

JUNE 2024 / VOLUME 109 / NUMBER 6

# ACS/Bulletin

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## Children Are at Heart of New Recommendations

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# Vascular Surgery at the ACS

Patricia L. Turner, MD, MBA, FACS

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WE ARE THE House of Surgery, and our strength as an organization and our value to each member are enhanced when we unite all surgeons to advance our profession.

A crucial part of that unity comes from our collaborations with other surgical societies. Through these collaborations, we can achieve more than any one organization can alone.

A powerful example is in vascular surgery and our Vascular Verification Program (Vascular-VP). The Vascular-

VP is a national program focused on vascular surgical and interventional care. It is an evidence-based, standardized pathway for improving clinical care infrastructure and quality programs within a healthcare organization's vascular services.

The Vascular-VP is one of the newest ACS Quality Programs. We launched it in March 2023 for inpatient programs and September 2023 for outpatient programs. Already, there have been successes: in June 2023, we verified our first four hospitals; in January 2024, our first three outpatient centers.

This would be less feasible if not for our connection to many vascular surgeons who have relationships with the Society of Vascular Surgery (SVS). **Anton N. Sidawy**, MD, MPH, FACS, the Lewis B. Saltz Chair of the Department of Surgery at the George Washington University in Washington, DC, is a current ACS Regent and SVS past-president. He engaged with both sides of the collaboration to create the Vascular-VP. "A marriage made in heaven," he likes to call it.

Indeed, both organizations were essential. The SVS brought subject matter expertise in vascular surgery necessary to create the practice guidelines on which the verification process is based. The ACS has been investing in quality improvement for more than a century, has experience creating multiple verification programs in recent years, and has a resulting well-developed infrastructure supported by robust programmatic knowledge.

The work of our Quality Programs is particularly important as healthcare shifts from fee-for-service to quality-driven payment models. Quality verification processes can help improve patient outcomes, reduce complications, and enhance revenue, which can aid organizational stability. The Vascular-VP is part of our ongoing Power of Quality campaign, which seeks to bring evidence-based ACS Quality Programs to every US hospital, surgeon, and patient.

The importance of vascular surgeons to the ACS does not



begin or end with a single program. Indeed, of the 4,318 vascular surgeons in the US (per Association of American Medical Colleges data from late 2022), 1,721 (40%) are current ACS members. Worldwide, 2,658 vascular surgeons are members.

All specialties are represented within the ACS by one of the 14 Advisory Councils focused on the unique needs of that discipline. Dr. Sidawy, Chair **Dawn Marie Coleman**, MD, FACS, and others contribute to the Advisory Council on Vascular Surgery. The group has helped shape our Basic Endovascular Skills in Trauma course, among other educational offerings. This course provides instruction on life-saving endovascular techniques (e.g., resuscitative endovascular balloon occlusion of the aorta) to trauma surgeons.

Vascular surgeons contribute to Clinical Congress each year as well. In 2023, panels addressed topics ranging from pediatric vascular injury to dialysis access to inferior vena cava tumors. In 2024, we anticipate a robust range of presentations.

Many other vascular surgeons are leaders of the ACS. In addition to Dr. Sidawy, who served as the 2021–2022 Chair of the Board of Regents, **Julie A. Freischlag**, MD, FACS, is an ACS Past-President (2021–2022). Dr. Freischlag is a vascular surgeon and CEO of Atrium Health Wake Forest Baptist, executive vice president for health affairs at Wake Forest

University, and dean of Wake Forest School of Medicine in Winston-Salem, North Carolina.

Vascular surgeon **Girma Tefera**, MD, FACS, is vice chair of global surgery at the University of Wisconsin-Madison and Medical Director of ACS Health Outreach Program for Equity in Global Surgery (H.O.P.E.), our global surgery initiative. As part of his work in that role, he has established consortia of US-based academic surgeons to collaborate with surgeons in Ethiopia, Rwanda, and Zambia. These efforts include education on minimally invasive surgical techniques.

The ranks of ACS Fellows also include many innovators in vascular surgery such as **Thomas J. Fogarty**, MD, FACS, well-known as the inventor of the Fogarty catheter, and **Edward Diethrich**, MD, FACS (1935–2017), a pioneer of the minimally invasive techniques that underpin endovascular surgery.

