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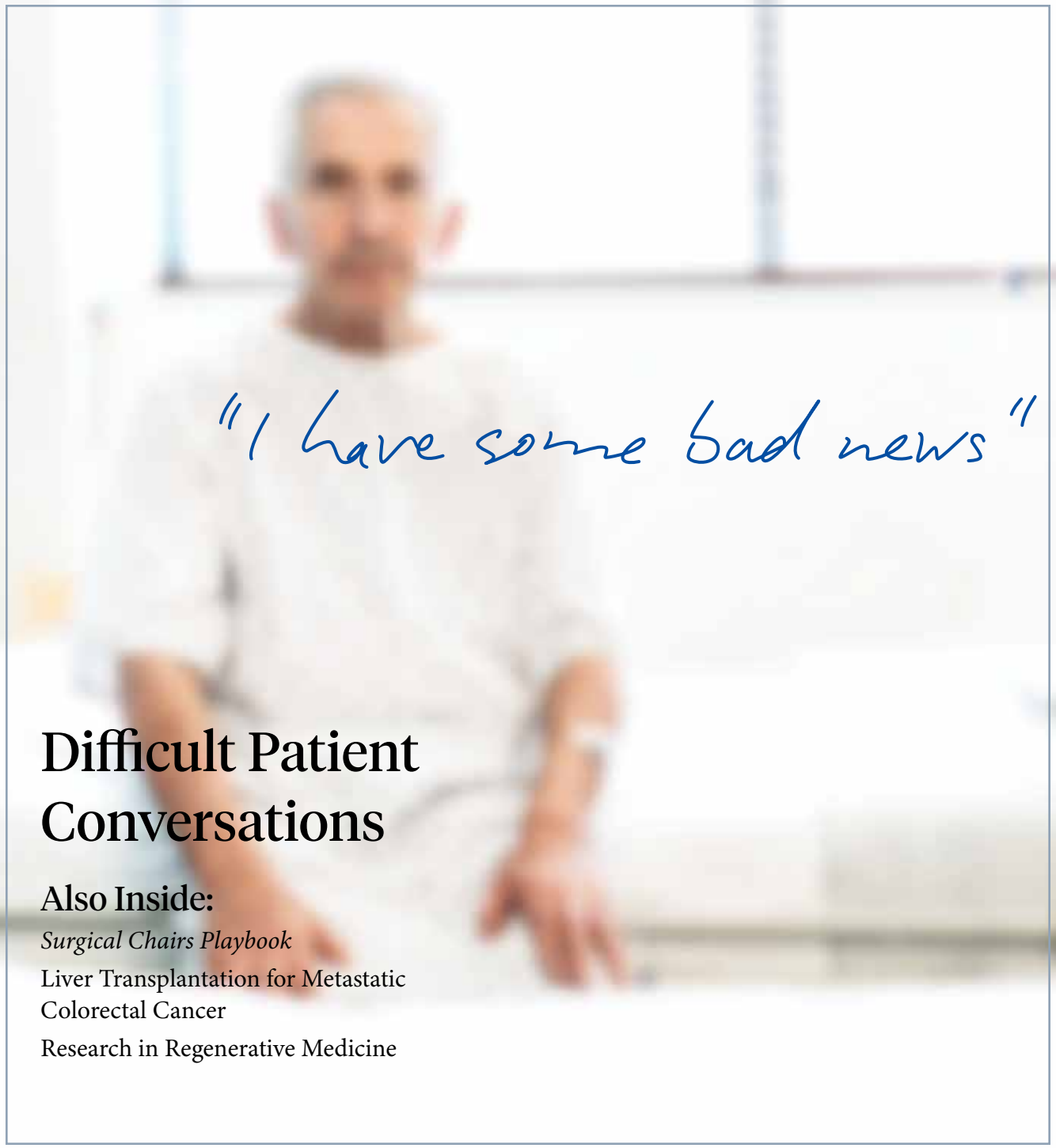
Bulletin

AMERICAN COLLEGE OF SURGEONS



Difficult Patient Conversations

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Surgical Chairs Playbook

Liver Transplantation for Metastatic Colorectal Cancer

Research in Regenerative Medicine

“The American College of Surgeons is focused on the future of medicine and ensuring that we are leading the way in quality, innovation, and delivering outstanding care for surgical patients. Our quality programs empower us to use our creativity, our skill, and our leadership to create better outcomes for all.”

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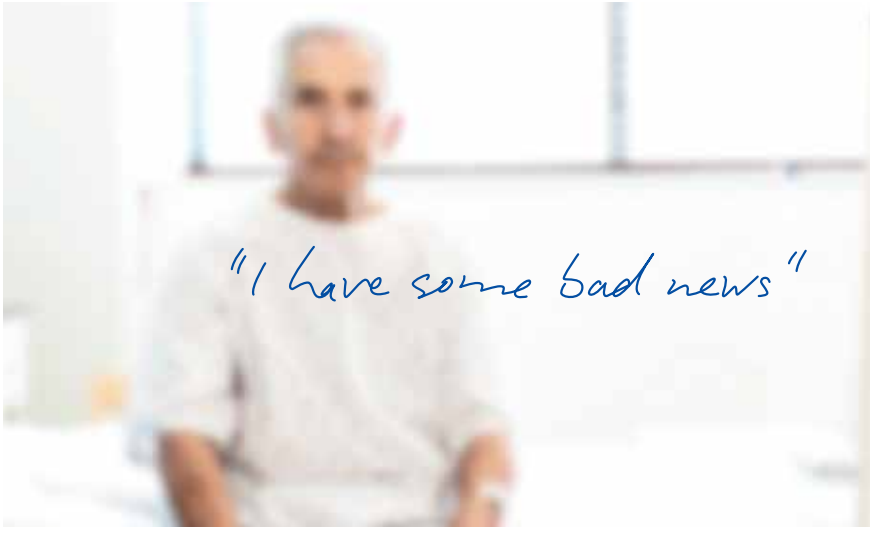

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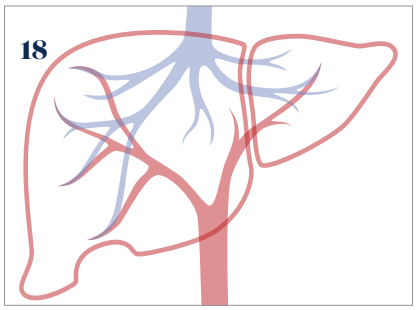

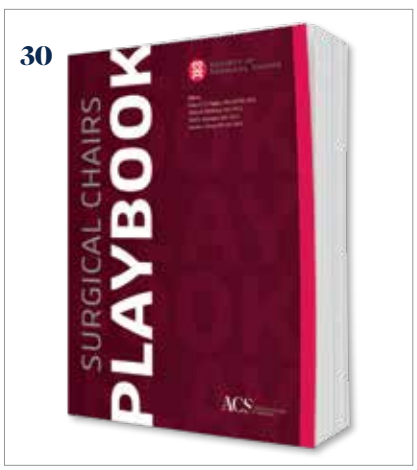

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Making Members' Voices Heard through Leadership and Advocacy

Patricia L. Turner MD, MBA, FACS

IT IS ONLY THE SECOND month of 2023, and we are well into the throes of planning some of our signature educational events. These include the Cancer Conference (March 1–4 in Atlanta), Committee on Trauma Annual Meeting (March 8–10 in Chicago), and the Leadership & Advocacy Summit (April 15–18 in Washington, DC).

I look forward to seeing you at these meetings, and especially want to highlight the significance of this year's Leadership & Advocacy Summit. Given the current landscape for surgeons, it is as timely as ever.

Legislative Developments

At the legislative level, 2022 was an eventful one for our profession (see pages 52–56). For this coming year, there is one challenge especially relevant to issues of leadership and advocacy—communicating the value of surgeons in the current employer model.

The fee for service model was historically straightforward and easy to understand. Added complexities and regulatory burdens changed that over the years. Today, when private practice surgeons negotiate with payers, or when surgeons and employers are engaged in contract negotiations, the model may expand to include other elements: a surgeon's outcomes, contribution to quality improvement efforts, leadership of service lines, and other multidisciplinary efforts, against the backdrop of competition and the local environment.

ACS members are some of the best leaders anywhere, and they continue to show their necessity to the healthcare ecosystem. Surgeons are the engines that drive the revenue for many hospitals.

Similarly, surgeons work tirelessly to fulfill—and advocate on behalf of—their patients' needs. Developing and enhancing our leadership and advocacy skills are essential as we move into a new Congress. Those on the Hill need to hear from us with stories of the impact we have on our patients, and we need to hear from you, at the ACS, as we frame new ways to discuss the valuation of the surgeon. WE need to change the narrative about physician reimbursement altogether.

Shortly before the new year began, lawmakers passed a $1.7 trillion omnibus spending package to fund the federal government through most of 2023.

Although cuts in Medicare payments to surgeons and other professionals were not as deep as originally proposed, the ACS fought hard, with many of you engaging in the process, for those cuts to be averted completely. As we continue the fight to fix the broken Medicare system, we are heartened that some funding from the bill will help address other issues important to the ACS, including cancer research and support for those affected by trauma.

More than $12 million has been appropriated to fund

public health research on firearm injury and mortality prevention, and more than $47 billion has been targeted to the National Institutes of Health. Additionally, the bill has increased the amount of funding to be targeted for the MISSION ZERO program, which provides military-civilian trauma services.

These steps forward could not have been possible without the tireless advocacy of our members through our SurgonsVoice program and the ACSPA-SurgeonsPAC, as well as through the lobbying efforts of ACS staff and other healthcare organizations. There is, nonetheless, room for improvement in creating an optimal environment for our members and profession to excel in and provide care.

Surgeons deserve all the necessary resources to do the work we love. As passionate as we were in 2022, the ACS will be even more vocal in 2023 in advocating and lobbying for fair and equitable funding for our profession, and we will propose new ways to assess the value of a surgeon that reflect our contributions to the healthcare system.

A New Guide for Surgical Leaders

Another ACS role is to help nurture the growth of current and future surgical leaders. This month, the ACS has released a new book to help guide members as they develop their leadership talents.

A joint publication of the ACS and the Society of Surgical Chairs, the *Surgical Chairs Playbook* features strategies, practices, personal experiences, and advice from more than 80 surgeon leaders to help our colleagues enhance their leadership skills. The *Playbook* is a must-have reference for those who are looking to advance into a chair's role, move into a hospital C-suite, or assume other leadership roles in practices across the country. You can learn more about it on pages 30–33.

Along with the *Playbook*, I hope that you will take advantage of existing opportunities offered by the ACS to amplify your own leadership capabilities and potential. These opportunities include events like the yearly Leadership & Advocacy Summit and the Residents as Leaders course.

Leadership requires continuous learning. This idea parallels a quote by the late, pioneering psychologist Carl Rogers, who once said that the "only person who is educated is the one who has learned how to learn and change." I am confident that current and future surgical leaders will persevere in their desire to learn, grow, and improve, and that ACS offerings will be an indispensable part of their—and your—professional journey.

Looking Ahead

The February edition of the *Bulletin* marks the second month of its new design. We are pleased with the new look, and are very proud of the work invested by the ACS staff to make our redesign vision a reality.

In my January column, I mentioned changes to the *Bulletin.* Judging by the early response we have received, more members want to read the *Bulletin,* and we hope that includes you!

The look may be new, but the *Bulletin's* mission of delivering high-quality news and stories about our profession has not—and will not—change.

This month, we also will unveil an updated look for our peer-reviewed research publication, the *Journal of the American College of Surgeons (JACS)*. The *JACS* logo will align with the new ACS brand architecture, and the cover will more prominently display the ACS seal that has been a foundational symbol for our organization for more than 100 years.

We are excited about what the future holds for the ACS and how we—as the House of Surgery—can help surgeons, the profession and, most importantly, our patients.

Delivering Difficult Patient Conversations Is a Skill to be Learned, Practiced

Jennifer Bagley, MA

"If giving difficult news feels easy, you probably aren't doing it right."

—Dr. Kimberly Kopecky

"I'm afraid I have some bad news."

In medicine, this ominous phrase often serves as a warning, helping patients brace for the impact of difficult news that's about to be delivered.

"THESE WORDS LET PATIENTS KNOW that something is coming. Here I am. I need you to listen. It's bad," said Margaret "Gretchen" L. Schwarze, MD, MPP, FACS, a vascular surgeon and the Morgridge Endowed Professor of Vascular Surgery at the University of Wisconsin (UW)-Madison. Dr. Schwarze also is a nationally recognized expert in surgical decision-making, informed consent, advance care planning, and end-of-life care.

Breaking bad news is complex and one of the most sensitive tasks in medicine. Few professional interactions create more anxiety, worry, and deep concern than telling someone painful news.

Sometimes, physicians must let patients and their families know about a severe illness or injury, a cancer diagnosis, a poor prognosis, the occurrence of unwanted and significant side effects, the ineligibility for a clinical trial or transplant, sudden and unexpected death; other times, they're telling patients the treatment or surgery they thought may work has failed, and it's time to begin preparing for end-of-life care.

"Bad news" can be defined as information that alters a person's expectations for the future, is a threat to their physical or mental health, or indicates a risk to an established lifestyle, according to Emily B. Rivet, MD, MBA, FACS, a colon and rectal surgeon at Virginia Commonwealth University (VCU) Health and associate professor at the VCU School of Medicine, both in Richmond. Dr. Rivet, who also is fellowship-trained and board-certified in hospice and palliative medicine, rephrased the definition from a study that examined protocols for breaking bad news.[1]

"Discussions about difficult medical circumstances can be extremely meaningful and have long-lasting implications," said Dr. Rivet. "If a patient or caregiver

"Can we really have a conversation like this and throw patients and their families into an emotional firestorm without any support?"

Dr. Gretchen Schwarze

Dr. Gretchen Schwarze is a nationally recognized expert in surgical decision-making, informed consent, and end-of-life care.

Access the multimedia extras at *facs.org/bulletin*

is anxiously awaiting a piece of information, it is best to get right to the point after preparing them for the news by using the warning shot technique."

Dr. Schwarze recommends that surgeons follow the initial "something is coming" statement with a headline—a very brief statement about what is happening: She needs to go to the operating room. She's been badly injured. This is a serious infection. The cancer is back.

While physicians notoriously are "explain-aholics" and share a lot of technical details about the disease or treatment, according to Dr. Schwarze, for the purposes of these conversations, the follow-up statement needs to be succinct, but informative—"something for the patients and families to hold onto."

The Emotional Firestorm

After that, the next step is to acknowledge the emotion.

"Can we really have a conversation like this and throw patients and their families into an emotional firestorm without any support?" Dr. Schwarze asked.

She proposes "naming" the emotion: This is terrible. This is so frustrating. It's so sad that your mother's health has declined so much.

Patients have every right to be frustrated, Dr. Schwarze continued. "It feels like they're mad at you. Patients may feel us pushing back because we feel their emotion, and we feel like their emotion is directed at us, so we are defensive. If we supported their emotions, then we could partner with them better. We'd have a much easier relationship, and our patients and their families would trust us more."

Over the past decade in her research lab, Dr. Schwarze has closely observed what surgeons are saying to patients.

"We use a lot of language around, 'This is your problem, and this is the operation. I have to fix it.' We show scans, we draw pictures of the operation, and that makes sense to us. It comes from a good place, but it's just not very useful to the patients and their families," she said.

According to Dr. Schwarze, approximately 75% of the time, surgeons do not say what the goal of surgery is (e.g., to help patients live longer or help them feel better). "We forget to tell our patients why we're doing it and how it will make their lives better."

These Things Matter, Too

While the words matter, so do their meanings.

Kimberly E. Kopecky, MD, a surgical oncology fellow in the Department of Surgery at The Johns Hopkins University School of Medicine in Baltimore, MD, encourages the use of clear, easy-to-understand language with no euphemisms.

In September 2022, Michelle C. Salazar, MD, MHS, a general surgery resident at the Yale School of Medicine in New Haven, CT, took to Twitter to express the importance of "our patients actually understand[ing] what we're telling them." Dr. Salazar described a patient with a worsening cancer burden. The patient had been under the impression that she was getting better because her doctors told her she was "progressing."

Top:
"The Empathy Project" is a card game designed to help physicians hone critical communication skills.

Left:
The 30 cards feature statements representing commonly expressed emotions such as grief, worry, fear, anger, and guilt.

For physicians, progression means that the cancer is getting worse, but the patient understandably perceived the word "progressing" to be favorable. She thought she was making "good progress;" she did not think the disease was progressing.

"Our clinical language isn't always clear to patients, and this is absolutely essential to recognize," Dr. Kopecky said.

Nonverbal behavior also matters, she explained. "Being thoughtful and compassionate with how your words land absolutely can be more important than what you actually say. It's also a skill to know when to stop talking."

Learning the Skills

To be a part of patients' lives in their worst moments is an enormous responsibility.

One study suggests oncologists share bad news as many as 20,000 times over the course of their careers.[2] And the physicians who are having these life-changing, critical conversations almost every day are struggling to comfort the sick or dying and their families while agonizing over getting it right.

When they get it right, the consequences can be profound. From a patient perspective, skilled communication from providers has been associated with improved satisfaction, adherence to treatment, better health outcomes, improved recall, and better-quality understanding.[3]

While this underscores the importance of communication competency, many physicians often feel unprepared to successfully handle such interactions.

Dr. Rivet explained that there is "significant undertraining" for surgeons in communication skills. "It's time to recognize that these important skills don't come naturally, and we need to train and measure them with the same degree of seriousness that we teach knot tying, laparoscopic techniques, and other technical abilities," she said.

