within Congress. The engagement of ACS members at the Advocacy Summit is crucial to advancing the College's mission.

Open only to ACS members in the US, the Advocacy Summit begins Sunday evening, April 6, with a welcome reception and keynote dinner featuring Margaret Brennan, moderator of *Face the Nation* on CBS News, the network's chief foreign affairs correspondent, and a contributing correspondent for *60 Minutes*. She also moderated the CBS Vice Presidential Debate and was previously a White House correspondent for CBS.

A full day of panels, training, and programming is scheduled for Monday, April 7; in-person meetings with members of Congress and congressional staff will be on Tuesday, April 8.

Expected to be enlightening and empowering, the Advocacy Summit will offer participants the opportunity to engage with policymakers and advocacy specialists to explore the most recent shifts in healthcare policy and legislation.

The agenda will feature comprehensive advocacy training, equipping attendees with practical strategies for effectively conveying policy priorities both on Capitol Hill and in their local communities.

Several members of Congress also are expected to speak during the summit, sharing their thoughts on the important role surgeons play in advocating for their patients and shaping federal healthcare policy.

In addition, attendees can expect several dynamic panel discussions, including "Changing Healthcare Landscape at the Payor, Physician, and Employer Levels," "Digital Transformation and Evolving Surgery Policy," "Advocating for Quality in Value-Based Care and APMs," and "Advocacy 101." And staff members from the ACS DC office will detail the "asks" and provide background information in preparation for in-person visits to the Congressional offices.

"The Leadership & Advocacy Summit is one of my favorite meetings," said Jason P. Wilson, MD, MBA, FACS, a surgical oncologist from Sentara Health in Hampton, Virginia, and the 2023 ACS Advocate of the Year, following last year's meeting. "I always learn so much at this meeting and appreciate the chance to meet new colleagues and take practical steps to help the ACS with its advocacy agenda."

More information is available at facs.org/summit. Share updates or follow the Leadership & Advocacy Summit on X, Bluesky, and Instagram using #ACSLAS25. **B**



Report on ACSPA/ ACS Activities

February 2025

Marion Curtiss Henry, MD, MPH, FACS

The Board of Directors of the American College of Surgeons Professional Association (ACSPA) and the ACS Board of Regents (BoR) met February 6–8 at ACS Headquarters in Chicago, Illinois.

Key presentations centered on the College’s strategic plan, digital transformation, cybersecurity, and data strategy.

THE FOLLOWING IS A SUMMARY of key activities discussed and was current as of the date of the meeting.

ACSPA

The ACSPA, a 501(c)(6), allows for a broader range of activities and services that benefits surgeons and patients, including expanded legislative advocacy and political programming, such as the ACSPA-Political Action Committee (SurgeonsPAC).

Member Services

The BoR accepted resignations from 11 Fellows and changed the status from Active or Senior to Retired for 94 Fellows.

Education

Several named lecturers were approved for Clinical Congress 2025, October 4-7 in Chicago. The BoR approved Ethics Committee’s proposals for panel sessions on “Ethical and Equitable Care in Patients Who Are Incarcerated or Detained,” “Humanitarian Crisis and Armed Conflict: Ethical Obligations Surrounding Healthcare,” and “Ethical Challenges of Open Notes: Case Review and Problem-Based Learning.” A Meet-the-Expert Session, “Managing Uncertainty for High Stakes Surgical Decisions: Using Best Case/Worst Case,” also was approved.

Integrated Communications

A strategic analysis by the Division of Integrated Communications was conducted in February 2023 to review the Division’s services, programs, and products, identify internal and external challenges,

define future vision, and establish priorities for moving forward. A status update and progress on the recommendations were presented during the most recent meeting and included:

- Digital transformation
- Developing a members-only mobile app
- Enhancing patient resources and tools on *facs.org*
- Improving *facs.org* search and navigation functions

Information Technology

The mission of the Information Technology area is to enable the College to enhance surgical excellence through innovative technology. The BoR heard a presentation on the area’s focus to develop resilient, ethical, secure information technology platforms and services that adapt to the evolving needs of members, staff, and the healthcare community. Updates also were provided on assessments for HIPAA/cybersecurity to stay abreast of new risks and vulnerabilities and implementing artificial intelligence policies, compliance, and training.