Finally, **Julius Jacobson**, MD, FACS (1927–2022), sometimes called the “father of microvascular surgery,” is the namesake philanthropist of the ACS Jacobson Innovation Award, which rewards lifetime achievement by a surgeon-researcher, and the Jacobson Promising Investigator Award, which supports an early career surgeon-scientist. Although established by a vascular surgeon and sometimes awarded to vascular surgeons (including, in the case of the Jacobson Innovation Award, Dr. Fogarty,

**Juan C. Parodi**, MD, FACS, **Lazar Greenfield**, MD, FACS, and **Timothy A. M. Chuter**, BM BS, DM, FACS), both awards are available to innovative surgeon-scientists of all kinds. They are a highlight of the generosity, enthusiasm for innovation, and spirit of service we find in ACS members in all surgical specialties.

## Residents Can Join for Free

Residents in a vascular training program or any other surgical specialty can take advantage of our free resident dues pilot program. Learn more at [facs.org/for-medical-professionals/membership-community/membership-benefits/](https://facs.org/for-medical-professionals/membership-community/membership-benefits/).

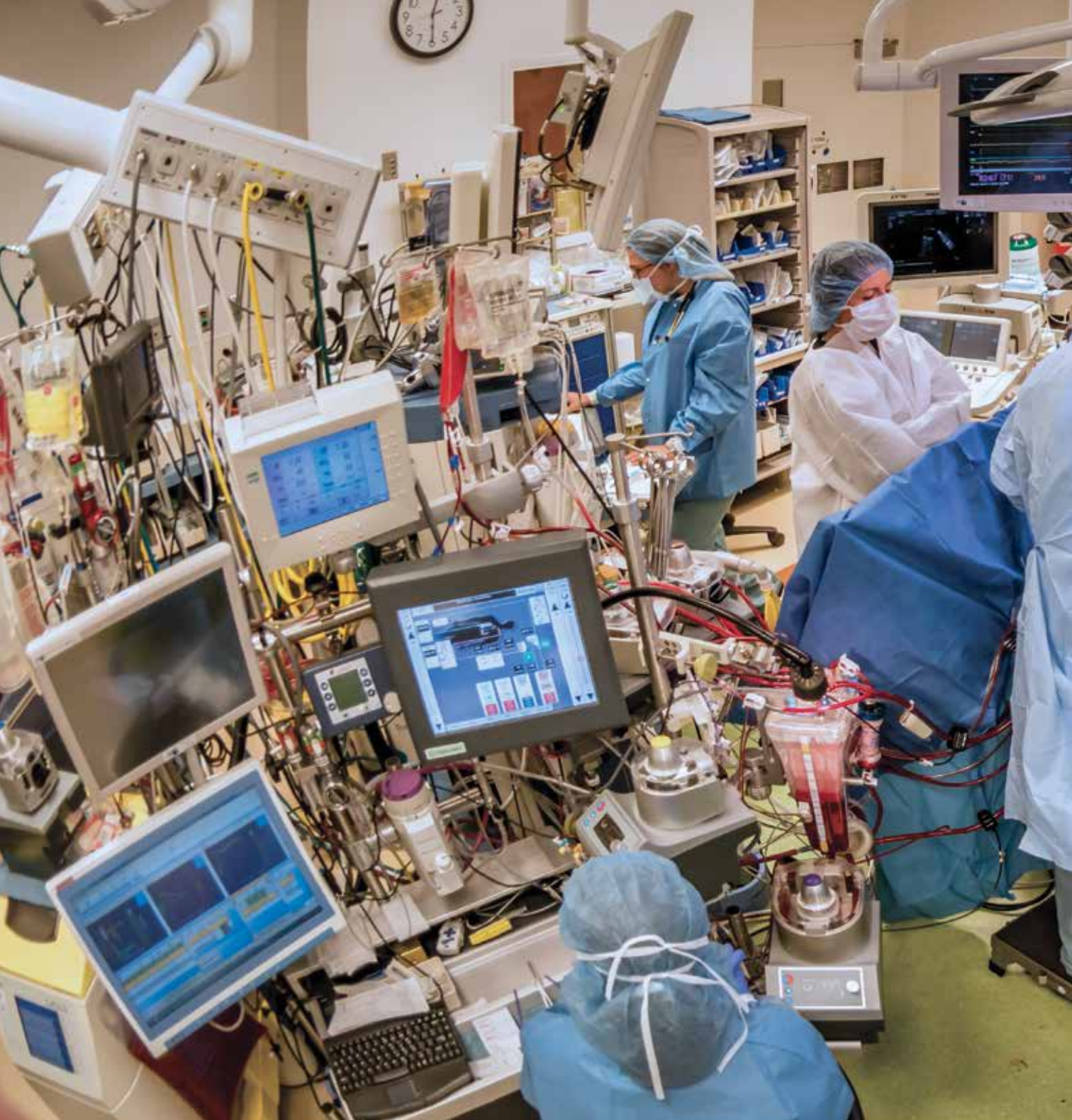
## Learn about the Vascular-VP

If you are a vascular surgeon interested in knowing more about the Vascular-VP, please visit [facs.org/vascular](https://facs.org/vascular) or email [vascular@facs.org](mailto:vascular@facs.org).

## Join Us at QSC

From July 18 to 21, we will meet in Denver, Colorado, for our annual Quality and Safety Conference (QSC). Sessions on enhancing quality and ensuring patient safety in healthcare settings will include ones on the Vascular-VP. Register at [facs.org/qsc2024](https://facs.org/qsc2024). **B**

**Dr. Patricia Turner** is the Executive Director & CEO of the American College of Surgeons. Contact her at [executivedirector@facs.org](mailto:executivedirector@facs.org).



# Children Are at Heart of New Surgical Practice Recommendations

Tony Peregrin



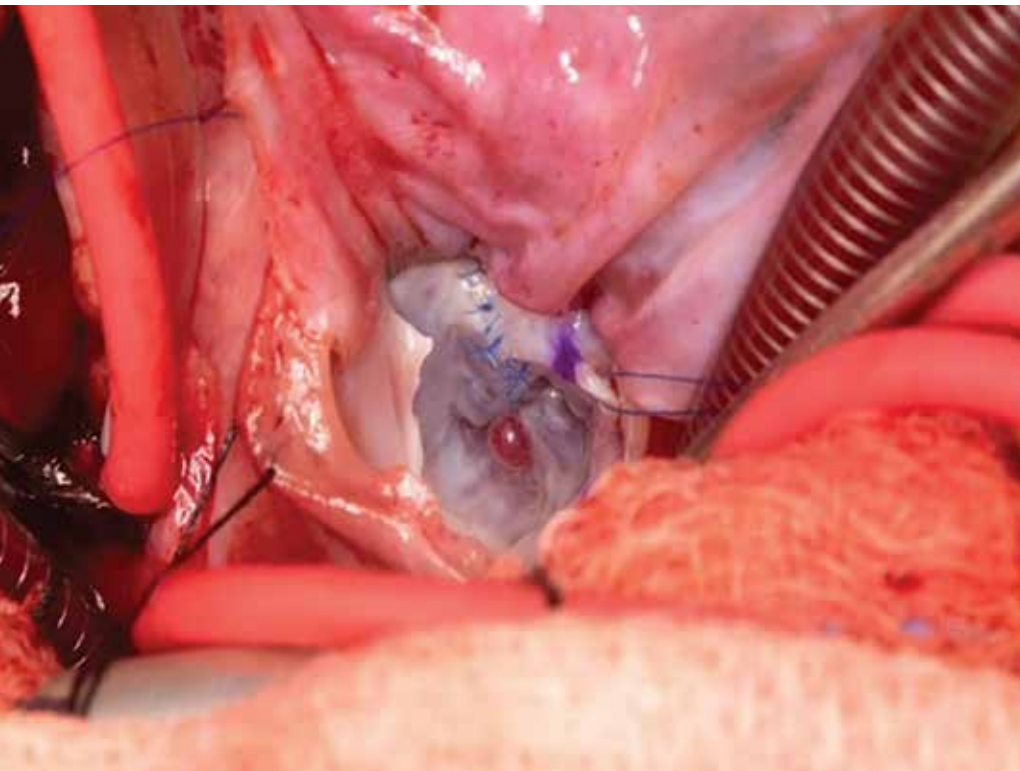
AN UNPRECEDENTED collaborative effort—featuring the expertise of pediatric and congenital cardiothoracic surgeons, intensive care physicians, anesthesiologists, and nurses—has produced a document that provides guidance to improve the outcomes of pediatric heart surgery in the US.<sup>1,2</sup>