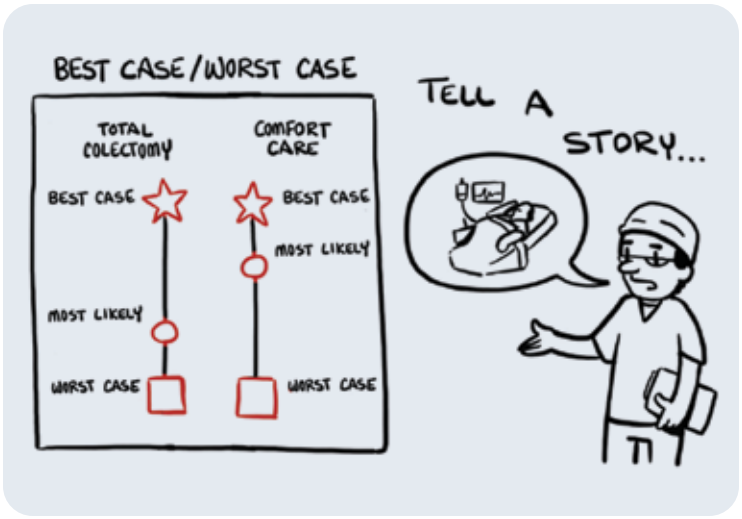
A study that examined the sharing of bad news with patients found that 93% of respondents believed delivering grim news is a very important skill, yet only 43% felt they had the proper training to effectively do so.[4]

Gathering the nuanced clues to make an astute diagnosis, motivating patients to change chronic, detrimental behaviors, and communicating news that changes a person's expectations about the future are all examples of conversations in medicine that require advanced communication skills, according to Dr. Rivet. "However, until recently, there have been minimal efforts to teach or measure these skills. There has been an assumption that these abilities are innate in successful applicants and aspirants to medical training."

Nothing could be further from the truth, she said.

Dr. Kopecky said that she doesn't remember her curriculum on communication training in medical school. Similarly, Dr. Rivet recalled being taught "some communication skills" during her MBA program, but otherwise, she received "very little" communication training.

A 2004 Institute of Medicine report identified basic and complex communication skills as two of the highest priorities for inclusion in medical school curricula.[5] The majority of medical schools declare that they now are teaching communication skills within their curricula, though there is



The Best Case/Worst Case communication tool combines narrative descriptions and a handwritten graphic aid to illustrate treatment choices and engage patients and families.

tremendous variation in the way and extent to which communication skills are taught and assessed.[6]

"I wasn't taught any communication skills. For years, I gave bad news to patients and their families without any skills," said Dr. Schwarze.

Empathy increasingly is described as one of those learnable skills, yet according to Dr. Kopecky, there are too few effective tools for developing and practicing empathy skills.

In 2016, while hanging out in their cramped workroom lamenting their "lack of grace in dealing with the strong emotions expressed by our patients and their families," Dr. Kopecky and her coworker, Jasmine A. Hudnall, DO, a hospice and palliative medicine specialist at Gundersen Health System in La Crosse, WI, created a roleplay card game to help hone these critical skills.

They brainstormed about the hardest things they had heard from patients and families, ultimately landing on 25 statements representing a wide variety of expressed emotions, including grief, worry, fear, anger, frustration, and guilt.[7]

"We started playing this game with the residents and medical students on the service and even the attendings. After a week or so, we decided to look into a way to have the cards printed by a game company because our pieces of paper were deteriorating," said Dr. Kopecky.

This innovative learning tool (deck of 30 cards), officially known as "The Empathy Project," is available for purchase at *thegamecrafter.com/games/the-empathy-project*.

Over the years, medicine has developed its share of protocols for delivering bad news. These widely used frameworks—many of which have been reduced to memorable names or acronyms such as SPIKES, BREAKS, and ABCDE—are designed to make this challenging task easier for physicians and better for patients.

SPIKES, for example, stands for "Setting, Perception, Invitation, Knowledge, Emotion, Summarize." BREAKS is "Background, Rapport, Exploring, Announce, Kindling, Summarize." ABCDE is "Advance preparation, Build a therapeutic environment/relationship, Communicate well, Deal with patient and family reactions, Encourage and validate emotions."

While the protocols differ, many of the ideas are the same: Make sure patients understand their condition. Acknowledge emotions and respond with empathy. Listen. Explain options. Summarize what to expect going forward.

Dr. Rivet added that it's also important to be prepared. "Steady yourself emotionally, think about practical details such as who should be included and where the discussion should take place. Make sure the medical team is aligned about the message. Lastly, remember that you are there to listen and learn at least as much as to inform," she said.

Best Case/Worst Case

Much like an operation, which surgeons would never "do cold," these conversations should be planned out as much as possible, "You need to think through what you are going to say before you go in there and just dump your thoughts on people," Dr. Schwarze said.

> "Discussions about difficult medical circumstances can be extremely meaningful and have long-lasting implications."
>
> –Dr. Emily Rivet

One way to do that is to use the Best Case/Worst Case framework, With planning and preparation in mind, Dr. Schwarze and her research team at UW-Madison developed the Best Case/Worst Case tool, which is designed to help surgeons structure challenging treatment conversations. Best Case/Worst Case combines narrative descriptions, called scenario planning, and a handwritten graphic aid to illustrate treatment choices and engage patients and families.

Along with the visual aid, surgeons use stories to describe how patients might experience a range of possible outcomes in the best case, worst case, and most likely scenarios, Dr. Schwarze explained. Each treatment option is depicted by a vertical bar, and the length of the bar represents the range of possible outcomes.

A 2017 study showed that before Best Case/Worst Case training, surgeons described the patient's problem in conjunction with an operative solution, directed deliberation over options, listed discrete procedural risks, and did not integrate preferences into a treatment recommendation. After training, surgeons using Best Case/Worst Case clearly presented a choice between treatments, described a range of postoperative trajectories including functional decline, and involved patients and families in deliberation.[8]

For more information on the Best Case/Worst Case communication tool, visit *patientpreferences.org.*

How Do You Stand the Pain?

"If giving difficult news feels easy, you probably aren't doing it right." Dr. Kopecky often thinks of this advice that she received from a close mentor.

While it likely won't ever get easier, "I certainly think that exposure and practice matter; most people can improve their skills in this realm if they put time and effort into it," she said.

Dr. Schwarze agreed, while also noting the emotional toll that these almost-daily difficult conversations can have on frontline providers and bearers of bad news. "These conversations will absolutely paralyze you as a surgeon if you can't figure out your strategy to manage it. If you hold it too close, it will eat you alive. If you push it too far away, you will not be a good surgeon. The trick is putting it right here: I feel it. It hurts. But it's not getting to me," she said, pointing to her hand on her outstretched arm.

There's a story of a palliative care pediatrician in the South who makes house calls, visiting with her young, dying patients, Dr. Schwarze shared. During one of the visits, the mom asks the physician, "How do you stand the pain?"

The pediatrician revealed that when she gets in her car to drive to the next home, she listens to loud, angry music, while allowing tears to run down her face. The idea is that she lets it go through her.[9]

"She feels it, but she lets it out," said Dr. Schwarze. "I love the idea that there is some space where you put it, you feel it, but then you let it go through you."

Jennifer Bagley *is Editor-in-Chief of the* Bulletin *and Senior Manager in the ACS Division of Integrated Communications in Chicago, IL.*

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Passion for Athletics, Past Injury Inspire Surgeon's Research in Regenerative Medicine

Kyle Coward, MA

Long before Ashley L. Titan, MD, embarked on her medical career and surgical residency, she shared a passion for athletics with her family. Growing up in New York, Dr. Titan often tagged along with loved ones as they frequently participated in triathlons.

"I HAVE BEEN PART OF TRIATHLONS since before I can even remember," said Dr. Titan, who later became a triathlete herself. "I grew up watching my dad, my mom, my uncle, and close family friends do races."

Dr. Titan's enthusiasm for athletics would follow her to Stanford University, CA, where she enrolled as an undergraduate in 2008. Becoming an internationally ranked starter and captain of the Stanford women's fencing team, Dr. Titan was dealt a major blow in her sophomore year when she tore the triangular fibrocartilage complex of her wrist, which required surgery.

"I had that injury, and I was amazed about what surgery can do," said Dr. Titan. "It gave me my life back because I was in such excruciating pain."

It was the recovery process that not only stoked Dr. Titan's interest in surgery, but also got her thinking about how she could help others dealing with pain stemming from similar injuries. Those experiences would lay the groundwork for her subsequent research interest in tendon-to-bone injuries, which culminated in 2018 when she was awarded an ACS Resident Research Scholarship, funded by the ACS Foundation.

The scholarships provide $30,000 per year for 2 years to residents of a general surgery or a surgical specialty training program. ACS Resident Members with at least 2 postdoctoral years in an accredited American or Canadian surgical training program—of any specialty—can apply.

"Having the opportunity to begin thinking about this question—the question of regenerating the tendon-to-bone interface—was so exciting to me," she said. "I became fascinated by ligaments and tendons through that injury. I wanted to solve my own problem and prevent it for other individuals."

The Path to Scholarship

Majoring in philosophy at Stanford, Dr. Titan graduated with honors in 2012 before returning home to New York, where she enrolled in the Mount Sinai School of Medicine (now the Icahn School of Medicine at Mount Sinai). After graduating from Mount Sinai in 2016, Dr. Titan headed back west to Stanford, where she entered the general surgery residency program. Currently, she is a fourth-year plastic surgery resident at Stanford University.

Opposite page:
Left: Dr. Titan competes in the 2022 Escape from Alcatraz Triathlon in San Francisco.
Right: Dr. Titan prepares solutions for flow cytometry at the Longaker Laboratory.

Dr. Ashley Titan

"I love working with my hands, and I really enjoy helping people," she said about surgery. "It was a way to do both and use my mind at the same time. It's absolutely fascinating to do something with your hands, and then see an actual change in the patient right then and there."

It was as a resident that Dr. Titan drew upon the experience of her own injury—as well as her interest, in general, of the tendon-bone interface—to help steer her research.

"It's a very interesting part of the human body, in that something as soft as muscle is attached to something as hard as bone," Dr. Titan remarked about the tendon-bone function. "Even when it's partially torn, it doesn't ever fully heal, and it's at a much higher risk of rupture or complete tear."

Dr. Titan was particularly intrigued by the role that skeletal stem cells (SSCs) play in the process of bone and cartilage repair. Through her work at a laboratory, she found there was an opportunity to do further research in this area.

"We know that SSCs play a role in bone healing and in cartilage, but no one's ever looked at it in other skeletal sites," she said. "I did a flow cytometry and discovered there were some SSCs in the tendon itself."

Undertaking the Research

Prior to Dr. Titan receiving her scholarship, the SSC research field was filled with opportunities for new discoveries. Not only were the cells responsible for tendon-to-bone healing incompletely characterized, but the origins of the cells themselves were unknown.*

For Dr. Titan, discovering this piece of the puzzle could provide more awareness about how tendons could be better healed, which began with the flow cytometry she undertook in her lab work, and "led to this big project of looking into whether SSCs play a role in tendon-to-bone healing," she said.

Dr. Titan had been working with plastic surgeon Michael T. Longaker, MD, MBA, FACS, the Deane P. and Louise Mitchell Professor and founder of the Longaker Laboratory at Stanford. Together with Charles K. F. Chan, PhD—who was then a postdoctoral fellow working at the lab—these researchers were the first to identify SSCs in humans and mice.†

"It was an absolute pleasure to mentor Ashley in my laboratory," Dr. Longaker said. "Ashley is a very bright and determined trainee who really wants to translate fundamental discoveries into novel clinical therapies."

Dr. Titan found an ideal mentor in Dr. Longaker, whose research interests include wound repair. "From the very beginning, I was impressed by her organizational skills and mastery of sophisticated scientific techniques," Dr. Longaker said.

Upon receiving her scholarship, Dr. Titan and a team of other researchers at the Longaker Laboratory investigated whether SSCs can play a role in tendon-to-bone healing. "Without the scholarship, I would not have been able to pursue such an exciting research project," Dr. Titan said.

Using a supply of laboratory mice as test subjects, Dr. Titan and her team initially increased numbers of SSCs in the enthesis injury to the Achilles tendon-to-bone interface. The team also looked at the role of transforming growth factor beta (TGFβ) in the tendon-to-bone healing process.

By treating the area of injury with a TGFβ inhibitor, the team detected that the number of SSCs increased significantly, which can be a key part of the recovery

process. Findings from her research were published in the July 2022 edition of the journal *STEM CELLS Translational Medicine*.*

"What was very important was that Dr. Titan discovered a link between the SSCs and the regeneration of tendons," said Dr. Chan, who is now an assistant professor of surgery at Stanford. "This was not known before."

Dr. Chan also credits Dr. Titan for developing new assays to test the presence of SSCs postinjury, which could potentially be mobilized to produce new tendon tissue. "This is a really important finding because of the significant clinical burdens associated with tendons," he said.

Future Research Plans

Ideally, the goal of clinical research is to improve patient care and, historically, many of these discoveries have been supported by awards such as the ACS Resident Research Scholarship.

ACS has funded 213 Resident Research Scholarships since the award was established in 1970.

"Doing basic science projects, getting the mice, and having the opportunity to access all of the amazing laboratories and facilities at Stanford does require a significant amount of funding," said Dr. Titan. "It would not have been possible without this grant. This grant supported both my ability to do it, and the time to be able to do the research."

The 2-year Resident Research Scholarship was the first research award Dr. Titan ever received. Since then, she has been awarded a grant by Stanford for transplant and tissue engineering research. Dr. Titan continues to be involved with tendon research, and has delved into research on the postoperative pain experiences of patients.

"The lessons that I've learned from these 2 years of this project will be extraordinarily essential and will continue to lend influence further out in my research career," she said.

Away from her medical and research pursuits, Dr. Titan remains highly involved in athletics, having participated several times since 2011 in the Escape from Alcatraz Triathlon, held in San Francisco. She credits athletics for helping to instill a work-life integration that prevents her from becoming fatigued with her everyday professional responsibilities.

"If I ever get tired or need to think through a problem, I go out for a run to clear my head," she said. "I need the endorphins to be able to survive. It 100% keeps me going."

Just as her athletic experiences helped to inform the course of her past medical research, Dr. Titan plans to continue drawing upon athletics as a guide for her future professional endeavors.

"Most injuries only heal 80%, but how do you get to that 100% strength level?" she said. "That's the billion-dollar question. When I participate in athletics, it's where I have my greatest 'Aha!' moments or think about a really interesting idea that I want to pursue."

To learn more about the ACS Foundation, its programs, and how to contribute, go to *facs.org/acsfoundation.* B

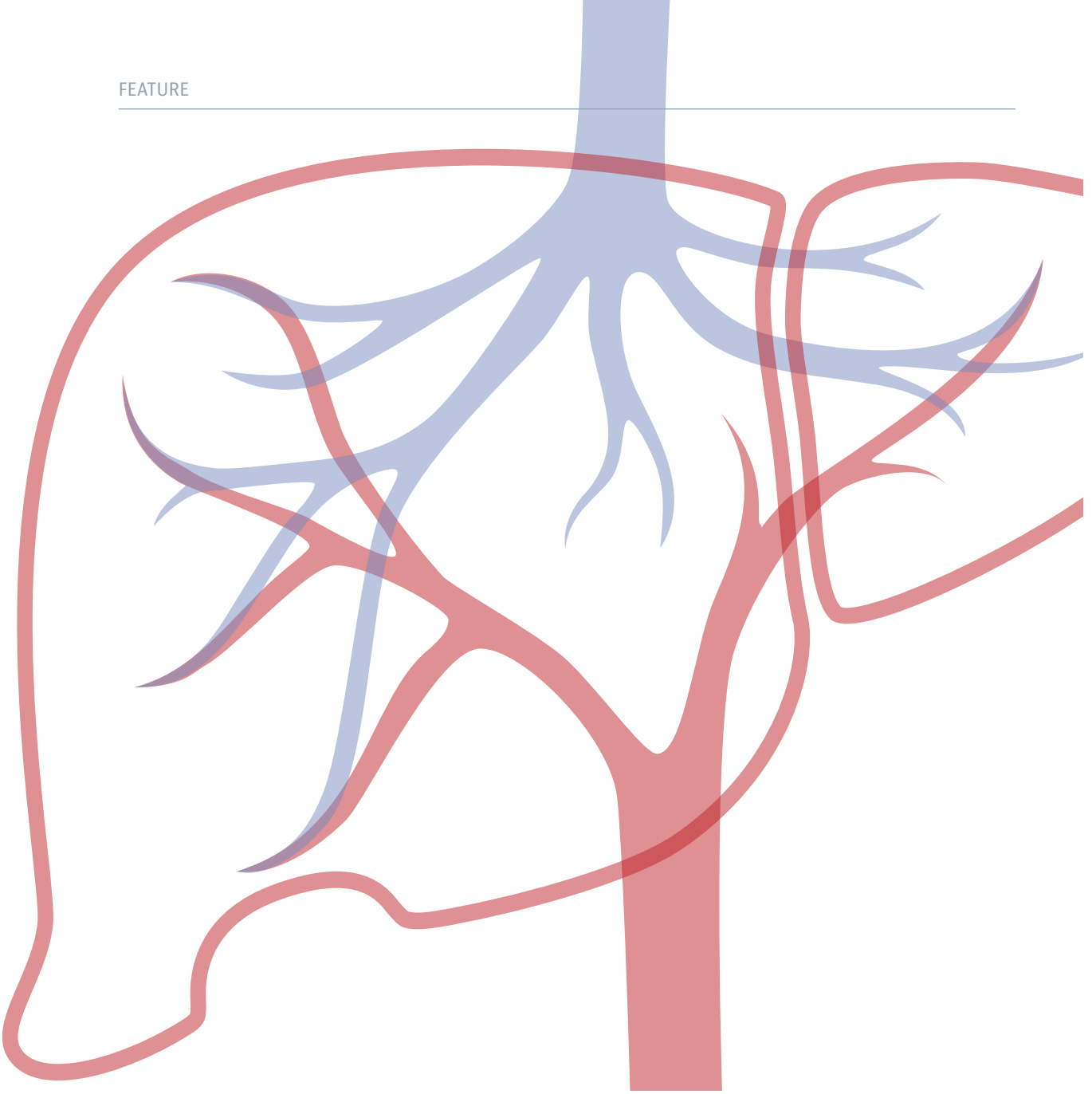
Kyle Coward *is a freelance writer.*

*Titan AL, Davitt M, Foster D, et al. Partial tendon injury at the tendon-to-bone enthesis activates skeletal stem cells. *Stem Cells Transl Med.* 2022;11(7):715-726. Accessed January 26, 2023.