In addition, ACS Chief Health Informatics Officer, Genevieve Melton-Meaux, MD, PhD, FACS, provided an overview and long-term data strategy for ACS registries.

Research and Optimal Patient Care

The Division of Research and Optimal Patient Care (DROPC) encompasses the areas of Continuous Quality Improvement, Trauma, and Cancer Program and includes ACS research and accreditation programs.

The BoR approved the Committee on Trauma's updated blueprint for a National Trauma and Emergency Preparedness System.

Written reports to the BoR from the Trauma team included information on the upcoming Committee on Trauma Annual Meeting and 2025 Advanced Trauma Life Support® (ATLS®) Global Symposium, which will be held March 14-16 in Chicago. The report also provided updates on:

- The ATLS 11th edition Learner Course, which is expected to launch this summer, will feature a new design, delivery options (traditional live and hybrid), and interactive virtual segments. The ATLS 11 Instructor Course has been piloted and is undergoing further revisions.
- The MyATLS App, which was released last fall, using ATLS 10th edition content and previewing some of the functionality enhancements that will be incorporated into the 11th edition release. More than 4,600 downloads have been purchased via a one-time subscription fee. After the ATLS 11th edition content is available in the app, a new, annual subscription process will be available. The ATLS 11th edition will feature frequent content updates and gamification functionality to foster medical decision-making skills.
- The ACS Stop the Bleed (STB) program is in the final development stages of the enhancements to the program management platform. The revisions will help expand the global reach of course search and course management, enhance internal and external program administration, and create a more user-friendly interface for instructors and the public. Additional enhancements include a training center and organizational portal access and management, and creation of a unique reporting dashboard for STB and ACS leadership.

A multichannel campaign to promote the STB store and kits is underway. COT programs also continue to promote equipment purchases.

ACS Foundation

The mission of the ACS Foundation, a separate 501(c)3 organization, is to secure financial support for initiatives in surgical research, education, rural surgery, trauma, and more—all to ultimately promote better patient outcomes. The Foundation offers a wide spectrum of funding opportunities for ACS Fellows and supporters to ensure the highest level of surgical care and education.

A written report presented to the BoR noted that, since July 1, 2024, the Foundation has secured approximately \$1.4 million in restricted and unrestricted revenue for the College. Activities at Clinical Congress 2024 resulted in more than \$121,000 in new gifts and pledges, and the Fall Appeal/Year End Appeal raised more than \$127,000 from 207 donors.

The Foundation partnered with the Division of Member Services to establish two new Chapter Funds (New Hampshire and Metropolitan Washington, DC) and successfully secured \$155,000 to support the 2025 Excelsior Surgical Society meeting—Back to Rome: Preserving the Heritage and Ethos of Military Surgery, February 18–20 in Rome, Italy. **B**

Dr. Marion Curtiss Henry is the Chair of the ACS Board of Governors and professor of surgery at The University of Chicago Medicine, where she also serves as the medical director of the operating rooms and pediatric surgery quality officer at Comer Children's Hospital in Chicago, IL.

Time Is Running Out to Submit Nominations for ACS Treasurer

JUST A FEW WEEKS REMAIN to submit nominations for the position of ACS Treasurer. The deadline for submissions to the ACS 2025 Nominating Committee of the Board of Regents (BoR) is **March 31, 2025**.

Responsibilities

The responsibilities of the position include:


- The Treasurer shall oversee, in conjunction with the Chief Financial Officer, the funds of the College under the supervision of the Finance Committee and shall make such reports to the Finance Committee, the BoR Executive Committee, and the BoR as may be required.
- The Treasurer will attend the meetings of the BoR and will have a reporting relationship with the Finance Committee and ACS Executive Director.
- The College shall purchase a bond or insurance coverage to ensure the faithful performance of the duties of the office of Treasurer. In the absence or inability to act as the Treasurer, the duties of the Treasurer shall be performed by such person and in such manner as the Finance Committee may direct.
- The Treasurer shall serve as the Chair of the Investment Subcommittee.
- The Treasurer shall serve an initial 3-year term and may serve a maximum of two 3-year terms.
- Demonstrated leadership qualities that might be reflected by service and active participation on ACS committees or in other components of the College.
- Nominees must have prior experience serving on a financial committee, preferably of a nonprofit organization; additional experience serving on an investment committee is desirable.
- Nominees must be able to read and understand financial statements and exhibit astute business acumen.
- Members of the NCBR recognize the importance of achieving representation of all who practice surgery.
- The ACS encourages consideration of women and other underrepresented minorities for all leadership positions.