Developed under the leadership of the Congenital Heart Surgeons’ Society (CHSS) in tandem with 15 preeminent medical and surgical societies, the “Recommendations for Centers Performing Pediatric Heart Surgery in the United States” addresses integral components of care for this

vulnerable patient population, including resources, personnel, surgical volume, structure, and outcome metrics.

“This initiative was a true team sport,” said Ram Kumar Subramanyan, MD, PhD, FACS, coauthor of the guidelines and chief of pediatric cardiac

Dr. Carl Backer (back to the camera) performs a pediatric heart transplantation.



Above and opposite page: These intraoperative photos show a repaired left atrioventricular valve, which was part of a complete repair of an atrioventricular septal defect.

surgery at Children’s Nebraska in Omaha. “We’ve gone above and beyond to ensure that all relevant stakeholders participated in generating these recommendations.”

While best practices for other areas of pediatrics are produced more frequently, recommendations for optimizing high-quality care for children undergoing heart surgery have not been published in the US for more than 20 years.<sup>1</sup>

“These recommendations are based on expert understanding and nuanced interpretation of available data,” added Dr. Subramanian. “Therefore, we felt that they better fit the description of ‘recommendations’ rather than the more strict ‘guidelines’ that are required for standards.”

### **Why Are Recommendations Necessary?**

Advances in operative procedures and technology are linked to improved outcomes for pediatric

heart surgery patients in recent years, with overall postoperative mortality now less than 3%.<sup>1,3</sup> For more complex cases, however, early mortality remains as high as 10% to 15%, with nearly one-third of patients experiencing a major complication, according to data cited in the recommendations.

Another factor that led to the development of these recommendations is the wide variability that exists across hospitals related to how care is provided, including variances in staffing, resource allocation, and perioperative care practices. In other words, two pediatric patients afflicted with the same heart defect may experience differing outcomes depending on the center.

“There’s a significant variation in outcomes in the US,” said Carl L. Backer, MD, FACS, lead author of the recommendations document, past-president of the CHSS, and chief of pediatric cardiac surgery for the Joint Pediatric and Congenital Heart

Program between Kentucky Children’s Hospital in Lexington and Cincinnati Children’s Hospital Medical Center in Ohio. “Our thoughts were that if there are a number of centers that have excellent results, why can’t we translate what they are doing that makes them so successful and incorporate that into other programs so that we have more uniform outcomes.”