†Longaker Laboratory. Profiles. Available at https://www.longakerlab.com/profiles. Accessed January 26, 2023.

Dr. Titan performs microvascular anastomosis as part of a breast reconstruction procedure at Stanford University.

Access the multimedia extras at *facs.org/bulletin*



Liver Transplantation for Metastatic Colorectal Cancer Pushes Treatment Boundaries

Jennifer M. Brewer, MD, and Oscar K. Serrano, MD, MBA, FACS

COLORECTAL CANCER (CRC) is the third most common cancer in the US, with up to 50% of patients developing colorectal liver metastasis (CRLM) at some point in their disease course.[1] Furthermore, CRC is increasingly being diagnosed in younger patients.[2] Current treatment strategies include surgery, chemotherapy, radiation, and—more recently—immunotherapies.[1]

Although liver resection portends the best possible option for long-term survival from CRLM, only 10% to 30% of patients have resectable disease at presentation, with a median survival of 3.6 years after resection.[1] Overall 5-year survival is reported between 14% and 38% in a variety of studies.[1,3,4] Because surgical treatment appears to be a viable long-term option for a subset of this patient population, there is increasing interest in expanding the pool of qualified surgical candidates.

With improvements in surgical technique and immunosuppression therapy, long-term survival after liver transplantation (LT) for hepatocellular carcinoma (HCC) has been realized, and LT has become the gold standard for HCC treatment in the cirrhotic patient.[5] These positive outcomes spurred interest in LT for other liver-specific diseases such as neuroendocrine tumors and cholangiocarcinoma; in these groups, a significant portion of patients enjoy long-term survival.[5] The early success of LT for non-HCC malignancies has augmented interest for LT as a treatment option for CRLM.

Initial attempts of LT for CRLM in the 1980s were met with skepticism and quickly abandoned as a result of suboptimal outcomes. At that time, overall post-LT 5-year survival was less than 20%, with most patients developing recurrent disease at a median 10 months post-LT.[5,6] However, improvements in chemotherapy, immunosuppression, immunotherapy, and patient selection all have led to increased survival. More recently, groups have reported a staggering 60% post-LT 5-year survival, once again reviving interest in this treatment option.[7]

Much of our recent experience with LT for CRLM comes from Scandinavia, probably as a result of its population's views toward organ donation and its organ surplus. For instance, Norway has more liver donors than potential liver recipients. The average waitlist time for a liver allograft is less than 1 month, compared to the US where the average wait is 11 months.[8] This reality makes it possible to expand Norway's indications for LT.

In fact, several studies from Norway have pioneered our knowledge of LT for CRLM. The original landmark study is the liver transplantation for nonresectable liver metastases from colorectal cancer (SECA-I) study. In this pilot study from 2006 to 2011, an astounding 60% 5-year survival for CRLM patients who had LT was achieved.[8] The inclusion criteria for this cohort included complete radical excision of the primary tumor, a healthy performance status (Eastern Cooperative Oncology Group [ECOG] score 0 or 1), and a minimum 6 weeks of chemotherapy.[8] Chemotherapy regimens varied but included irinotecan, oxaliplatin, bevacizumab, and/or cetuximab.[8]

This initial study demonstrated a disease-free survival of 35% at 1 year, with 19 of 21 patients developing CRC recurrence. However, and most importantly, these CRC recurrences were accessible to surgical resection. After secondary resection, 33% of patients developed no further recurrences.[8]

This initial study demonstrated a disease-free survival of 35% at 1 year, with 19 of 21 patients developing CRC recurrence. However, and most importantly, these CRC recurrences were accessible to surgical resection.

As a preliminary study, SECA-I demonstrated promise but has been criticized for its heterogeneous confounding factors in patient and tumor characteristics. For instance, included patients had a variable number and size of liver lesions, plasma carcinoembryonic antigen (CEA) level, response to chemotherapy, and time from CRC diagnosis.[9] The SECA-I study helped establish criteria for selection of patients who would be favorable candidates for LT.

In SECA-II, investigators narrowed the inclusion criteria by including only CRLM patients with nonresectable colorectal cancer with at least a 10% response to chemotherapy.

SECA-II demonstrated an impressive 83% overall survival at 5 years for CRLM patients who had a response to chemotherapy with a median follow-up of 36 months.[9] Four patients had no relapse after LT follow-up at 31 to 49 months.

By comparison, in the SECA-I study, all patients who were observed for more than 11 months had recurrence after LT. In the SECA-I trial, 5-year survival was 60%; in SECA-II, 5-year survival was 83%. Overall, the cohort in SECA-II had a lower number of metastatic lesions and a smaller size of the largest liver lesion, lower CEA level, and lower Fong Clinical Risk Score. In SECA-II, 70% of patients had T3 disease, 50% received neoadjuvant chemotherapy, and 14 of the 15 patients had synchronous liver disease.

As a result of the SECA-I and SECA-II trials, the Oslo score was developed to identify those CRC patients who would benefit the most from LT. The scoring system consists of four negative predictive factors for overall survival after LT for CRLM: maximal diameter of largest lesion >5.5 cm; pre-transplant CEA level >80 μg/L; progressive disease on chemotherapy; and interval from diagnosis to transplant <2 years.

Patients with a score of 0–2 had a 67% overall 5-year post-LT survival compared to patients with a score of 3–4 who exhibited a 17% 5-year post-LT survival.[8] Since the Oslo score was established, other groups have used it in their studies of LT for CRLM. Torso et al. found a 38% 5-year disease-free survival and 50% 5-year overall survival for patients with low Oslo scores.[10] Lanari and colleagues demonstrated that in patients who had a low Oslo score (0–2), but high tumor burden (defined by tumor burden score [TBS] ≥9), LT had improved 5-year survival for LT compared with liver resection.[11] In their study, 5-year survival was 52% for LT and 22% for liver resection.[11]

Recently, Hernandez-Alejandro and colleagues published a prospective cohort study from three transplant centers in the US that performed living donor LT (LDLT) in CRLM patients.[12] Ten of 91 evaluated patients had a successful LDLT. They reported a recurrence-free and overall patient survival as 62% and 100%, respectively at 1.5 years, consistent with the SECA-II findings.[12]

Currently, a National Cancer Institute-sponsored trial is under way to evaluate LDLT in CRLM.[13] Patients in this pilot study are receiving neoadjuvant chemotherapy followed by LDLT.[13] A similar trial is being conducted in Canada.

Recurrence rates of CRC have been an issue of concern for LT patients. The high rates of recurrence after LT for CRLM have been suggested to be a result of chronic immunosuppression, which is necessary after LT. High recurrence rates are thought to be the consequence for prolonged survival.[14]

An active area of research in this field is the use of programmed cell death ligand-1 (PD-1) inhibitors. PD-1 inhibitors have been used in the pre-LT setting for HCC with promising outcomes.[15] PD-1 inhibitors

Recently, Hernandez-Alejandro and colleagues published a prospective cohort study from three transplant centers in the US that performed LDLT in CRLM patients. Ten of 91 evaluated patients had a successful LDLT.

also are being used in the treatment of CRC. Cercek and colleagues performed a prospective phase 2 study using dostarlimab, an anti-PD-1 inhibitor, for stage I or II rectal adenocarcinoma. Twelve out of 16 patients had a complete clinical response. At the time of publication, no patients had received chemotherapy or had surgery.[15]

The success of PD-1 inhibitor use is unknown in patients with CRLM treated with LT; however, this treatment potentially could lead to an increase in the number of eligible patients for LT and higher rates of transplant rejection, or it also may lead to longer cancer remission. Further research is warranted, but PD-1 inhibitors show great promise and may have a role in CRLM patients as a prelude to LT candidacy.

LT criteria have evolved to be more inclusive of malignant disease beyond just HCC. The field of transplant oncology has gained interest from transplant physicians and oncologists alike. Teamwork that includes participation from colorectal surgeons, oncologists, and transplant surgeons helps to ensure success. The fundamental principles resulting from initial trials that paved the way for the design of the Oslo score have led to areas of new research and treatment alternatives for patients with CRLM. The concurrent need for immunosuppressive therapy comes at a slightly increased risk for recurrence, but new immunotherapeutic targets in CRC may help mitigate these risks. LT for CRLM in the US, although showing great promise, will need to occur in approved clinical trials for now. B

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Surgical Skills Competition Teaches Vital Lessons

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The SYTYCO skills competition at the annual ACS Clinical Congress engages resident teams in friendly competition.

GENERAL SURGERY TRAINING is progressively transitioning from a time-based, apprentice-style system toward a competency curriculum with emphasis on a healthy work and learning environment. With the increasing complexity of patients and broadening of operative techniques, trainees require more than a prescribed number of hours or cases to become proficient and safe surgeons.

Use of simulation provides patient-independent opportunities to accelerate the learning curve, improve dexterity and efficiency, and evaluate competency.[1-3] While most surgery departments in the US have established simulation activities, effective implementation of these courses is limited by multiple factors, including cost, logistical infrastructure, and learner/teacher engagement.

Gamification, through competition, can encourage increased trainee participation in simulation, with studies demonstrating participants spend more time in simulation preparing for events, which can result in an increase in technical skills.[1,4,5]

In 2017, the Resident and Associate Society of the American College of Surgeons (RAS-ACS) founded the "So You Think You Can Operate" (SYTYCO) skills competition at the annual ACS Clinical Congress. The competition was designed to engage a diverse group of resident teams from across the country in friendly competition while demonstrating a variety of skills, ranging from laparoscopic maneuvers to emergent open procedures.

The successful execution of the competition led to its inclusion as a regularly scheduled event as part of the ACS Surgery Resident Program at Clinical Congress. Learning from our experiences, we identified five key components for the successful execution of a surgical skills competition (see Table 1, page 24). This article describes the components necessary to develop a successful technical skills competition, while also discussing tips, tricks, and lessons learned during the SYTYCO programming.

Component 1: Determine Purpose and Participants

Before creating your skills competition, it is helpful to explicitly define the objectives for your event.

- Do you intend for your competition to be educational, instructive, simply for fun, or maybe all three?
- What do you want participants and observers to take away from the event?

Having clearly defined objectives and a central focus are helpful in developing your proposal for administration, conference committees, or potential funding sources and will help you keep your event on track throughout station development, overall organization, and execution.

Once you define your event objectives, it is critical to determine the event stakeholders, including those

Table 1. Five Key Components to Guide Successful Execution of Skills Competition

Determine purpose and participants
Recruit event personnel and role assignment
Station development
Logistical considerations
Day of execution

individuals whose approval is required to start executing the vision. After you have the support of stakeholders, think about who will be competing (i.e., medical students, residents, nursing/advanced practice providers, or faculty) and who the audience—if any—will be.

Early determination of your participants will help guide competition structure (individuals versus teams), and the number of institutions or teams involved. These decisions, in turn, help dictate how many and what kind of stations will need to be developed, the number and type of personnel needed to staff the event, and they even can direct venue selection.

For SYTYCO, we had eight competing teams to allow for varying skills levels, a broad assessment of teamwork, and camaraderie. Teams consisted of a senior resident (clinical fourth or fifth year) and a junior resident (clinical first through third year). Other team considerations include senior versus junior resident, trainee versus faculty, interns versus fourth-year medical students, or other unique combinations.

Component 2: Recruit Event Personnel and Role Assignment

Orchestrating a skills competition can require a significant amount of personnel to fill a variety of required roles. While the necessary staff will vary between competition types, a few standard positions exist and can be adapted to your specific event.

Event Chair

The chair of the event is the primary leader of the competition. In the development stages, the chair is responsible for constructing the timeline, assembling the team, creating a budget, and selecting the venue. The role also includes frequent check-ins and coordination with the various team members.

As planning progresses, the chair should ensure that event organizers are staying on task and adhering to the overarching goal of the competition, which already should have been established. On the day of the event, the event chair serves as overall coordinator and time monitor and is the primary touchpoint for any issues that arise and help problem solve.

Station Developers

The station developers create, test, and perfect each station to confirm it is possible to perform the tasks in the time allotted. They are responsible for defining the station's educational objectives and creating a clear grading rubric for judges to use on the day of the event. Depending on availability, the station developers may function as the station lead or judge on the day of the event. While stations may be developed through the collaborative efforts of more than one individual, we suggest having a head developer to serve as point person.

Station Lead

The station lead understands the learning objectives and logistics of the assigned station, ensures station execution on the day of the competition, and provides each team with the goals and rules for the station, including the designated time limit. In between rounds, the lead resets the simulation for the subsequent team. Depending on the station, he or she may assist the judge with scoring or function as the station judge, if necessary.

Judges

Judges assigned to a station are responsible for scoring each team according to the developed rubric and for submitting scores to the scorekeeper in between rounds. They should understand the learning objectives and judging criteria to ensure consistency and objectivity for all teams. If there are concerns or clarifications required, the judges should engage the station lead or event chair.

Master of Ceremonies (MC)

For events with a planned audience, the MC maintains and amplifies audience engagement. An engaged MC will circulate around the event and provide station play-by-plays, foster friendly rivalry, and interact with audience members to encourage a sporting event-like atmosphere. Important factors to consider when selecting an MC include desire to participate in resident activities, energy, and a sense of humor. A willingness to dress in costume also is a plus.

Ushers
For larger event spaces or competitions with multiple teams and rounds, ushers escort teams between stations and help the flow of the competition. This role becomes especially important if the sequence of stations is not consecutive.

Scorekeeper
The scorekeeper is responsible for collecting the scores after each round and displaying a running tally to encourage competition. Scores can be displayed using a projector or on an easel pad. We have found that using a group messaging app between the judges and scorekeeper to be the most effective way of communicating real-time results at the conclusion of each round.

While several of these positions may overlap if personnel limitations exist, we strongly recommend the event chair, scorekeeper, and MC (if desired) remain separate as the demands on these positions can be sizable during an active competition.

Component 3: Station Development

Station development is arguably one of the most critical hurdles in skills competition programming. Multiple factors must be considered for each station, including time, cost, difficulty of station set and re-setting, and reproducibility. The main design elements that are included in SYTYCO station creation are detailed in Table 2, this page. Full station examples can be accessed at: *facs.org/media/ooajqorr/acs_chapter_skillscomptoolkit.pdf.*

Development of individual stations should start with defining why and how the chosen skill fits the event objectives. Each station should include details related to the skill's relevance, educational objectives, and a clear definition of the technical and clinical knowledge to be assessed. Clear objectives also help keep the station learner-centric and prevent drift toward the entertainment factor or equipment use just "for show."

After the station objectives and skills have been developed, the next step involves determining what station equipment and consumable materials are needed. There are numerous low-cost, low-fidelity models described in the literature[6,7] and higher-fidelity models available for purchase that can be used for stations.

It is important to select the proper level of simulation model fidelity required to meet your educational objectives, but keep in mind that not every station requires near-real tissue or blood simulation. Overly complex models focused on achieving extreme fidelity can be distracting, costly, time-consuming to reset, and take away from the educational experience of a simulation.

Inspiration for stations can come from anywhere such as established simulations from residency programs, variations on national skills tests, and novel ideas developed by your planning committee. Each year, we produce stations focused on a handful of technical themes, including laparoscopic surgery, suturing, trauma, endoscopy, and vascular surgery. These stations test similar, yet distinct, skills in order to maintain the novelty of the program.

Table 2. Design Elements for Surgical Skill Station Creation

Background
Educational objectives
Description
Equipment, materials, and alternatives
Setup instructions and overview
Station introduction and participant instructions
Score sheet

Below:
MCs sometimes dress in costume while circulating around the event and encouraging audience engagement.

The final component of station creation is to develop station instructions and a scoring rubric. The instructions should briefly orient the participant to the task at hand. The scoring sheet should specifically address elements of the learning objectives with enough granularity to separate participants.

Once the station is completed, trial runs with neutral third parties should be performed to ensure smooth execution. This allows you to help check for any missing or overlooked equipment, confirm instruction clarity, and evaluate task timing. The process should be repeated for each station to allow for adjustments before the day of the event. The need for this pretest can be reduced or eliminated if prepackaged skills stations are used such as those created by the RAS-ACS.

Component 4: Logistical Considerations

Having a well-developed logistical plan that considers the interplay of the infrastructure, personnel, and participants is crucial to ensuring a smooth execution. Some common areas that require preemptive logistical planning include game flow, event timing, and team recruitment.

Game Flow

There are several different game flow designs that can be used in a skills competition. For SYTYCO, we have used a round-robin format with all participating teams rotating through each of the skills stations, with the top two teams competing in a final head-to-head station to determine the overall winner.

Other formats that can be considered, depending on time and facility constraints, include team relay events or tournament brackets. In the era of COVID-19, we explored the use of asynchronous, remote events with prepackaged skills stations mailed to participants. Skills completion for scoring was submitted via video or social media postings.