Nomination Process

All nominations must include:

- A letter of nomination
- A current curriculum vitae
- A personal statement from the candidate detailing ACS service
- Name of one individual who can serve as a reference

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

Nominations must be submitted by **March 31, 2025**, via the online form at www.surveymonkey.com/r/Treasurer25. For more information, contact Ken Puttbach at kputtbach@facs.org. 

Criteria for Consideration

The Nominating Committee of the BoR (NCBR) will use the following guidelines when considering potential candidates:

- Loyal members of the College who have demonstrated outstanding integrity and medical statesmanship, along with impeccable adherence to the highest principles of surgical practice.

Member News

Emil Is Mercy Ships ICMO



Sherif Emil, MD, CM, FACS, FRCSC, is the new international chief medical officer (ICMO) for Mercy Ships. He also will continue as pediatric surgery specialty consultant and pediatric surgeon on the Ships during field services. Dr. Emil is based in Montreal, Canada, where he is a professor of pediatric surgery at McGill University and a pediatric surgeon at the Montreal Children's Hospital of the McGill University Health Centre. Mercy Ships is an international charity-based nongovernmental organization that operates a fleet of hospital ships, providing surgical care and free healthcare services to people in more than 70 countries.

Lumpkins Receives Inaugural Endowed Professorship



Kimberly M. Lumpkins, MD, MBA, FACS, was named the inaugural Dr. J. Laurance Hill Professor in Pediatric Surgery at the University of Maryland School of Medicine (UMSOM) in Baltimore. Dr. Lumpkins serves as chief of the Division of Pediatric Surgery at UMSOM, surgeon-in-chief at the University of Maryland Children's Hospital, and chief of the Division of Pediatric Surgery and Urology. J. Laurance Hill, MD, FACS, was a longtime UMSOM faculty member who provided surgical interventions for generations of children and mentored countless surgeons.



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.

Sabik Is Elected STS President

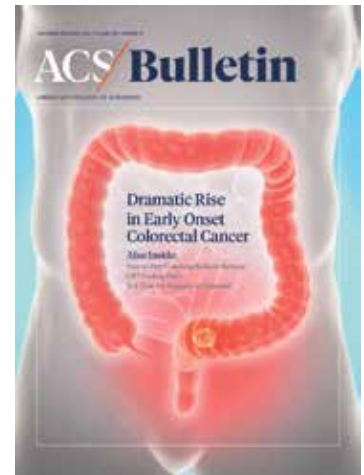


Joseph F. Sabik III, MD, FACS, is the new president of The Society of Thoracic Surgeons. Dr. Sabik—a cardiothoracic surgeon at the University Hospitals Harrington Heart & Vascular Institute—also is chair of the Department of Surgery at University Hospitals Cleveland Medical Center, surgeon-in-chief at University Hospitals Health System, the Oliver H. Payne Professor and Chair in the Department of Surgery at Case Western Reserve University School of Medicine, and the Sally and Bob Gries Distinguished Chair in Cardiac Surgery at the University Hospitals, all in Cleveland, Ohio.

Dingeldein Takes Over as Chief of Pediatric Surgery



Michael Dingeldein, MD, FACS, has been named chief of pediatric surgery at University Hospitals Rainbow Babies & Children's Hospital (UH Rainbow) in Cleveland, Ohio. Dr. Dingeldein, who has served as a pediatric surgeon and director of trauma at UH Rainbow for 10 years, has held the chief role on an interim basis since June 2024.



Dear Editor,

I READ WITH GREAT INTEREST the article in the November/December ACS *Bulletin*, “Clinicians Struggle to Understand Dramatic Rise in Early Onset Colorectal Cancer.” As a surgical breast oncologist who is certified in lifestyle medicine, I am a strong advocate for lifestyle improvements as primary prevention in my practice.