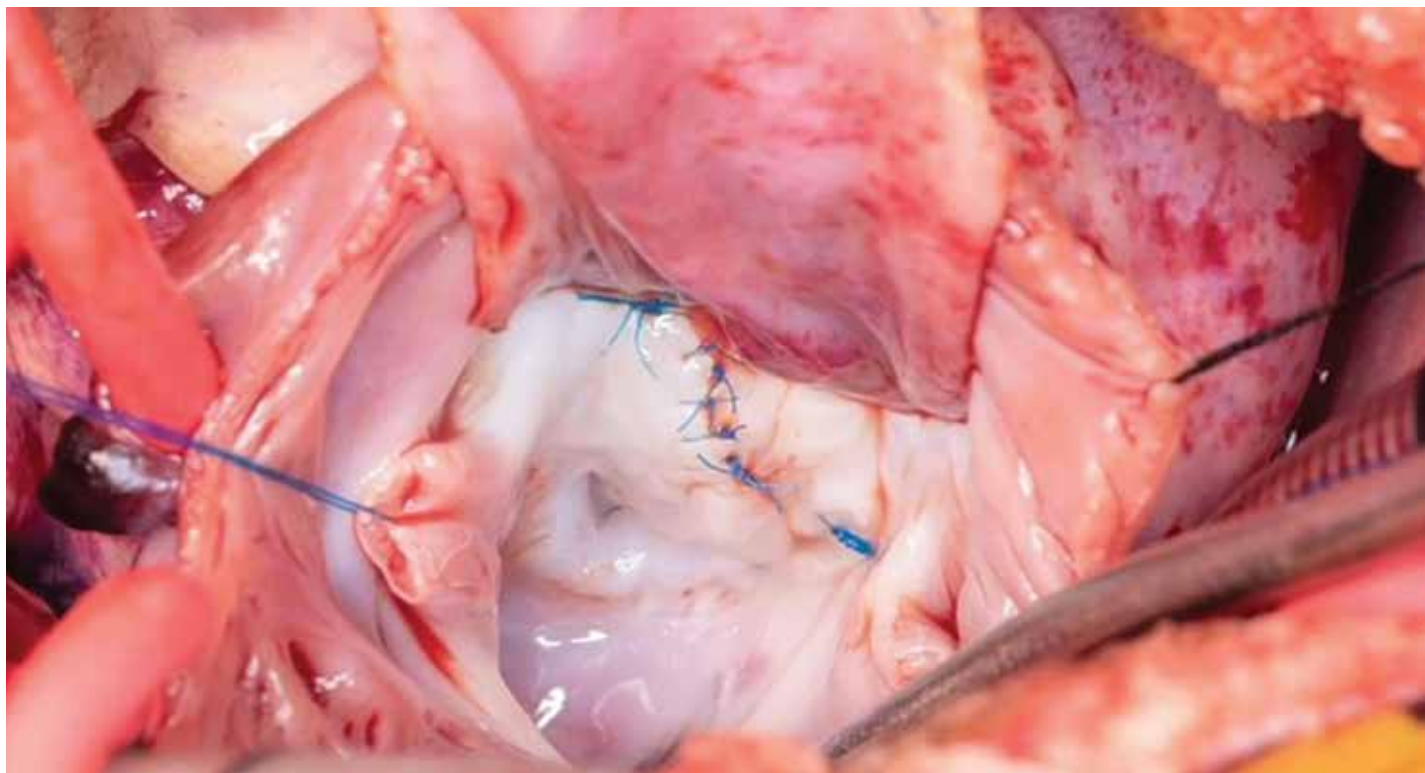
The recommendations are part of an expert consensus statement—co-published in 2023 by *The Annals of Thoracic Surgery*, *World Journal for Pediatric and Congenital Heart Surgery*, and *The Journal of Thoracic and Cardiovascular Surgery*—and provide a blueprint of best practices to help address the quality and consistency challenges many centers face.

“We have a sacred responsibility to lead the discipline to pursue transparent and penetrating analysis of what it does,” said David M. Overman, MD, FACS, chief of cardiovascular surgery at Children’s Minnesota in Minneapolis and current CHSS president.

More than 40,000 patients undergo pediatric and congenital heart surgery in the US each year, with care and outcomes varying widely.

### **Two-Tier System**

The new guidance is offered in two tiers; within each tier, recommendations are related to structure (physical



facilities, staffing, technology), processes, and outcome metrics spanning 14 domains: heart surgery program, heart center, hospital, acute care, anesthesia, cardiac intensive care unit, catheterization, electrophysiology, heart failure, imaging, longitudinal follow-up, perfusion, quality and safety, and transplant.<sup>1</sup>

The first tier is composed of Essential Care Centers that provide essential services necessary for any program and are fully equipped to manage the majority of standard cases. A minimum of 75 index cases per year is recommended for each center in this tier, which is the minimum number of cases required by the American Board of Thoracic Surgery for initial board certification. A minimum of two surgeons for facilities in this category also is suggested.

“When several centers over the past few years were featured prominently in the newspapers for poor outcomes, one of the problems was that they were single-surgeon centers,” said Dr. Backer.

“It is extremely difficult for a single surgeon to be on call 24-7, 365 days a year and provide continuous high-quality pediatric cardiac surgical care.”