Event Timing

Event time limitations may be driven by administration, conference committees, room reservations, and cost of facilities rental. Deciding on the final number of stations and participants ultimately may be determined by the total available time for the event or facility location and size. Even with unlimited time, audience and participant attention spans are limited, and complex, multicomponent tasks may not be best. We have found that 10-minute stations allow sufficient time for skills execution, while still retaining participant and audience interest.

Team Recruitment

Depending on the target audience and venue, participant recruitment may be as simple as sending an email to the residents in your participating program. However, if the venue is larger and involves multiple institutions, it may require further recruitment initiatives.

For our event targeting nationwide participants and audience, we advertised the competition and recruited teams through the ACS Program Director listserv and local ACS chapters.

Team selection can be based on a variety of criteria depending on event objectives. We have found that recruiting a diverse spectrum of teams from different

In addition to testing technical skills, many stations can be designed to evaluate non-technical skills such as teamwork and communication.

There are several different game flow designs that can be used in a skills competition. For SYTYCO, we have used a round-robin format with all participating teams rotating through each of the skills stations, with the top two teams competing in a final head-to-head station to determine the overall winner.

program sizes, academic affiliations, and geographic locations fostered the best sense of competition and audience engagement. Team names, promotional photos, and videos also were used to publicize the event on social media and create pre-event rivalry and hype. The winners from the previous year also were invited to return and defend their title.

Component 5: Day of Execution

On the day of the skills competition, communication and timekeeping are key to a successful event. The event chair serves at the day's lead and must delegate tasks to their station leads, judges, and ushers while still maintaining open lines of communication.

Clear communication with a central organizer (event chair) will allow for flexibility and adjustments as required. It is recommended that station leads and judges arrive at the venue prior to the event start, and each station should have a checklist of supplies and set-up times to ensure that each station is ready before the event starts.

No surgical skills competition can be completed without an award. Whether that prize is in the form of a plaque/certificate or something as simple as bragging rights, the inevitable competitive spirit that comes with a skills event warrants acknowledgment.

Using social media as part of this celebration not only promotes the winners, it also increases engagement and future interest in the event. Participants receive small gifts (such as surgical caps or socks), and the winners of the overall competition receive plaques or certificates—along with bragging rights—to commemorate their achievement.

Challenges, Tips, and Tricks

The keys to the success of any surgical skills competition are flexibility and contingency planning. No matter how well-organized an event may be, something will undoubtedly go wrong on the day of the competition: the laparoscopic simulator does not arrive, a competing team is stuck 4 hours away with a flat tire, or you discover you ordered 200 Penrose drains in the wrong size. Planning for as many of these unexpected challenges as possible can help mitigate any complications that may arise during the competition.

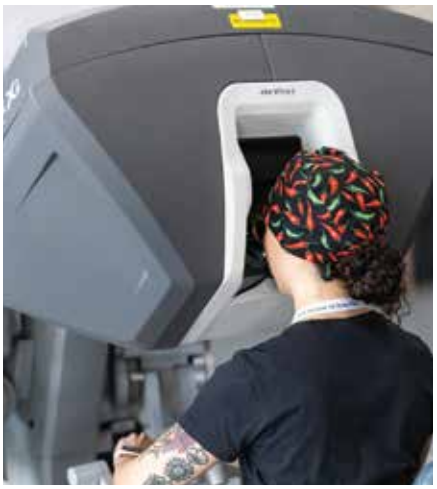
For our event, contingency planning begins with team selection. In addition to the eight participating teams, we invite two teams as alternates who are available to fill in if one of the primary teams is unable to compete. It also is helpful to plan a backup skills station that you can deploy quickly.

The backup often is one of the lower-fidelity stations (such as suturing or knot-tying) from a previous year that requires very limited materials and has the added benefit of previous field-testing.

Organizing a surgical skills competition requires a meaningful amount of planning and, depending on host resources, can be financially costly. There are various ways to reduce the financial burden of these competitions by leveraging resources from local and regional hospitals, ACS Accredited Education Institute simulation centers, industry sponsors, and ACS chapters.

If a relationship exists between a surgical industry representative and your hospital, these resources may provide access to higher-cost equipment and also may provide funding opportunities for non-material-related costs such as room rental, audiovisual equipment, or prizes. If you are pursuing industry sponsorship, you should use caution to ensure an appropriate and ethical relationship is maintained. Guidance for these relationships can be found in statements published by the ACS Committee on Ethics.[8]

Through the RAS-ACS Education Committee, many of the stations created for the ACS Clinical Congress SYTYCO Competition have been published and made available for use by regional and ACS chapter meetings. As noted in a May 2016 *Bulletin* article, a skills competition can greatly



Using a variety of different technologies—ranging from laparoscopic to endoscopic to even robotics—can help keep participants and the audience engaged.

increase resident engagement in chapter meetings—especially if skills stations are well designed.[9] Creating engaging stations is more important than producing an extraordinarily challenging task. Stations as simple as blind instrument identification and laparoscopic Pictionary have proven to be some of the most popular events at Clinical Congress.

Finally, consider holding the competition just before or after an event. Alternatively, it can be planned during an adjacent reception to allow audience members to walk in and out, as the competition can provide excellent entertainment for surgeons at all career stages and settings.

As stated earlier, promoting the event on social media via platforms such as Twitter, Instagram, Facebook, and TikTok can significantly increase the reach of the event. Creating a hashtag that is advertised before the event and posted around the room during the competition can create a significant online presence and energy. The hashtag #SYTYCO22 for the 2022 competition resulted in 385,000 unique impressions.

Conclusion

Over the course of 6 years, the SYTYCO skills competition has become a staple of the ACS Clinical Congress programming and a highly anticipated event with significant engagement. Participation surveys from the 2022 SYTYCO competing teams found 63% of all participants intentionally increased their simulation practices by an average of 3.7 hours per week in anticipation of the event, with a range of reported practice times spanning from 1 to 10 hours. Competitors practice a variety of skills, with 50% focusing on laparoscopic skills, 19% practicing robotic skills, and 6% reviewing open bowel and vascular anastomosis. These results demonstrate that the educational benefits of surgical skills competitions extends beyond the events.

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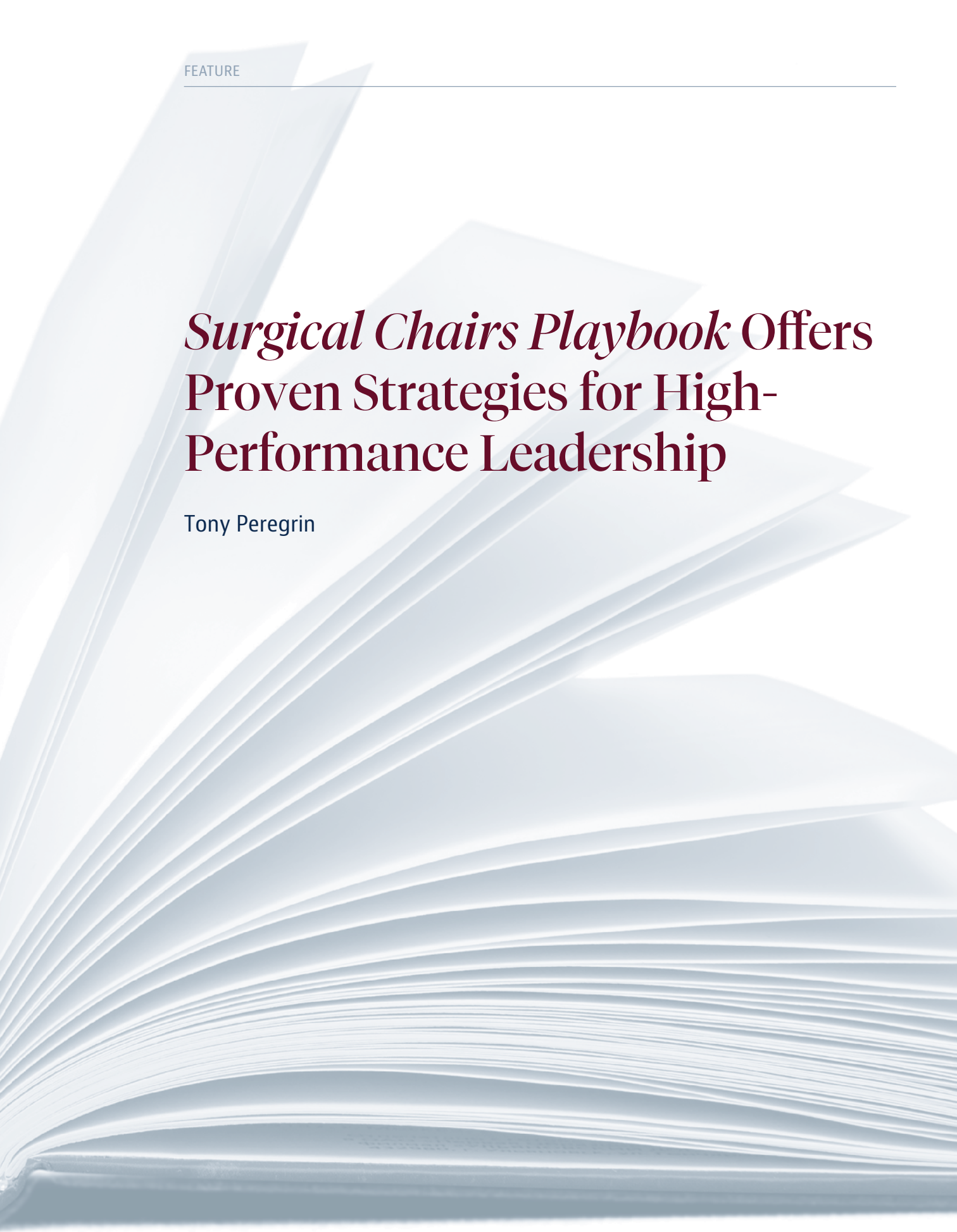
Surgical Chairs Playbook Offers Proven Strategies for High-Performance Leadership

Tony Peregrin



SOCIETY OF SURGICAL CHAIRS

Transitioning into the role of the surgical chair can be a gratifying and challenging experience.

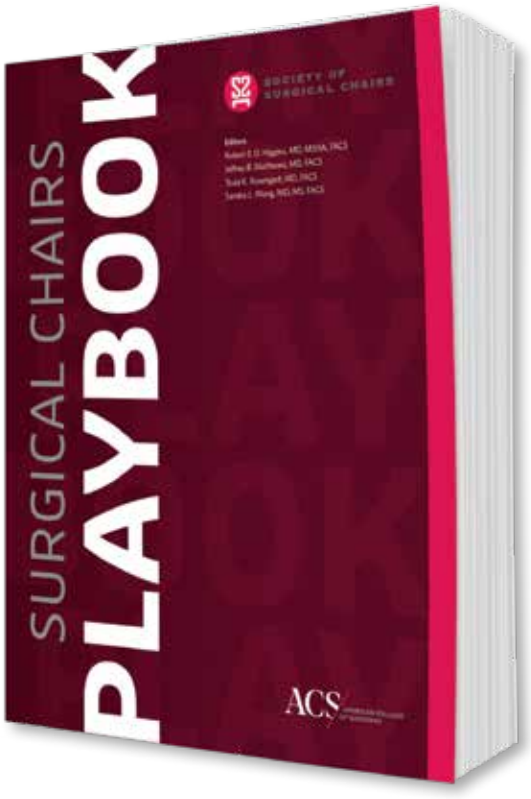
TO HELP CURRENT AND FUTURE surgeon leaders feel more confident and have an easier time navigating the process, the ACS and the Society of Surgical Chairs (SSC), through support from the ACS Foundation, have released a *Surgical Chairs Playbook* that features innovative leadership strategies, evidence-based practices, personal experiences, and advice.

"More than 80 extraordinary leaders in academia have contributed to the chapters, so—taken together—this book is a comprehensive reflection on the skills and characteristics a surgeon can learn to be an effective leader or chair. There also are elements that are meaningful for those who have moved into a dean's role, the hospital C-suite, or who desire those positions," said ACS Executive Director and CEO Patricia L. Turner, MD, MBA, FACS.

Developed from a conversation at an SSC meeting, the *Playbook* has been a passion project for its four surgeon editors—Robert S. D. Higgins, MD, MSHA, FACS, president of Brigham and Women's Hospital and executive vice-president of Mass General Brigham in Boston, MA; Jeffrey B. Matthews, MD, FACS, Dallas B. Phemister Professor of Surgery and chair of the Department of Surgery at UChicago Medicine in IL; Todd K. Rosengart, MD, FACS, professor and DeBakey-Bard Chair of the Michael E. DeBakey Department of Surgery at Baylor College of Medicine in Houston, TX; and Sandra L. Wong, MD, MS, FACS, William N. and Bessie Allyn Professor of Surgery and chair of the Department of Surgery at Dartmouth Hitchcock Medical Center and the Geisel School of Medicine in Lebanon, NH.

"It's clear that the role of the department chair is evolving in many ways given the complicated nature of healthcare in the current environment," said Dr. Higgins. "The *Playbook* offers valuable perspectives and lessons learned that could really make a difference for our colleagues."

Dr. Matthews added that the book is a must-read for leaders in today's surgical department: "The chair leads a complex enterprise engaged in multiple missions across a matrixed organization. The practical advice and guidance are invaluable."



The *Playbook* is organized into four sections: Managing Missions, Managing Oneself, Managing People, and Managing Business. Within each section, the content is structured in a question-and-answer format, providing readers the opportunity to quickly identify topics that may be of particular interest. Topics include:

- Common leadership styles
- Evaluating your leadership performance
- Effective strategies for developing curriculum and faculty
- Role of the chair in handling student and resident misconduct
- Best practices for recruitment and building a diverse team
- Best practices for tracking research productivity

"The guidance on these topics from experienced surgical chairs is paramount," said Dr. Rosengart. "We want to make it easier for current and future chairs to function more effectively and avoid pitfalls."

Dr. Wong agreed, saying that the *Playbook* will serve an unmet need in the surgical community, "A few great leadership books are available, but this one is written by surgeon leaders for surgeon leaders."

Many of the leadership principles outlined throughout the book are tethered to specific competencies, including the ability to conduct rigorous and measurable self-assessment; developing consistent and intentional communication strategies; engaging in effective delegation of tasks and responsibilities; and the ability to recruit, develop, and oversee a diverse surgical department, among other competencies.

Leadership Skills Development

The "born leader" perspective is generally understood to be an out-of-date concept; today, leadership skills are known to be the result of "experience, insights, and techniques that enable individuals to lead others," according to *Playbook* authors. "Some people may have more aptitude, interest, or experience in the leadership role, but everyone can acquire the associated skills and improve with practice."

They note that the "acquisition of surgeon leadership skills begins in surgical residency training and is a part of the competency required to provide team-based clinical care. Early career opportunities to lead committees or teams offer real-world scenarios to try out different styles of leadership in low-stakes situations. However, these 'leadership classrooms' require self-direction and deliberate consideration."

The development of these competencies can continue throughout the career of any practicing surgeon, as they engage in opportunities to apply these skills in their current environment. For those who aspire to, or are selected for, department leadership roles, it often is helpful to obtain additional formal training.

Leadership vs. Management

According to the *Playbook*, a key component of transformational leadership, at every level and setting, is the ability to determine the differences between leadership and management—both of which serve a key role in guiding a department or team.

"As a general rule, leadership involves setting the tone, driving the desired culture, and providing the vision for an organization," note *Playbook* contributors. "Management is much

Table 1. Leadership vs. Management

Leadership	Management
Inspire	Instruct
Impact through influence	Impact through direct reports
Provide vision	Implementation supporting vision
Chart or change course	Follow the path
Culture-driven	Metric-driven
Assessed based on ideas	Assessed based on execution
Selected for capability fitting the moment	Selected for technical skills


Dr. Robert Higgins


Dr. Jeffrey Matthews


Dr. Todd Rosengart


Dr. Sandra Wong

> "A few great leadership books are available, but this one is written by surgeon leaders for surgeon leaders."
>
> —Dr. Sandra Wong

more technical in nature and often involves elements that can be measured more directly as outcomes. Management tends to be more driven by the reporting structure of the organization, while leadership at its best, transcends the organizational chart." (See Table 1, page 32).

The Surgical Chair's Leadership Role in Education

Leading a surgical educational program is another key facet of the surgical chair role. Developing and maintaining a productive education program starts with communicating clear expectations for faculty. According to the *Playbook*, failure to establish such expectations "often leads to a small cohort of highly motivated faculty carrying a disproportionate share of the teaching burden. Outlining clear expectations also significantly enhances accountability during the annual performance review."

Expectations of faculty could include permitting learner participation in operative procedures according to ability; providing constructive, direct, and ongoing feedback to residents regarding progress; and completing learner evaluations with 14 days of the end of the rotation.

"Faculty members can differ in their educational expertise: some are engaging and enthusiastic in the classroom presenting core curricular topics, while others are at their best conducting bedside teaching rounds with a small group of students," the authors advised. Surgical chairs and other educational leaders should work to align faculty skills and interests with appropriate instructor roles and functions.

Available Electronically or in Print

The ACS is committed to providing career-enhancing opportunities and resources for surgeons in all specialties in all practice settings and all locations.

"We recognize the pivotal role that surgical chairs play in the lives of their faculty, trainees, and team members throughout their departments," said Dr. Turner. "This book is indispensable to those who are sitting chairs, those who aspire to be chairs, those who aspire to leadership at other levels—all who perceive themselves as surgical leaders."

A PDF copy of the *Surgical Chairs Playbook* is available for purchase and download at *facs.org/playbook*. A hardcopy version also is available via the same website.