I applaud the article highlighting the importance of colonoscopy and emerging serum screening tools. These secondary prevention modalities are important parts of the puzzle to decrease cancer incidence, but surgeons are also well-positioned to be advocates of primary prevention using our influence to spread the word about the effects of lifestyle factors in cancer development.

As in colorectal cancer, lifestyle factors such as a sedentary lifestyle, alcohol intake, low diet quality, and increased adiposity increase one’s risk of at least postmenopausal breast cancer. Additionally, optimizing these lifestyle factors after a breast cancer diagnosis can markedly decrease recurrence.

In my practice, a lifestyle discussion takes this form:

1. A 2- to 3-minute discussion with nearly every patient highlighting that lifestyle factors are very important in cancer care and assessing readiness for change.
2. If the patient is amenable to discussing the topic, I start with basic points such as trying to limit processed foods and beverages, increasing fiber intake, limiting alcohol intake, and increasing daily activity. To make the discussion more actionable, I use behavior change techniques such as SMART goals (specific, measurable, achievable, relevant, and time-bound).

3. If I find myself having more time during a visit, I usually extend the conversation to take a short, informal dietary history (e.g., “Can you share with me what a typical breakfast/lunch/dinner for you is?”), discuss barriers to implementing healthy behaviors (e.g., work, family commitments, sometimes lack of access to fresh foods), and strategize about solutions to making small changes.
4. Lastly, I have equipped myself with a list of local referral sources such as dietitians, health coaches, local food banks, and preferred websites (e.g. Noom, American Institute for Cancer Research, MyPlate) to give to the patient. There are many resources, many of which are online, that patients can consider.

Much can be accomplished with a few basic scripts (and some practice) and even a short discussion such as this underscores that we, as a cancer center, see lifestyle as integral to our patients’ care and optimal health.

Lora Hebert, MD, MPH, FACS, DipABLM
Dignity Health Cancer Institute at St. Joseph’s Hospital and Medical Center in Phoenix, AZ

Bibliography

- Armenta-Guirado BI, Gonzalez-Rocha A, Merida-Ortega A, et al. Lifestyle quality indices and female breast cancer risk: A systematic review and meta-analysis. *Adv Nutr*. 2023;14(4):685–709. doi: 10.1016/j.advnut.2023.04.007.
- Kohler LN, Garcia DO, Harris RB, et al. Adherence to diet and physical activity cancer prevention guidelines and cancer outcomes: A systematic review. *Cancer Epidemiol Biomarkers Prev*. 2016;25(7):1018–1028. doi: 10.1158/1055-9965.EPI-16-0121.

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

Role of Minimally Invasive Reoperation for Postoperatively Diagnosed T2 Gallbladder Cancer: Multicenter Retrospective Cohort Study

Yeshong Park, MD, Sae Byeol Choi, MD, PhD, Boram Lee, MD, and colleagues

Minimally invasive reoperation for postoperatively diagnosed gallbladder cancer can be technically challenging. The authors of this study evaluated 148 patients who underwent reoperation for postoperatively diagnosed T2 gallbladder cancer. Laparoscopic reoperation showed favorable postoperative outcomes and noninferior oncologic outcomes when compared with open operation.

Validation of Artificial Intelligence-Based POTTER Calculator in Emergency General Surgery Patients Undergoing Laparotomy: Prospective, Bi-Institutional Study


Vahe S. Panossian, MD, Dias Argandykov, MD, Suzanne C. Arnold, MD, and colleagues

This study prospectively validates the POTTER artificial intelligence risk calculator in emergency laparotomy patients. POTTER accurately predicts mortality and postoperative complications. The superior accuracy, user-friendliness, and interpretability of POTTER make it a useful bedside tool for preoperative counseling.

Omitting Radiotherapy after Breast-Conserving Surgery in Luminal A Breast Cancer: The LUMINA Study

Alison Laws, MD, MPH, FRCSC, Muriel Brackstone, MD, MSc, PhD, FRCSC, and May Lynn Quan, MD, MSc, FRCSC

The authors of this paper reviewed the LUMINA Trial and found that, while the LUMINA study was rigorously designed and executed, there are significant pragmatic limitations to the proposed approach using this protocol. The authors of the *JACS* study advocate that there is no “one-size-fits-all” approach to early estrogen receptor positive breast cancer.

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