The second tier consists of Comprehensive Care Centers, which are defined as facilities that can provide comprehensive high-complexity care, including neonatal open-heart surgery, ventricular assist devices, and in most centers pediatric heart transplantation.<sup>1</sup> It is recommended that each center at this level should perform a minimum of 200 index pediatric heart surgeries per year. The guidelines also suggest Comprehensive Care Centers have three or more surgeons in order to provide adequate coverage, along with other requirements.

Both types of centers are categorized, in part, by patient volume based on recent data from The Society of Thoracic Surgeons (STS) Congenital Heart Surgery Database. According to the recommendations document,

the most recent analysis of STS data from 2017 to 2020, spanning 101 centers and more than 76,000 operations, “showed a significant volume-outcome relationship for both operative mortality and failure to rescue.”<sup>1</sup>

“There was a clear transition zone at 190 cases per year, below which there was a sustained uptick in the odds of mortality, a relationship that was most prominent for high-complexity cases,” explained Dr. Backer.

However, it is important to note that volume is only one of 300 separate criteria used to establish these tiers, and none of these factors should be prioritized over others. In fact, the authors specify that certain lower-volume centers may meet all the other recommended structure, process, and outcome criteria regarding Comprehensive Care Centers, aside from volume, and may still be classified as such.

“The paper clearly notes that small-volume programs can have outstanding outcomes,”



Access related video content online.



said Dr. Subramanian. “We recognize that the optics of volume will always rise up to the top, but nowhere in this recommendation statement do we say that the volume should be the sole criterion, or more importantly, that a low-volume program means poor outcomes. That is not the case, and it is stated very clearly in the document.”

According to Dr. Overman, based on volume criteria alone, there would be only seven states in the US that currently have one or more pediatric heart surgery programs that would not have a Comprehensive Care Center. Five of these states are less populated but do have one existing program serving the state. These programs would be encouraged to meet all of the other criteria for a Comprehensive Care Center and receive a “volume exemption.” Currently, eight less-populated states do not have a pediatric heart surgery program.

“We’re not out to extinguish programs based on volume—that’s not the point,” said Dr. Overman. “The point is to raise the bar to optimize structure and homogenize the environment so that patients and families know their loved one is safe.”

Factors that will help drive this uniformity include access to round-the-clock care. Both Essential and Comprehensive Care Centers are strongly encouraged to have a congenital cardiac surgeon available 24 hours a day, every day of the year, with the ability to arrive at the hospital within 60 minutes (ideally

30 minutes in most geographic locations) of being called.

The recommendations also suggest both center categories have a dedicated pediatric cardiac operating room with cardiopulmonary bypass capabilities and a pediatric cardiac operating room team that includes, at the minimum, a pediatric perfusion team, pediatric cardiac anesthesia team, scrub nurse/technician, circulator, surgeon and assistant, and a pediatric cardiologist to perform and interpret transesophageal and/or transthoracic and epicardial echocardiograms when needed.

### **Collaboration Across Center Types**

Essential and Comprehensive Care Centers are advised to establish paired alliances in order to cultivate collaboration and, in some cases, patient transfer. The recommendations suggest all Essential Care Centers have a relationship with one or more Comprehensive Care Centers that includes a written document outlining the details of the arrangement. According to the recommendations, these pairings should feature “collaborative processes and bidirectional sharing of information related to case discussion and planning, sharing of care protocols, and collaborative quality improvement.”

“A perfect example of how this is meant to work is the Joint Pediatric and Congenital Heart

Program between Cincinnati Children’s Hospital Medical Center and Kentucky Children’s Hospital,” said Dr. Backer. “We have an Essential Care Center at Kentucky Children’s Hospital, which does all of the basic cases with dedicated resources to ensure good results for the majority of children living in our geographic area. In addition, we have a very defined relationship with Cincinnati Children’s Hospital, which is a Comprehensive Care Center that does neonatal open heart surgery, pediatric heart and lung transplants, ventricular assist device placement, and other complex procedures requiring specialized areas of expertise. We have the ability to tap into their knowledge for these unique cases on a 24/7 basis.”

Examples of these paired relationships include the Mayo Clinic and Children’s Minnesota and Columbia University Irving Medical Center and Weill Cornell Medicine in New York.