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

Dr. Ameera AlHasan

Ethical Concerns Grow as AI Takes on Greater Decision-Making Role

Ameera AlHasan, MD, MRCSED, FACS

BOTH ETHICS AND ARTIFICIAL INTELLIGENCE (AI) are complex disciplines that, when applied to healthcare, give rise to many practical dilemmas, conflicts, and contradictions. In order to understand the ethical challenges that may arise from the use of AI in healthcare, one must simplify its underlying principles; only then can future obstacles and potential solutions be realized. Although some may contend that the autonomous use of AI in hospitals, particularly in the operating room, is far from an everyday reality—autonomous or not—this is a technology that continues to advance at an exponential pace.

This article reviews biomedical ethics[1] and AI, and proposes a novel "ABCD" approach to understanding the challenges that arise when these fundamental concepts intersect in the healthcare setting.

When AI-driven machines and robots start making critical treatment decisions or operating autonomously, who then is responsible for errors, complications, or patient death?

Potential solutions also are proposed with the goal of overcoming the ethical challenges. In healthcare, ethics cannot afford to lag behind science.

Back to Basics

Four basic principles constitute the cornerstone of medical ethics: autonomy, beneficence, nonmaleficence, and justice.[2] Simplified definitions of these concepts are provided in Table 1, page 36. For additional information, refer to a designated ethics text or guide.

In order to understand AI, it is important to understand how it is created. First, massive quantities of data are collected. Thousands or millions of healthcare records are used to retrieve the data, which may be organized within specific parameters such as patient vital signs, symptoms, medications, or surgeon hand movements. These data are then categorized and entered into software that uses complex programming and mathematical processes to generate algorithms.

The algorithms make up the backbone of AI, as they are able to make decisions or take actions when faced with new information based on the background data they have been fed (see Figure 1, page 37).[3]

Ethical challenges may arise at any point in the AI creation process.[3] For example, using biased data from a White male population to create an algorithm that makes treatment decisions may result in decisions that are not beneficial, or even harmful, to non-White or female patients (thereby violating beneficence and nonmaleficence).

ABCD Approach to Ethics in AI

An ABCD model is proposed here to summarize the potential ethical challenges associated with AI:

A: Accountability
B: Bias
C: Confidentiality
D: Decision-making

Accountability

Whether at the level of a healthcare institution or in a court of law, doctors are held accountable for complications that arise from treatment decisions that cause unnecessary suffering for patients; they also may have to endure a penalty.

In surgery, the primary surgeon is the first individual to be questioned when an error or complication occurs. Machines, like humans, are prone to committing errors. When AI-driven machines and robots start making critical treatment decisions or operating autonomously, who then is responsible for errors, complications, or patient death?

It is futile and illogical to hold the machine responsible, and it is unreasonable for the surgeon to bear full responsibility for AI-driven errors. Likewise, it does not seem plausible to penalize the software developers and programmers for every complication that arises in every hospital that has opted to use their AI platforms. Such dilemmas of accountability will become even more complicated when AI-driven machines start to cause harm on their own through deep learning.

Table 1.
Four Principles of Medical Ethics

Autonomy	Patients have the right to make choices and take their fate into their own hands after being well-informed.
Beneficence	Healthcare professionals have the best interests of the patient at heart and will always attempt to choose what is most beneficial to the patient.
Nonmaleficence	"Do no harm." The decisions made by healthcare professionals bear no ill intentions or harm toward the patient.
Justice	Equal opportunities are given to patients in similar situations, thereby establishing equity and fairness.

It seems there is a need for a change in mindset from shifting responsibility to sharing responsibility among the involved parties. The impact of this shared responsibility on medical litigation cases remains unclear and requires further investigation.

An example from outside healthcare is the Amnesty International campaign "Stop Killer Robots,"[4] which refers to "autonomous weapons systems" used in warfare. This campaign is a stark example of how ethical issues regarding the use of AI may surface. Discussions continue to take place on accountability and responsibility in the battlefield—why not in healthcare?

Bias

Bias always has existed in some form or another in both medical practice and healthcare research. Whereas blatant bias and discrimination exhibited by an individual against a specific racial group may become more noticeable over time, AI exhibits a more implicit bias.

As previously mentioned, biased or skewed data used to create algorithms will result in AI that is biased against any number of attributes such as race, gender, or socioeconomic status.[3] This bias, in practice, violates ethical principles such as justice. Moreover, unequal opportunities are present for patients receiving care at under-resourced centers, whereas more privileged hospitals may have access to more advanced and, perhaps, more regulated AI platforms.

Confidentiality

Patient data are considered sensitive, and worldwide attempts to protect these data include the Data Protection Act 2018 in the UK and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) in the US. Protecting data and patient privacy is important. However, AI cannot exist without data. This creates a paradox where demands are made to conceal data for the sake of confidentiality and release data to AI developers in order to create better algorithms.

In certain applications, AI not only requires patient data, it also could include data on healthcare workers and institutions such as surgeons' hand motions and operative performance or hospital team dynamics.

Data ownership is just as important of an issue as data privacy. On robotic surgery platforms, for instance, the manufacturer automatically owns all the data.

Decision-making

AI is designed to make decisions that may include making a diagnosis, prescribing medication, or controlling instrument movement in the operating room.

The nature of the decision must be questioned if it is to adhere to ethical standards. Such questions may include asking whether a decision is beneficial, appropriate, or harmful to a specific patient.

It is possible that the decision made by the AI platform overrides patient autonomy where the platform chooses for patients without allowing them to choose for themselves. Equally important are the autonomy and decision-making capacity of the healthcare professional, which may be restricted by AI if that possibility is not taken into consideration during the AI design process.

Potential Solutions

Solving ethical problems in AI starts with vigilance and the understanding that AI is not immune to human prejudice. It is of utmost importance that strict legislation be put forth to regulate the design as well as the implementation of AI platforms.

Figure 1.
How AI Is Created: An Oversimplified Review

Lawyers and judiciary officials with a specific focus on healthcare policy and litigation must be consulted early in order to plan accordingly for potential problems and create solutions that protect all stakeholders.

Moreover, healthcare professionals and AI developers must work hand in hand with ethicists and philosophers[5] to develop an ethical code of conduct that guarantees the preservation of human rights, dignity, and justice through the use of AI. This code may one day be known as "The Robocratic Oath." Whereas Isaac Asimov's Three Laws of Robotics[6] once seemed like science fiction, the need to regulate automaton behavior and ensure no harm is done to human beings is now a reality.

On the other hand, specific challenges that arise in the practical setting require more technical solutions. This means if the clinical application of AI creates an ethical challenge in a specific hospital or patient population, then this issue has to be addressed at the level of the AI algorithm, whether at the creation or implementation phases. The "4-D model,"[3] for example, proposes a cyclical solution for managing bias in AI at the level of the design process, from data collection to postdelivery evaluation in the "dashboard" phase.

Conclusion

Understanding the basic principles that govern biomedical ethics and AI creates an awareness of the ethical challenges that may arise. Ethical issues concerning the application of this technology generally can be organized into the following categories: accountability, bias, confidentiality, and decision-making. It is only through awareness, legislation, codes of conduct, and conscientious design that potential solutions may be found.

Disclaimer

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

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Dr. Maria Altieri

Mobile Device Application Helps Predict Postoperative Complications

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Few studies have robustly tested the effects of AI-enabled decision support on clinical decision-making. The HYPE trial is a notable exception.

AS SURGEONS OFTEN MAKE HIGH-STAKES, time-sensitive decisions, there is a growing interest in the use of clinically actionable analytics to augment surgical decision-making.

Among the many decision-support tools available, the POTTER (Predictive OpTimal Trees in Emergency Surgery Risk) artificial intelligence-based (AI) calculator has yielded promising results that harbor relatively unique potential for clinical application. POTTER—leveraging a flexible decision-tree-based machine-learning approach—has predictive accuracy that is on par with, or greater than, many other risk calculators. Its algorithm was validated using the ACS National Surgical Quality Improvement Program (NSQIP®) data from 2014. The Surgical Risk Preoperative Assessment System (SURPAS) model (developed and validated via ACS NSQIP data) and several algorithms reported by Chiew and colleagues have state-of-the-art accuracy for predicting mortality and postoperative intensive care unit (ICU) admission for broad, heterogenous surgical patient populations.[1,2]

Although POTTER use has been reported for specific patient populations such as emergency surgical patients and elderly patients, the evidence suggests that this tool is broadly generalizable.[3-5] Perhaps most importantly, POTTER is available in a user-friendly mobile application, making it ready for deployment in clinical settings to assess operative risk or to aid in counseling patients.

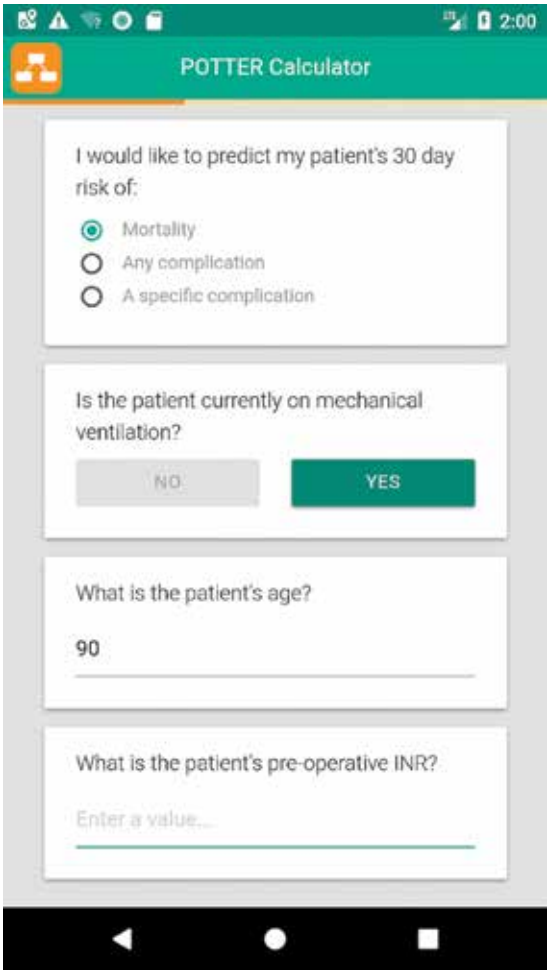
POTTER has some opportunities for improvement. The application requires manual data entry, which could be a small hindrance for some users, although it requires manual entry of less than 10 variables (see Figure 1, page 40).[6]

In contradistinction, AI predictive analytic platforms using automated electronic health record (EHR) data inputs obviate manual data entry requirements.[7] Historically, there has been a lack of high-level evidence from prospective studies supporting automated EHR data entry, but recent evidence suggests that this approach is effective and can be deployed as a mobile device application.[8]

In addition, POTTER uses preoperative data and does not incorporate intraoperative data that are potentially informative in predicting postoperative complications. POTTER algorithms were trained primarily on outcomes in the US 2007–2013, which may not generalize well to other countries and may not accurately represent risk in 2023. Like most similar risk calculators, POTTER requires prospective validation and assessments of its effects on decision-making and patient outcomes.

Few studies have robustly tested the effects of AI-enabled decision support on clinical decision-making. The Hypotension Prediction (HYPE) trial[9] is a notable exception. In a randomized study, the authors deployed an AI algorithm that predicted impending intraoperative hypotension. The HYPE trial showed that anesthesiologists using the algorithm acted earlier, differently, and more frequently, and their patients experienced fewer hypotensive events and less time-weighted hypotension.

Figure 1.
POTTER Calculator



Although unproven, it remains plausible that on a larger scale, the HYPE trial algorithm could decrease complications related to intraoperative hypotension (e.g., acute kidney injury), and thus improve patient outcomes.

Likewise, it remains to be determined whether the POTTER app and similar surgical AI decision support systems improve patient outcomes. Lupei, Sun, and colleagues[10,11] previously have reported an AI model degradation from internal or external validation to real-time validation, as well as the impact of AI-enabled tools that are integrated into real-time clinical workflows. Although AI offers greater potential to accurately represent complex, nonlinear pathophysiology compared with basic statistical modeling, recent studies have demonstrated no great superiority of deep learning over regression in classifying illness severity of individual patients using readily available clinical data.[12,13]

For cases in which AI offers no predictive performance advantage, it may be preferable to use regression-based algorithms that are more easily interpreted by clinicians and have a longer, stronger record of success in clinical settings.

Our personal, anecdotal experience with POTTER is that it provides an accurate, data-driven prediction of postoperative complications, which can be useful adjuncts to shared decision-making processes and prognostic conversations with patients and caregivers, especially when the prognosis is poor.

The POTTER app is useful as it helps predict postoperative morbidity and mortality following emergency surgery compared to similar elective surgery. After inputting information regarding the patient, the user can select the outcome for which a risk estimate is desired. A series of questions follows, and each new question is based on the answer to the previous question as

Our personal, anecdotal experience with POTTER is that it provides an accurate, data-driven prediction of postoperative complications, which can be useful adjuncts to shared decision-making processes and prognostic conversations with patients and caregivers, especially when the prognosis is poor.

it forms a decision tree, which finally calculates the risk based on the previous responses. The final result predicts the risk of death for patients undergoing emergency general surgery procedures and 18 postoperative complications.

By augmenting, rather than replacing, the knowledge, intuition, and skills that surgeons offer their patients, clinically actionable predictive analytics can anchor decision-making and prognostication with objectivity and reduce the variability that is inherent to the provider-specific hypothetical, deductive reasoning that is the hallmark of current surgical decision-making practices.

Disclaimers

The authors have no conflicts of interest related to the POTTER application.

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

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Quality Improvement Initiative Takes on Smoking among Cancer Patients

Timothy W. Mullett, MD, MBA, FACS
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CANCER PATIENTS AND SURVIVORS have an increased risk of adverse health outcomes[1]—including overall mortality—and smoking at the time of a cancer diagnosis is conservatively estimated to add $3.4 billion in cancer treatment costs in the US annually.[2]

Smoking cessation by cancer patients leads to a reduction in mortality risk,[3] and most leading cancer organizations advocate for cessation as the standard of clinical cancer care.[4,5] Still, many cancer programs do not regularly address smoking in cancer care, and many oncologists do not regularly provide assistance with smoking cessation.[6,7,8]

A guideline from the National Comprehensive Cancer Network (NCCN) supports assessment, advisement, and assistance of smoking cessation in patients with cancer. To support accredited cancer programs in their compliance with this guideline, the Just ASK Quality Improvement Project and Clinical Study was launched in April 2022 and enrolled 776 accredited Commission on Cancer (CoC) and National Accreditation Program for Breast Centers (NAPBC) programs.

The elective quality improvement initiative focused on strengthening adoption of universal assessment and documentation of his or her smoking status in the electronic health record (EHR). Just ASK encouraged smoking assessment as a standard of care, demonstrated by asking 90% of newly diagnosed cancer patients about smoking status or by asking at least 20% more patients about smoking following enrollment.

Programs also were encouraged to consider how they would go "beyond asking" by assisting patients to quit smoking with delivery of, or referral to, smoking cessation support.

To meet this goal, programs assessed current systems and workflows that supported asking all newly diagnosed cancer patients about their smoking status and evaluated barriers and facilitators for a more systematic approach. Programs participated in didactic webinars, received access to a Just ASK change package, and were offered technical assistance from a multidisciplinary committee of experts from the Just ASK task force. Peer-to-peer learning and sharing of innovations were encouraged through a series of webinars.

To assess progress over time, surveys were collected three times that captured current smoking assessment and treatment practices, organizational priority, implementation barriers, and feasibility and effectiveness of potential implementation strategies. The findings from these surveys represented the largest dataset reporting current practices, perceived barriers, and implementation of smoking cessation treatment across a broad range of cancer treatment settings in the US.

Programs completed at least one intervention to improve their smoking assessment practice.

Accredited programs remained highly engaged over the course of the yearlong collaborative, indicating a strong national interest in addressing smoking among cancer patients.

The interventions, chosen locally and adapted to context, included:

- Educating team members and staff about the benefits of encouraging smoking cessation in cancer patients
- Enhancing EHR for ease of data collection, capture, reporting, and action
- Improving workflow to more efficiently and effectively capture smoking status
- Identifying additional organizational resources to support smoking cessation

Data collection and subsequent analysis for the Just ASK project will be completed in early 2023, and since a publication reporting baseline survey outcomes is pending, outcome data will be reported later this year. However, program gains from baseline to midyear are evident and illustrated through aggregate reviews survey data.

For example, in April 2022, a vast majority of programs reported that they had a system in place to ask newly diagnosed cancer patients about their smoking status. However, far fewer programs were able to provide actual data to support how many patients were asked. This finding demonstrated an immediate area for programs to begin partnering with their information technology resources to build a better system of data output. Midyear survey results reported an increase in programs with the ability to provide data, indicating a change at the local level driven by process improvement.

Accredited programs remained highly engaged over the course of the yearlong collaborative, indicating a strong national interest in addressing smoking among cancer patients. Preliminary data reveal there are gaps in program capacity to obtain information about patients' current smoking status, suggesting the need for systems-level strategies for improving patient assessment, clinical workflow, and documentation—all areas in which the Just ASK task force sought to support programs over the course of the quality improvement project. These findings highlight challenges and opportunities for implementing smoking assessment and treatment in cancer care settings. B

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ACS NSQIP Data Provide Insight on Blood Product Use

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TAIPEI MEDICAL UNIVERSITY HOSPITAL (TMUH) in Taiwan was founded in 1976 and provides patient-centered, comprehensive medical services with more than 800 beds, 39 specialty/subspecialty medical departments, and 2,000 medical personnel. Since 2009, TMUH has been accredited four times by the Joint Commission International, which recognizes the high-quality services and world-class patient care the hospital provides. By joining the ACS National Surgical Quality Improvement Program (NSQIP®), TMUH can promote cross-team collaboration, improve surgical quality, and achieve patient safety and cost savings through different aspects of analysis.

Through NSQIP online data, our team found that overall surgical performance at TMUH was better than international peers, but our transfusion rates in November 2019 (7.98%) and February 2020 (9.66%) were higher than peer hospitals (7.2%).

Reducing unnecessary transfusions can reduce the risk of fever, rashes, allergic reactions—such as urticaria and hemolytic transfusion reactions—and transfusion-related acute anaphylactic shock.

Further analysis found that some surgical categories had higher transfusion rates than international peers. The blood transfusion rate of our hospital in 2019 was 9%, higher than the 8.7% rate in 2018.

The NSQIP blood transfusion rate in our hospital dropped from 6.66% (October 2019 to February 2020) to 5.38% (March 2020 to September 2020), and the blood transfusion rate in the hospital showed a downward trend, decreasing from 9.16% to 7.98% during the same time frames (see Figure 1, page 46).

Blood transfusion is a common medical practice during treatment but often comes with adverse side effects. Reducing unnecessary transfusions can reduce the risk of fever, rashes, allergic reactions—such as urticaria and hemolytic transfusion reactions—and transfusion-related acute anaphylactic shock. Reducing unnecessary transfusions also can improve patient safety and reduce the waste of medical resources.[1,2]

To reduce the rates of blood transfusion at TMUH, our team conducted two phases of intervention:

- In Phase I, our team built a NSQIP blood transfusion business intelligence (BI) dashboard to provide a collection of blood transfusion cases for clinical case discussion and hospital-wide awareness.
- In Phase II, the BI dashboard was used to drill down to departmental characteristic analysis for improvement through cross-departmental collaboration.

Upon further analysis of the BI dashboard, intraoperative blood transfusion in our hospital accounted for 88.6% of all blood transfusions, of which single-unit (1U) blood transfusion accounted for 12.9% and orthopaedic surgery accounted for 92%. According to the Pareto principle—which states that for many outcomes, roughly 80% of consequences come from 20% of causes—the Blood Transfusion Committee (BTC) recommended priority intervention in 1U intraoperative blood transfusion of orthopaedics and other key departments as the means to accurately reduce unnecessary blood transfusion (see Figure 2, page 47).

The BTC recommended adding intraoperative blood loss and timing of the blood transfusion (intraoperative/postoperative) in the BI dashboard, which is convenient for drill-down analysis. In addition, cross-professional case-by-case discussions determined that the most likely reasons for 1U blood transfusion were high-risk factors such as advanced age, low preoperative hemoglobin (Hb), low body mass index (BMI), coronary heart disease, inadvertent perioperative hypothermia, unstable vital signs, and bleeding during an operation.

Reasons for unnecessary blood transfusion were revealed through observations and interviews with surgeons, including:

- Preventative blood transfusion: There have been cases of stroke in elderly patients and delayed bleeding after tourniquet removal.
- Early ordering of blood products: Surgeons worry that blood delivery is too slow, so they ordered blood earlier. The amount of blood scrapped in 2020 was 0.64%, higher than the 0.54% rate in 2019.

Goal Specification

We developed a set of SMART Goals for our quality improvement program:

- **Specific**: In order to avoid unnecessary blood transfusion in orthopaedic surgery, we aim to reduce 1U blood transfusion by 80% in orthopaedic surgery. Our goal is to reduce the overall 1U blood transfusions rate to 0.78%.
- **Measurable**: We will evaluate our progress using the NSQIP registry and hospital administrative data.
- **Achievable**: The primary issue is decision-making

for blood transfusion during surgeries. We will work with the individual departments to improve this process.

- **Relevant**: Decreasing unnecessary preventative blood transfusions and minimizing early ordering of blood products will reduce waste and allow more blood products to be available for other patients, which is especially important because the COVID-19 pandemic has resulted in limited blood supply. There also is a risk of infections associated with blood transfusions.
- **Timeline**: Phase II intervention began in September 2020, and the project is ongoing. The BTC monitors data monthly.

Strategic Planning

The quality improvement team consists of eight people: the director of orthopaedic surgery, director of anesthesiology, BTC chair, blood bank division head, director and assistant director of medical quality department, NSQIP surgeon champion, and the NSQIP surgical clinical reviewer.

Key stakeholders include all orthopaedic surgeons, anesthesiologists and assistants, operating room (OR) nursing staff, blood bank staff, transfer staff, and administrative staff.

The BTC monitors indicators to ensure hospital quality. The committee discovered the rates of blood transfusion for total knee replacement (TKA) and total hip replacement (THA) were higher than NSQIP peer hospitals (see Figure 2).

The team met with the orthopaedic, anesthesia, blood bank, and surgical departments to further review the data. We discovered that most of the orthopaedic patients in our hospital were elderly and had coronary heart disease. Additionally, the higher blood transfusion rate was specific to some orthopaedic surgeons who previously had poor surgical outcomes due to delays in receiving intraoperative blood transfusion and patients experiencing postoperative strokes. Consequently, the orthopaedic surgeons began implementing preventative 1U prophylactic

Figure 1. Cross-Annual Blood Transfusion Rate of Hospital

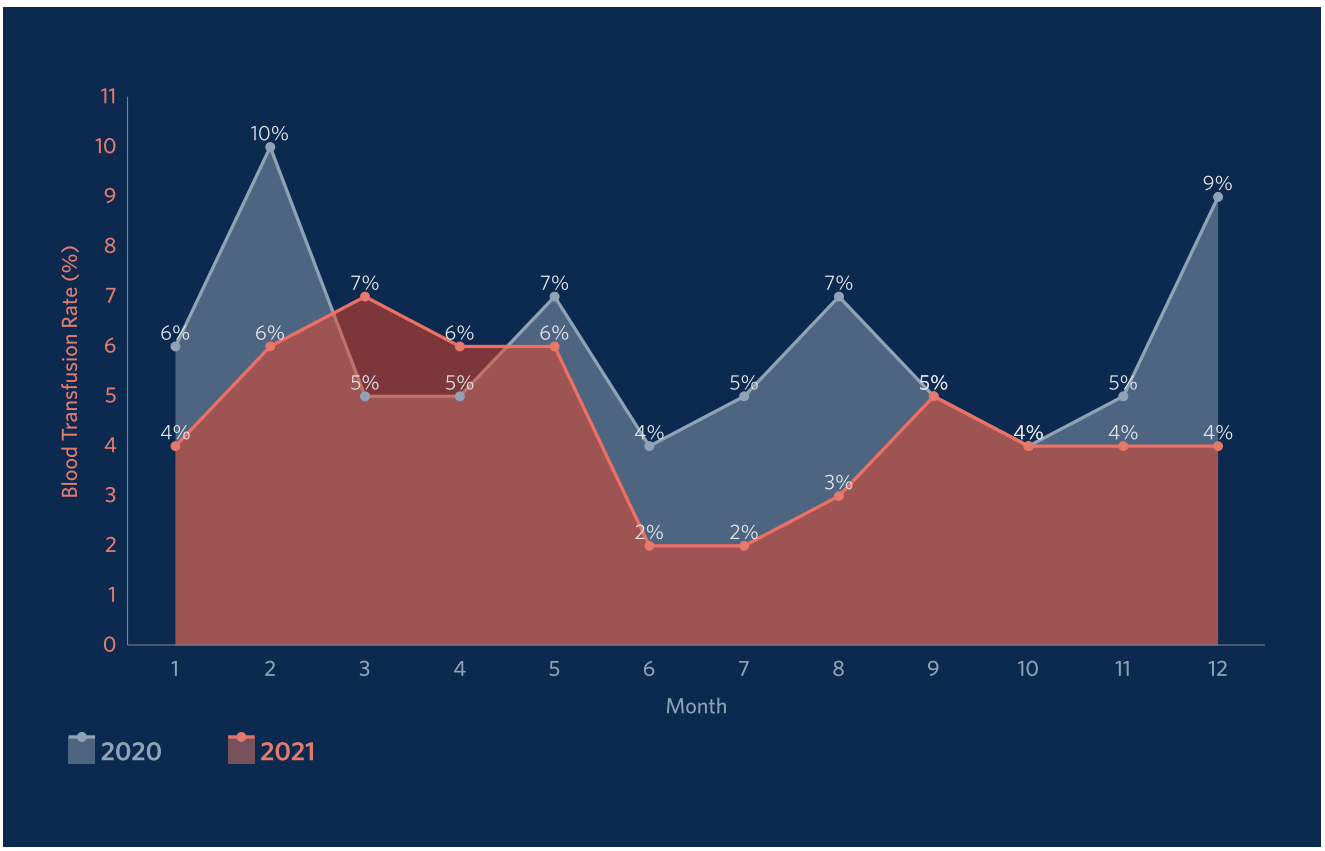
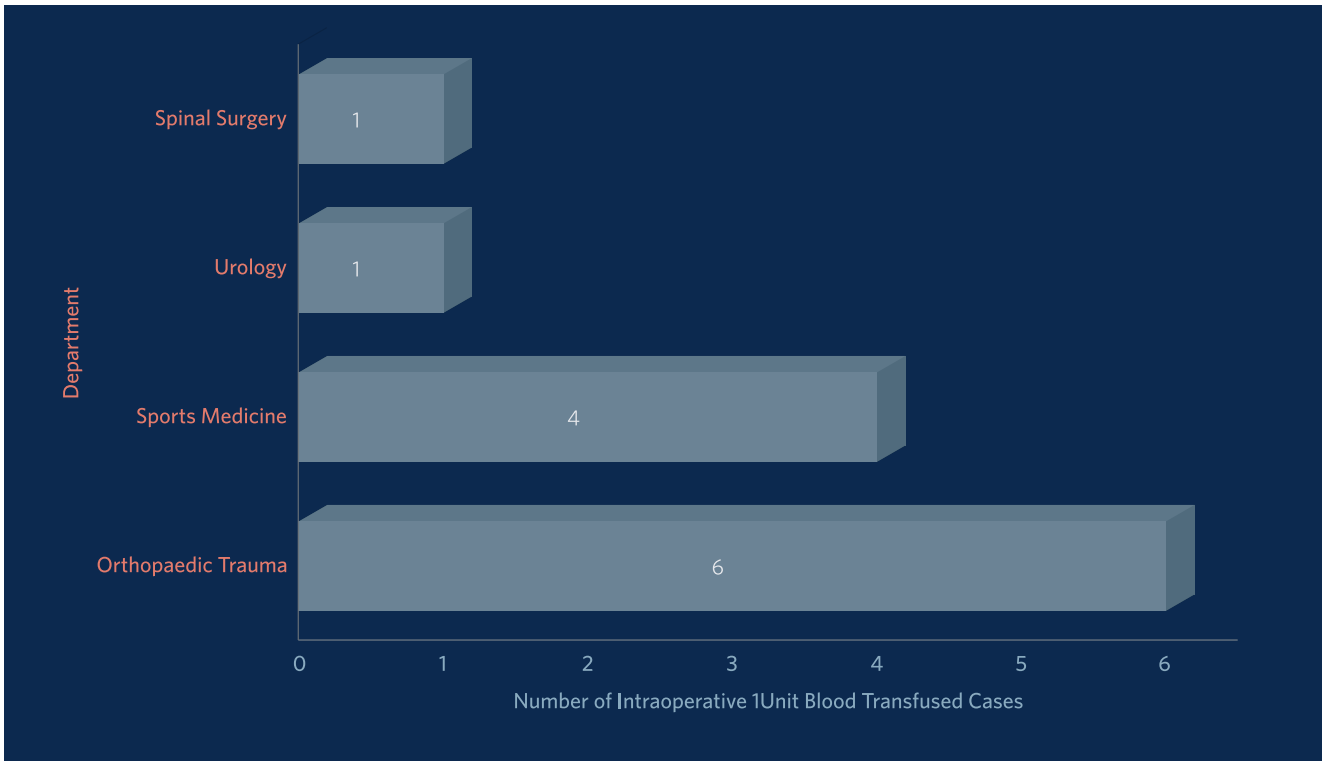


Figure 2. The Distribution of Intraoperative Blood Transfusion Unit



blood transfusions for patients undergoing TKA and THA procedures to prevent cardiovascular complications such as stroke. We hope that in the future we can reduce unnecessary intraoperative blood transfusion and bleeding.

Based on this review and previous experience, we updated our blood transfusion process and received approval from the BTC:[3–8]

- The suitability of blood transfusion is determined by the actual situation of the patient during the operation. The surgeon and anesthesia team have strengthened communication on the patient's age, preoperative Hb, BMI, medical history (e.g., coronary heart disease), intraoperative body temperature, vital signs, operation time, blood loss, and other information during the operation.
- To ensure timely delivery of intraoperative blood to the patient, the blood bank staff randomly checks the time to deliver blood for surgical patients, including the time when the blood bank staff receives the blood collection request in the OR, preparation time of the blood bank, and blood delivery time.
- The blood product is provided to the OR within 5 to 30 minutes.

There were no funding sources or additional costs for this project.

Process Evaluation

The phase I intervention led to a downward trend in overall blood transfusions in the hospital. The phase II intervention has now started and spans several areas. The initial steps were:

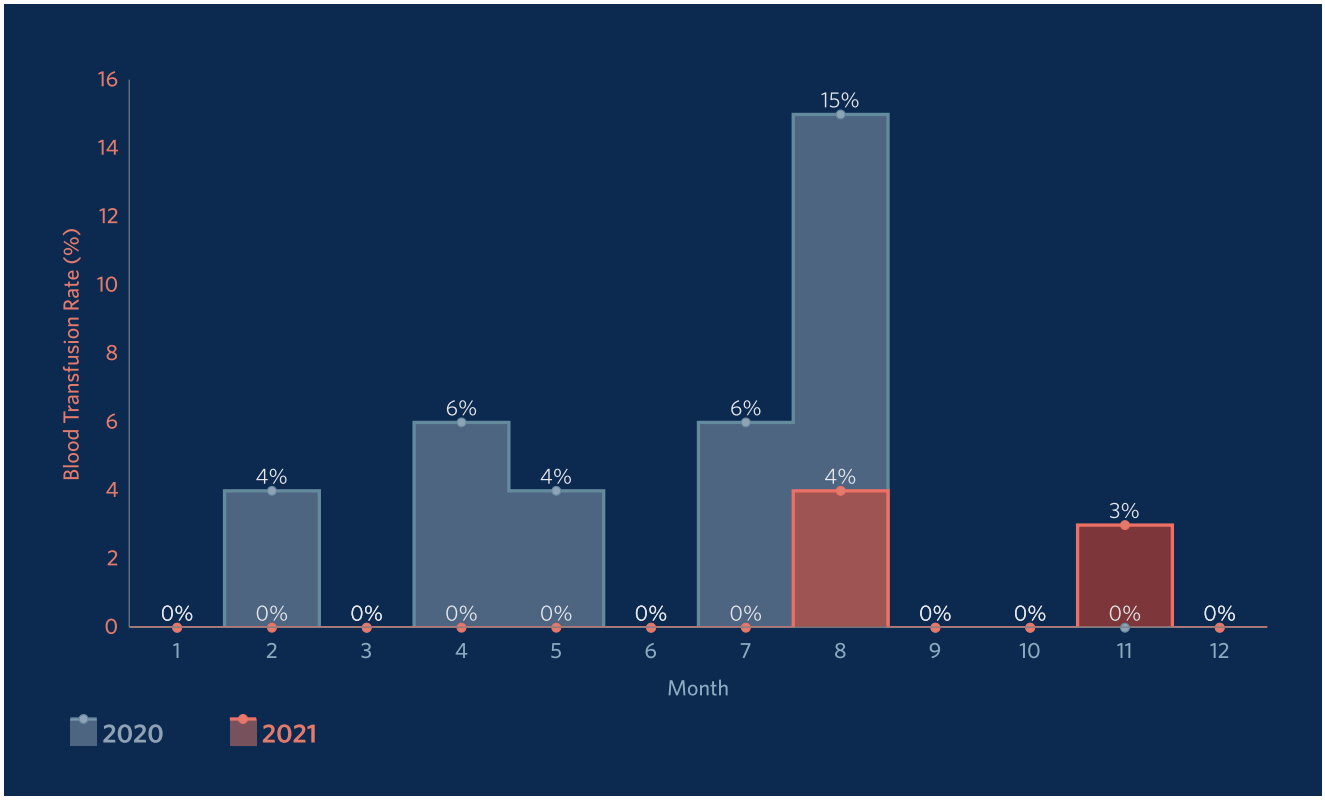
Department of Orthopaedics:[3–8]

- Review the literature for methods to reduce bleeding and high-risk factors requiring blood transfusion for medical team judgment; this review confirmed that there is no literature proving that prophylactic blood transfusion can effectively prevent stroke.
- Agree to use hemostatic drugs (Transamin) during and after surgery, do not use tourniquets during the operation, and communicate results in the morning department meeting
- Start individual communications with specific physicians

Department of Anesthesiology:

- Discuss the strategy for reducing unnecessary blood transfusion and communicate the BTC decision during Department of Anesthesiology nursing meetings; also work with the chief surgeon to determine the necessity of blood transfusion according to the patient's current vital signs, body temperature, and blood loss during the operation

Figure 3. **Cross-Annual Intraoperative 1U Blood Transfusion Rate of Orthopaedics**



BTC:

- Analyze 1U blood transfusion cases on a quarterly basis through preoperative and intraoperative case data to confirm if there are still unnecessary blood transfusions
- Conduct onsite inspections to confirm the process for OR requests for blood from the blood bank, prepare blood from the blood bank, and deliver blood to the OR in a timely manner

Quality Management Department:

- Continuously review medical records to collect blood transfusion events for surgery according to NSQIP specifications
- Use the BI dashboard to monitor the cross-year trend chart, NSQIP peer comparison chart, and case list (including case number, chief surgeon, intraoperative blood loss, blood transfusion timing, and surgical procedure)
- Make sure the data are presented and that the clinical team can quickly monitor the blood transfusion situation

Outcome Evaluation

We accepted cases according to NSQIP guidelines. Patients must meet certain criteria in order to transfuse blood products (specifically red blood cell and whole blood products) or reinfuse autologous red blood cells or cell-saver products during the procedure.

Exclusion criteria included outpatient procedures, patients under 18 years of age, patients who have been assigned with an American Society of Anesthesiologists score of 6, patients with an injury caused by trauma or abuse, and/or patients who received hyperthermic intraperitoneal chemotherapy. In addition, according to the needs of cross-team experts, we collected blood transfusion timing (intraoperative and postoperative) and blood loss to facilitate judgment. The team also used a combination of chart review, automated BI dashboards, drill-down analyses, and continuous monitoring of blood transfusion across team members.

As mentioned previously, after phase I intervention in March 2020, the average NSQIP blood transfusion rate in our hospital dropped from 6.66% to 5.38%.

After phase II intervention in September 2020, the intraoperative blood transfusion rate of orthopaedics decreased slightly from 14.94% to 11.41% ($p = 0.139$), and intraoperative 1U blood transfusion rate of orthopaedics decreased significantly from 3.9% to 0.2957% ($p < 0.05$)

We were pleased to see a drastic reduction in intraoperative 1U blood transfusion rate. The orthopaedics postoperative length of stay decreased from 6.1 days to 5.7 days.

(see Figure 3, page 48). We were pleased to see a drastic reduction in intraoperative 1U blood transfusion rate. The orthopaedics postoperative length of stay decreased from 6.1 days to 5.7 days ($p = 0.49$).

Limitations

- This project is focused on our hospital and includes a small sample size. It would be useful to conduct a multicenter or larger trial on this issue.
- We changed our culture and behaviors, but we are unsure if this type of experience has occurred in other hospitals.

Cost Evaluation

According to the study, the average blood transfusion cost per patient is $219.[1] The results showed that 126 patients' blood transfusions were reduced per year. It is estimated that 1 year can reduce the cost of blood transfusions for orthopaedic surgery by $27,594.

Knowledge Acquisition

- Communication of the data is essential. The BI dashboard is a useful tool. We will continue to use this system to monitor patients, identify problems, educate, and share data between colleagues and surgeons.
- The project involved the cooperation of four departments: orthopaedic, anesthesiology, BTC, and quality management. We worked together to review the data, determine the transparency, and develop solutions.
- This project has encouraged our hospital and surgeons to increase our focus on patients. We will monitor the patients and their medical conditions even more closely. We can do more for patient safety and patient care.

Next Steps

Although we shared our results within the hospital, we felt it was important to communicate our results to others for awareness and also to encourage more surgeons and hospitals to outline their experiences.

We plan to continue investigating these data to determine if there are additional procedures or issues to monitor. For example, the problem may not be surgical; it could be related to the specific patient case. We also will review the suitability of blood transfusion through intraoperative blood loss, blood transfusion time, and procedure. On a case-by-case basis, the blood bank and BTC will continue to conduct discussions based on the NSQIP case list. B

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The Joint Commission

Retained Surgical Items Bundle May Help Reduce Patient Harm

Lenworth M. Jacobs, MD, MPH, FACS

Unintended retention of foreign objects (URFOs) remains a critical patient safety issue in surgery. URFOs are the fourth most frequent sentinel event reported to The Joint Commission, with 94 instances occurring in 2021 and 30 events in the second quarter of 2022.

A NEW STUDY PUBLISHED in The Joint Commission *Journal on Quality and Patient Safety* found that implementation of a retained surgical items (RSI) bundle can improve reliability and near-miss reporting while also reducing harm to patients.

The study—A Multicenter Collaborative Effort to Reduce Preventable Patient Harm Due to Retained Surgical Items,* by April Carmack, MSN, RN, SSBBP, and coauthors—included a total of 114 healthcare facilities. From there, a workgroup determined an "evidence-based best practice bundle" that incorporated five elements:

- Surgical stop
- Surgical debrief
- Visual counter
- Imaging
- Reporting of deviations

The results of implementing the RSI bundle were:

- 14.3% reduction in the rate of harm caused by RSIs
- 59.1% increase in RSI near-miss reporting
- RSI bundle compliance rate of 70.5%, with 63.2% of the facilities actively performing Plan-Do-Check-Act (PDCA) cycles to improve bundle compliance continually

In an accompanying editorial, Michael P. DeWane, MD, and Joint Commission chief patient safety officer and medical director Haytham M. Kaafarani, MD, MPH, FACS, wrote "…[in] a review of sentinel events for RSIs submitted to The Joint Commission between 2005 and 2012, the majority of reported RSIs were due to absence of or

> "We encourage similar efforts in multiple networks and hospitals across the nation. The road to zero RSIs is difficult and filled with obstacles, but the goal is laudable and reachable."
>
> —Drs. Michael DeWane and Haytham Kaafarani

failure to comply with preventive policies and procedures."[†]

"RSIs are understandably deemed surgical never events, so continued research into their root causes and interventions focused on their prevention and mitigation remain critical," the coauthors wrote, adding that many aspects of the study deserve praise.

According to Drs. DeWane and Kaafarani, the study—a large undertaking across multiple care settings and areas of practice—leaned on a multidisciplinary group of experts and stakeholders and used well-established methods to create an evidence-based best practice care bundle to prevent RSIs.

"A crucial step for successful implementation in such a large system was using 'patient safety champions' at each participating facility and allowing for customization of the intervention while preserving the spirit and core aspects of the bundle," the coauthors stated. "In addition to reducing harm from RSIs, increasing the rate of reporting of near misses and promoting a culture of safety, the project managed also to identify barriers to full compliance (e.g., failure to perform surgeon stops), and efforts are reportedly underway to address these quality improvement opportunities."

While Drs. DeWane and Kaafarani also noted some limitations to the study, they shared that it was "undeniably exciting to see a real-world, committed effort across an entire health system to address a surgical issue at the core of patient safety."

"The gaps in full compliance are worth a deep human factors analysis to further understand the failure to adopt best practices at the bedside or the failure of these best practices even when they are embraced," they wrote. "We encourage similar efforts in multiple networks and hospitals across the nation. The road to zero RSIs is difficult and filled with obstacles, but the goal is laudable and reachable."

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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*Carmack A, Valleru J, Randall K. A multicenter collaborative effort to reduce preventable patient harm due to retained surgical items. *Jt Comm J Qual Patient Saf.* 2023;49(1)3-13.

[†]DeWane MP, Kaafarani HMA. Retained surgical items: How do we get to zero? *Jt Comm J Qual Patient Saf.* 2023;49(1)1-2. Available at: https://www.jointcommissionjournal.com/article/S1553-7250(22)00270-7/pdf.

End-of-Year Funding Bill Is Packed with ACS Legislative Victories

Carrie Zlatos, Amelia Suermann, and Emma Zimmerman

Wrapping up the year-end legislative business in 2022, Congress passed a last-minute omnibus funding package on December 23. The bill, the Consolidated Appropriations Act, 2023, was signed into law by President Biden just before the new year. The approximately $1.7 trillion spending package funds the federal government through September 30, 2023.

Surgeons and other health professionals were facing nearly 8.5% in cuts to Medicare payment on January 1. The omnibus provides significant relief, but does not entirely stop the cuts.

Thanks to significant efforts by ACS members through grassroots advocacy and SurgeonsPAC, and coalition lobbying efforts led by ACS staff, several of the College's top-priority issues were included in this package. In addition, the bill included updates on Medicare reimbursement and other areas related to payment.

Physician Payment

Surgeons and other health professionals were facing nearly 8.5% in cuts to Medicare payment on January 1. The omnibus provides significant relief, but does not entirely stop the cuts. As of January 1, surgeons will experience approximately 2% in payment reduction due to budget neutrality policies in the Medicare Physician Fee Schedule.

Conversion Factor Cuts
The omnibus includes a 2.5% adjustment to the conversion factor for services furnished in 2023, and a 1.25% adjustment for services furnished in 2024. With the temporary adjustment to the conversion factor, surgeons and physicians can expect an approximately 2% decrease in payment relative to the 2022 conversion factor.

PAYGO
The omnibus delays, but does not eliminate, the pending Statutory Pay-As-You-Go Act (PAYGO) sequestration, which is capped at 4% for Medicare. PAYGO cuts will not be implemented in 2023 or 2024, but the balance due is added to the 2025 scorecard.

Sequestration
The omnibus does not pause the current 2% sequestration cuts that were reinstated earlier this year. The legislation is partially paid for by extending the current sequester until 2032.

APM Bonus
The omnibus extends the alternative payment model (APM) bonus payment through 2025 at 3.5%. The current bonus payment is 5%.

Public Health Research Funding

Several of the ACS's long-term public health research-related priorities were passed in the final package.

Cancer Funding
The College successfully lobbied for increased funding for the National Institutes of Health (NIH), National Cancer Institute (NCI), and the Centers for Disease Control and Prevention (CDC) Cancer Prevention and Control programs in fiscal year (FY) 2023.

The omnibus provides $47.5 billion for NIH, an increase of $2.5 billion (5.6%) over the FY22 enacted level, including $7.32 billion for NCI. Additionally, the law provides increases for each line item within the CDC Cancer Prevention and Control programs, including $22.4 million for the National Comprehensive Cancer Control Program and $53.4 million for the National Program of Cancer Registries. Funding for these programs has remained essentially flat for many years, and this is a clear sign that lawmakers responded to the cancer community's advocacy on this issue.

Lastly, the law includes $1.5 billion, an increase of $500 million, for the Advanced Research Projects Agency for Health, a new agency established to advance biomedical and health breakthroughs.

Firearm Injury Prevention Research Funding
Congress appropriated $12.5 million each to the NIH and CDC, the same level as FY22, to

fund public health research on firearm injury and mortality prevention. Additionally, Congress recommends NIH and CDC take a comprehensive approach to studying the underlying causes of violence and suicide and evidence-based methods of prevention of injury, including crime prevention.

Funding for firearm injury prevention research at the federal level has been a long-standing priority for the ACS and the Committee on Trauma (COT). The College will continue to partner with a broad coalition of organizations to advocate for increased firearm injury prevention research funding.

Trauma-Related Provisions

Ensuring access to trauma care remains a top priority for the ACS. The omnibus bill included several important trauma-related priorities.

MISSION ZERO Grant Funding
Congress appropriated $4 million—an increase of $2 million over previous funding levels—for the MISSION ZERO grant program. The MISSION ZERO grant program was established by the Military Injury Surgical Systems Integrated Operationally Nationwide to Achieve ZERO Preventable Deaths Act (the MISSION ZERO Act) and was authorized as part of the Pandemic All-Hazards Preparedness and Advancing Innovation (PAHPAI) Act.

The MISSION ZERO grant program was funded for the first time in 2021 thanks to the direct advocacy efforts of the ACS, COT, and continued support from and collaboration with the Military Health System Strategic Partnership American College of Surgeons.

PREVENT Pandemics Act/ Provisions to Improve Trauma Care
The omnibus includes several provisions contained in the PREVENT Pandemics Act (Prepare for and Respond to Existing Viruses, Emerging New Threats) and finalizes several important policies aimed at streamlining and improving the nation's preparedness and response to future pandemics. Among them, the law would make the CDC Director, appointed by the President, a position requiring Senate confirmation. The law also establishes an office of Pandemic Response Policy within the Executive Office of the President.

Additionally, the omnibus re-authorizes expired grants that would support national trauma care, readiness, and coordination and improve trauma care in rural areas. The grants, administered by the Assistant Secretary for Preparedness and Response, within the Department of Health and Human Services (HHS), would support trauma centers by strengthening coordination and communication, and developing approaches to improve emergency medical and trauma system access.

Transparency in Organ Transplantation
The omnibus includes language declaring Congress's commitment to transparency and supporting competition regarding organ procurement organizations (OPOs) and the Organ Procurement Transplantation Network. There have been numerous congressional inquiries and investigations into the United Network for Organ Sharing, which oversees the organ transplantation system, and Congress has cited a broad range of concerns, including improper use of Medicare funds, quality and standards of transplanted organs, and poor management of OPOs.

Violence Intervention Programs
The omnibus provides an increase to support violence interventions and encourages the CDC to fund a range of actions, including programs that provide de-escalation and conflict mitigation skills. The CDC is urged to scale up existing partnerships with organizations that have demonstrated success in reducing violence and risk factors, including those involving healthcare and community outreach organizations. In addition, the CDC is encouraged to support academic-community collaborations and research to advance the science and practice of violence prevention, while reducing inequities from which such violence stems.

Other Priority Areas

In addition to policies directly championed by the ACS, the omnibus includes several provisions related to issues that the organization continues to closely monitor.

Healthcare Workforce
The omnibus includes a variety of grants and other programs aimed chiefly at increasing access to primary care, mental health, and substance use treatment services.

It includes $125.6 million for expanded primary care services, including assigning National Health Service Corps (NHSC)

participants to provide substance use disorder treatment services and making payments under the NHSC Loan Repayment Program. It also includes $60 million for grants to public institutions of higher education to expand or support graduate education for physicians (infrastructure development, maintenance, equipment, and renovations) in states with a projected primary care provider shortage in 2025.

The omnibus also provides $12.5 million for the Rural Residency Planning and Development Program, which offers grants for states to start new residency programs in rural areas, including $2 million to increase family medicine and obstetrics training programs in states with high infant morbidity and mortality rates. Finally, the bill creates 200 new residency slots, 100 of which will be for psychiatry and psychiatry subspecialties.

CHIP

The Children's Health Insurance Program (CHIP) provides vital affordable health coverage to low-income children and, in some states, pregnant women who do not qualify for Medicaid. The ACS supports efforts to ensure sustainable funding for CHIP and provide continuous eligibility for CHIP beneficiaries. The omnibus extends CHIP funding for 2 years, through 2029, and provides for 1 year of continuous eligibility for children under Medicaid and CHIP, effective January 1, 2024.

Medicaid Postpartum Coverage

Under the American Rescue Plan Act, states had the option (via a Medicaid State Plan Amendment—a simplified pathway compared to 1,115 waivers) to extend Medicaid postpartum coverage to 12 months postpartum, with the policy sunsetting after 5 years (2027). The omnibus removed the sunset, and the state option now is permanent. However, the language does not require 12 months postpartum coverage.

Physician Well-Being

Last year, President Biden signed into law the Dr. Lorna Breen Health Care Provider Protection Act, which establishes a variety of grant programs to address mental health and well-being for healthcare providers. However, regulations under the Physician Self-Referral Law (Stark Law) and the Federal Anti-Kickback Statute prevent physicians who are part of a hospital's medical staff, but are not directly employed by the hospital, from accessing mental health programs provided by the hospital. These programs could include mental health services, counseling, suicide prevention programs, and substance use disorder treatment for healthcare providers. The omnibus provides an exception to those laws for physician wellness programs.

Telehealth

The omnibus extends the current Public Health Emergency-related telehealth flexibilities through the end of 2024. These include waivers to geographic and originating site restrictions, expansions to the list of practitioners eligible to offer telehealth services, and eligibilities for federally qualified health centers and rural health clinics that will allow for audio-only telehealth services and the recertification of a patient's eligibility for hospice care to be completed via telehealth. The omnibus also delays the in-person visit requirement before a patient receives tele-mental health services.

In addition, the omnibus extends a policy allowing individuals with certain high-deductible health plans to receive pre-deductible coverage for certain telehealth services.

Notable Exclusions

Unfortunately, the omnibus ultimately left out a handful of polices that the ACS pushed to be included in the final package. The College will continue to champion these issues in the 118th Congress.

Prior Authorization

While the House passed the Improving Seniors' Timely Access to Care Act in 2022, the omnibus does not include legislative language reflecting the bill. The legislation would bring much needed transparency

and oversight to the prior authorization process under Medicare Advantage.

ELSA

The Ensuring Lasting Smiles Act (ELSA) would require all private group and individual health plans to cover medically necessary services that repair or restore congenital anomalies. Following successful advocacy efforts, the House passed ELSA in April 2022. Since then, lawmakers have redrafted the legislation to incorporate some technical edits, with input from a broad coalition of physician and patient organizations, including the ACS. While the bill was ultimately not included in the omnibus, the ACS looks forward to continuing to advocate for final passage.

Unique Patient Identifier

The ACS maintains that the ability to accurately match patients to their health information is essential for health interoperability to advance in a safe, patient-centered manner. The omnibus excludes language that would have repealed the decades-old ban on HHS developing a unique patient identifier to link patients to their information, despite the House and Senate both eliminating the ban in draft versions of their appropriations bills multiple years in a row.

However, the report language accompanying the omnibus states that "the general provision limiting funds for actions related to promulgation or adoption of a standard providing for the assignment of a unique health identifier does not prohibit the department from examining the issues around patient matching, and urges [the Office of the National Coordinator for Health IT] to work with industry to develop matching standards that prioritize interoperability, patient safety, and patient privacy."

The ACS anticipates continued congressional and stakeholder attention to this issue.

Looking Ahead to the 118th Congress

The ACS now turns its attention to the new 118th Congress. The session begins with Democrats maintaining control of the Senate, and Republicans claiming a narrow majority in the House of Representatives. After a series of votes and internal party negotiations, Representative Kevin McCarthy (R-CA) was elected Speaker of the House and officially convened the new Congress on January 9.

The change in congressional composition has implications spanning healthcare policy. Oversight is expected to be a primary focus, with House Republicans planning to conduct hearings on the Biden Administration's handling of the COVID-19 pandemic, drug price negotiation policies, and healthcare industry security, among other topics.

Republican leadership also has pledged to limit federal government spending, meaning that the Republican House is unlikely to advance healthcare legislation without offsetting spending increases with equivalent cuts, constraining broad policy changes. However, lawmakers are expected to continue work on policy areas left unresolved at the end of the last Congress, such as prior authorization reform, advancing mental health and substance abuse care, and making permanent some of the telehealth flexibilities currently in effect through 2024.

The PAHPAI Act, which contained several important trauma advocacy provisions, will need to be re-authorized this year. The ACS looks forward to working with Congress to build upon PAHPAI and strengthen the nation's preparedness system by establishing a National Trauma and Emergency Preparedness System.

Additionally, though Congress mitigated cuts to Medicare reimbursement, physicians are still grappling with decreased payment amidst record inflation. Long-term reform to the Medicare payment system is needed, and the ACS will continue to lead efforts working with Congress to find a solution.

As always, the legislative agenda will be shaped by stakeholders, such as the ACS, as we continue our advocacy efforts. The College remains focused on growing and supporting the surgical workforce, increasing public health research funding, alleviating administrative burden, strengthening public health preparedness, and reforming the Medicare payment system in the 118th Congress.

Carrie Zlatos *is the Senior Health Policy Advisor in the ACS Division of Advocacy and Health Policy in Washington, DC.*

CALL FOR ABSTRACTS

Share your hospital's quality innovations with leading professionals at the *ACS Quality and Safety Conference*

QSC 2023

Quality and Safety Conference
July 10-13, 2023
Minneapolis, MN

How is your hospital developing and implementing continuous improvements in surgical quality and safety? How are quality improvement practices impacting patient outcomes? What lessons have you learned through your work on quality initiatives? The ACS Quality and Safety Conference is now accepting submissions for the July 10–13 meeting in Minneapolis, MN.

Submit your 250-word abstract for poster and/or podium presentation **by February 28, 2023**. Abstracts must use data from one or more ACS quality programs.

← Learn more

ACS AMERICAN COLLEGE OF SURGEONS

ACS, NDMS Deliver Record-Breaking STOP THE BLEED Training

The US Department of Health and Human Services Administration for Strategic Preparedness and Response and the National Disaster Medical System (NDMS) partnered with the ACS Committee on Trauma to deliver the largest single STOP THE BLEED® (STB) class on record.

Opposite:
Students divide into small groups to facilitate hands-on STB skills practice.

Right:
The 2022 NDMS training summit was the largest STB class on record and was taught by nurses, physicians assistants, and several ACS Fellows, including Ian Ferries, MD, FACS (back row, fifth from right) Mark Gestring, MD, FACS (back row, fourth from right), and Lewis Jacobson, MBChB, FACS (back row, third from right).

Left:
NDMS Director Michael W. Smith, MD, MBA, joins Dr. Gestring at the NDMS Training Summit.

Right:
An instructor leads an NDMS group through hands-on skills training.

IN AUGUST 2022, 675 NDMS responders were trained over four sessions in one morning at the 2022 NDMS Training Summit held at the Indianapolis Convention Center in Indiana.

This STB course was unique in both scope and design. Instructors recruited from trauma centers in and around Indianapolis worked collaboratively with the ACS to teach both didactic and hands-on STB skills to the assembled NDMS responders. It was the largest number of STB students to be fully trained at one time since the program was developed.

The collaborative method for delivering STB training was developed specifically to address the stated needs of the NDMS teams; however, the model can be adapted and modified by any organization wanting to train a larger group of students simultaneously.

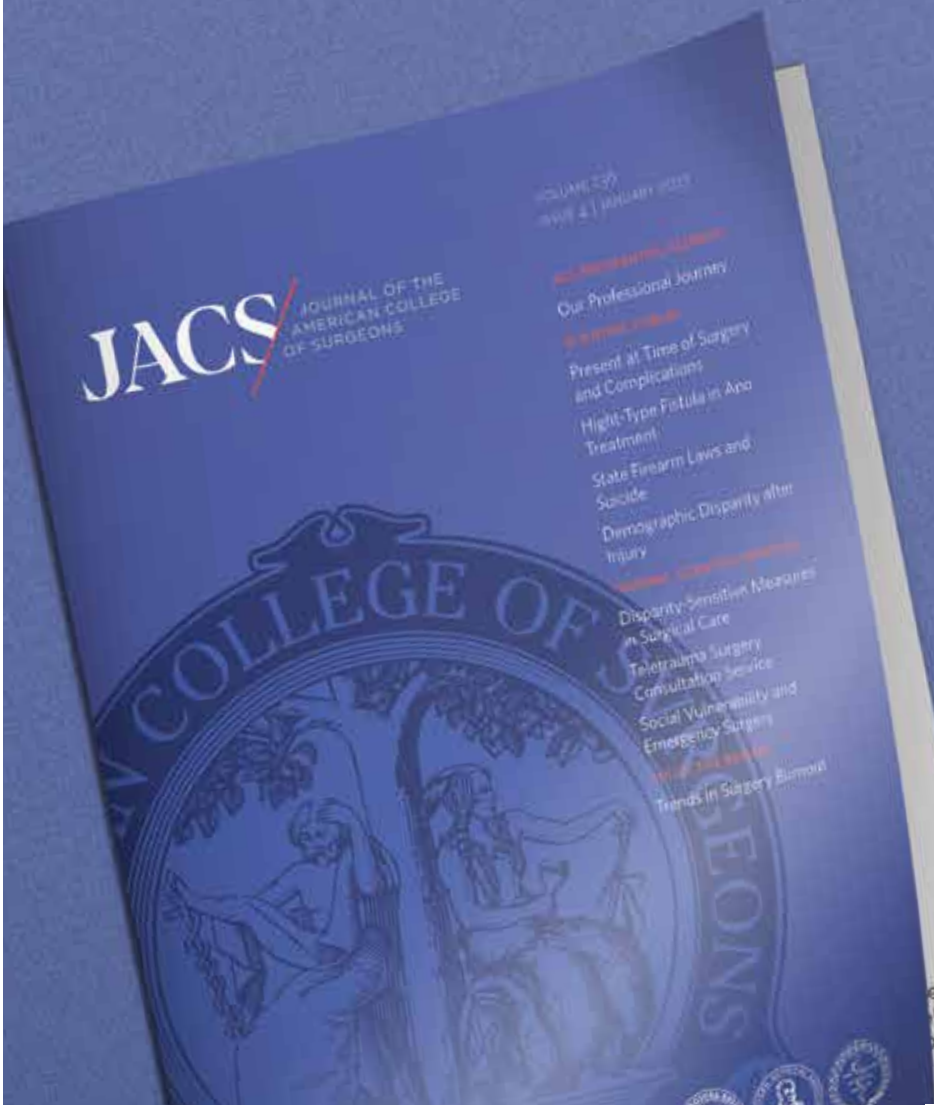
The number of instructors required for the sessions was driven by the suggested 1:10 instructor/student ratio recommended by the ACS. This ratio is important to maintain the ability of students to interact with instructors during the hands-on skills practice.

Most trauma centers offer STB training, and the pool of additional instructors in a particular region may allow for similar expansion to accommodate larger student groups. The ACS maintains lists of STB instructors and can help coordinate similar efforts.

For more information or assistance coordinating a large-scale STB course, contact stopthebleed@facs.org.

As of December 31, 2022, the ACS had trained more than 2.5 million students in STOP THE BLEED. For more information about this life-saving program, visit *stopthebleed.org.*

Top *JACS* Articles in 2022 Make Scientific Impact



AS THE JOURNAL OF THE AMERICAN COLLEGE OF SURGEONS (*JACS*) continues to foster new academic and scientific work that investigate key issues in surgery, 2022 proved to be one of the journal's most successful years to date.

The publication achieved its highest-ever impact factor of 6.532—an important metric indicating a journal's influence that measures the frequency with which the average article has been cited in a particular year.

JACS featured noteworthy research on a range of topics, including the impact of whole blood in hemorrhagic shock resuscitation, outcomes for bariatric surgery in adolescents, action and understanding of the social determinants of health, and more.

"We wish to thank the American College of Surgeons, and especially our dedicated editorial board, whose support and expertise facilitates the *JACS* tradition of publishing impactful topics that can be useful to the practicing surgeon. That is what we are seeing reflected in the top articles listed here by the various metrics," said Timothy J. Eberlein, MD, FACS, *JACS* Editor-in-Chief and Chair of the ACS Board of Regents.

Most Cited

Impact of Incorporating Whole Blood into Hemorrhagic Shock Resuscitation: Analysis of 1,377 Consecutive Trauma Patients Receiving Emergency-Release Uncrossmatched Blood Products

Efficacy of Near-Infrared Fluorescence-Guided Hepatectomy for the Detection of Colorectal Liver Metastases: A Randomized Controlled Trial

Nationwide Survey of Trauma Center Screening and Intervention Practices for Posttraumatic Stress Disorder, Firearm Violence, Mental Health, and Substance Use Disorders

Emergency General Surgery Quality Improvement: A Review of Recommended Structure and Key Issues

Role of Fibrinogen in Trauma-Induced Coagulopathy

Most Read on *journalacs.org*

Delphi Consensus on Intraoperative Technical/Surgical Aspects to Prevent Surgical Site Infection after Colorectal Surgery

Prognostic Value of Water-Soluble Contrast Challenge for Nonadhesive Small Bowel Obstruction

Association of Mesh and Fixation Options with Reoperation Risk after Laparoscopic Groin Hernia Surgery: A Swedish Hernia Registry Study of 25,190 Totally Extraperitoneal and Transabdominal Preperitoneal Repairs

Incidence and Clinical Impact of Bile Leakage after Laparoscopic and Open Liver Resection: An International Multicenter Propensity Score-Matched Study of 13,379 Patients

Effectiveness of Triclosan-Coated Sutures Compared with Uncoated Sutures in Preventing Surgical Site Infection after Abdominal Wall Closure in Open/Laparoscopic Colorectal Surgery

Top Altmetrics*

Long-Term Outcomes after Adolescent Bariatric Surgery

Demographic Disparity in Use of Telemedicine for Ambulatory General Surgical Consultation During the COVID-19 Pandemic: Analysis of the Initial Public Health Emergency and Second Phase Periods

Gap Between Understanding the Social Determinants of Health and Action Among Attending and Resident Surgeons

Multi-Institutional Quality Improvement Project to Minimize Opioid Prescribing in Children after Appendectomy Using NSQIP-Pediatric

Early vs Delayed Surgery for Esophageal Cancer During the COVID-19 Pandemic

The Altmetric Attention Score provides an indicator of the amount of attention an article has received. This example is from "Long-Term Outcomes after Adolescent Bariatric Surgery," which was highly ranked due to significant placement in media articles, social media shares, and more.

A subscription to *JACS* is a membership benefit for all active ACS Fellows, Associate Fellows, and Resident Members. Visit *JACS* online at *journalacs.org*.

*Altmetrics, or alternative metrics, are measures that take into account online reader behavior, network interactions with content, and social media.

ACS Members in the News

Dr. Tyler Hughes Is Named Dean of KU School of Medicine-Salina

Dr. Tyler Hughes

Tyler G. Hughes, MD, FACS, ACS First Vice-President-Elect, has been appointed dean of the University of Kansas (KU) School of Medicine-Salina.

Previously, Dr. Hughes was a clinical professor of surgery and director of medical education at KU. He also served as a rural surgeon in McPherson, KS, for many years.

In his new role, Dr. Hughes plans to share his passion for surgery and practicing in rural communities.

Dr. Hughes has been a longtime leader in the College, including in advocating for rural surgeons. A Fellow of the College since 1986, Dr. Hughes is Immediate-Past ACS Secretary and Editor of the ACS Communities. He was instrumental in establishing the Advisory Council for Rural Surgery and chaired the council. He also served on the Board of Governors (BoG) and was a member of the BoG Committee on Socioeconomic Issues, Communications Pillar, Continuing Education Workgroup, Newsletter Workgroup, and Surgical Volunteerism and Humanitarian Awards Workgroup. At the local level, Dr. Hughes is Past-President of the ACS Kansas Chapter (2006–2007) and Past-Chair of the Kansas Credentials Committee.

Dr. Kenneth Sharp Takes Over as SSA President

Dr. V. Suzanne Klimberg, MD, PhD, MSHCT, FACS (right), passes the SSA gavel to incoming president Dr. Kenneth Sharp.

ACS Regent Kenneth W. Sharp, MD, FACS, professor of surgery in the Department of Surgery at Vanderbilt University Medical Center (VUMC) in Nashville, TN, was named president of the Southern Surgical Association (SSA).

Dr. Sharp joined VUMC in 1984 and served as chief of the Division of General Surgery from 1995 to 2011. He is vice-chair of faculty promotion and development for the Section of Surgical Sciences and chair of the section's promotion committee.

For the ACS, Dr. Sharp has served in various leadership roles. He has been a Regent since 2018, participating in the regental Bylaws, Anti-Racism, and Member Services Liaison Committees. He previously was a Governor (2000–2006), and currently is a member of the Clinical Congress Program Committee. In addition, Dr. Sharp has been on the ACS Foundation Board of Directors and Advisory Council for General Surgery. At the local level, Dr. Sharp is a Past-President for the ACS Tennessee Chapter.

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

Dr. Ivar Mendez Is Appointed to the Order of Canada

Dr. Ivar Mendez

Ivar Mendez, MD, PhD, FACS, FRCSC, was appointed to the Order of Canada by Mary Simon, the governor general of Canada. According to the citation, Dr. Mendez received the honor "for his pioneering work in the use of remote telemedicine and robotics to revolutionize the delivery of health and patient care in Canada and worldwide."

A former ACS Governor for Saskatchewan, he is an internationally recognized expert in the field of functional neurosurgery, brain repair, stem cells, robotic neurosurgery, and computerized systems in neurosurgical applications. In 2002, Dr. Mendez and his team performed the first long-distance telementoring neurosurgery in the world and, in 2013, he reported the first experience in remote programming for neuromodulation devices.

Dr. Mendez is the Fred H. Wigmore Professor and provincial head of the Department of Surgery at the University of Saskatchewan and Saskatchewan Health Authority in Saskatoon.

The Order of Canada is one of the country's highest honors, recognizing individuals from across all sectors of society who have made extraordinary and sustained contributions to Canada.

Dr. Robert Uzzo Is New President, CEO of Fox Chase Cancer Center

Dr. Robert Uzzo

Robert Uzzo, MD, MBA, FACS, was named president and CEO of Fox Chase Cancer Center in Philadelphia, PA, following a period of interim leadership. In addition, Dr. Uzzo assumes the roles of executive vice-president of cancer services for Temple University Health System and senior associate dean of clinical cancer research at the Lewis Katz School of Medicine at Temple, also in Philadelphia. Along with these new roles, he remains the G. Willing "Wing" Pepper Chair in Cancer Research.

In the year leading to his formal appointment, Dr. Uzzo's leadership advanced Fox Chase's clinical, operational, research, and financial performance. As interim CEO, he and his management teams led Fox Chase to double-digit increases in new patient volumes, setting the institution on track for the highest number of new patient visits, operating room cases, and radiation starts in its more-than 100-year history.

Dr. Surennaidoo Naiken Receives Highest Ukrainian Honor for Humanitarian Work

Dr. Surennaidoo Naiken

Volodymyr Zelenskyy, President of Ukraine, awarded the Order of Prince Yaroslav the Wise, V Degree, to Surennaidoo P. Naiken, MD, FACS, FEBS, for his philanthropic work in lending aid to healthcare institutions in Ukraine during the ongoing Russian invasion. This distinction is the highest order that Ukraine awards foreign citizens for outstanding charitable, humanistic, and public activities.

Dr. Naiken is the founding president of Humanitarian for Empowerment, which has worked closely with the Ukrainian Deputy Minister of Health to coordinate shipments of medical supplies to the war-torn country and helped in the reconstruction and modernization of healthcare facilities in Ukraine. With the leadership of Dr. Naiken, Humanitarian for Empowerment has entered a formal collaboration with the Permanent Mission of Ukraine in Geneva, Switzerland, to develop better and safer care for patients in hospitals.

Prof. Bello Bala Shehu Becomes President of CAANS

Bello Bala Shehu, MBBS, FACS, recently was elected president of the Continental Association of African Neurosurgical Societies (CAANS).

Dr. Shehu is an ACS Fellow, as well as a fellow in the West African College of Surgery, Royal College of Surgeons in Ireland, and National Postgraduate Medical College of Nigeria. He also has served as the chief medical director of National Hospital in Abuja, Nigeria, Usmanu Danfodiyo University Teaching Hospital in Sokoto, Nigeria, and Federal Medical Centre in Birnin Kebbi, Nigeria.

CAANS is one of the five Continental Associations of the World Federation of Neurosurgical Societies, which includes the American Association of Neurological Surgeons.

Dr. Bartlomiej Nierzwicki Joins Illinois State Medical Board

Bartlomiej L. Nierzwicki, MD, FACS, an oral and maxillofacial surgeon in Chicago, IL, recently was appointed as a member of the restructured Illinois State Medical Board.

Dr. Nierzwicki has operated his own practice in Chicago for more than 20 years. He also is a clinical instructor of oral and maxillofacial surgery at Advocate Christ Medical Center in Oak Lawn, IL. In addition to being an ACS Fellow, Dr. Nierzwicki is a fellow with the American Association of Oral and Maxillofacial Surgeons, International Association of Oral and Maxillofacial Surgeons, and American Dental Society of Anesthesiology.

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AMERICAN COLLEGE OF SURGEONS

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Saturday, April 15 – Tuesday, April 18
Grand Hyatt, Washington, DC

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ADVOCACY SUMMIT

Open to US/domestic ACS members only, the Advocacy Summit offers attendees the opportunity to develop their advocacy skills, learn more about ACS legislative and health policy priorities, and engage with members of Congress and their staffs.

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