“These relationships are perhaps the most important attribute, developmentally, for the discipline going forward,” observed Dr. Overman. “This approach, this collaboration of care, is a way to broaden the bench horizontally and vertically in terms of knowledge, case volume, and so on.”

Other than sharing best practices protocols and collaborating on rare or complex cases, the recommendations refrain from outlining specific



details on how the relationship between Essential and Comprehensive Care Centers should function.

“We leave this relationship up to the individual institutions—and that is how it should be,” added Dr. Overman. “If you get overly prescriptive about this, it won’t work because each locality has different strengths and different challenges.”

### **How Were the Recommendations Developed?**

CHSS leaders, under the initial guidance of the late James S. Tweddell, MD, FACS, formed what would eventually become a 32-member committee in 2019, with the aim of producing updated recommendations for pediatric heart surgery in the US.

The committee, with representatives from surgery

and cardiology disciplines and related fields, began meeting in March 2021 via a videoconference platform every other week. Initially, the committee reviewed current care delivery and outcomes, pediatric heart surgery guidelines developed internationally, and standards generated by other related relevant practice areas, including pediatric surgery, neonatal intensive care, and adult cardiac surgery.

Part of the committee’s review process focused on the *Optimal Resources for Children’s Surgical Care*, published by the ACS, which is a standards document outlining quality improvement and safety processes, data collection, and a verification process to certify children’s surgery programs.

“This resource played a very important role,” explained

Dr. Subramanian. “First of all, in principle, it told us that a precedent existed for us to be able to appropriately oversee the way we provide care. It is where we got the idea of being a multidisciplinary group.”

The complexities associated with pediatric heart surgery cases necessitate a multidisciplinary approach to ensure all the components of these fragile patients’ care are covered.

“Long gone are siloed specialties and visiting the bedside in a series and then later talking to each other,” said Dr. Overman. “It is not possible anymore for one individual provider or one individual discipline to have the line of sight on appropriate decisions and reactions to the developments that happen along the way in a patient’s perioperative course.”

Part of this team-based approach to congenital heart surgical care

Dr. David Overman (right) assists Elizabeth H. Stephens, MD, PhD (left) with a cardiac surgery on a pediatric patient via the Mayo Clinic–Children’s Minnesota Cardiovascular Collaborative.

for children now—perhaps more than ever before—includes the perspectives of parents and families.

“The culture has changed to the point where most pediatric hospitals are now family-centered care, which means parents are actually in the multidisciplinary clinical rounds when we’re caring for the children,” said Dr. Subramanian. “So, parents are not just becoming more knowledgeable, they’re becoming more involved, and now they’re more willing to voice their opinion.”

In developing the recommendations, the committee solicited input from several parent/patient advocacy groups, including the Children’s Hospital Association (CHA), which represents more than 220 US children’s hospitals. According to Dr. Backer, the CHA’s response to the completed document included the following observation: “Your efforts have great promise for our continued improvement as a national pediatric community.”

Beyond carefully vetted, evidence-based recommendations, parents generally seem most interested in simply having honest and meaningful conversations with their surgical team regarding the center’s capability to provide care.

“In all the conversations I have with families, two things rise to the top,” said Dr. Subramanian. “Is this institution safe? Are they transparent in giving me the information that I need? Because if those two criteria are not met, parents are willing to uproot

their families, change their lives, and go where they will receive transparent information and safe care for their child. It is our responsibility to give them what they want.”

### What Are Next Steps?

Future efforts for these recommendations will include an analysis of clinical outcomes and an ongoing refinement of this consensus document based on clinician and patient feedback. The committee may also consider developing a review process for a certification program.

“The first step was to roll out the recommendations, which have been endorsed by the most important societies in congenital heart surgery,” said Dr. Backer. “At some point in the future, we are moving toward a paradigm where the CHSS would be the body that would review and certify programs.”

While the broader implications of these guidelines are yet to be determined, this document may be used today to help bolster conversations between surgeon and cardiology leaders and hospital administrators regarding allocation of resources. “These recommendations provide another tool in our armamentarium to have successful negotiations among peers outside of surgery and with hospital administrators,” observed Dr. Subramanian.

Ultimately, the goal of these recommendations is to improve the outcomes of congenital heart

surgery care provided to the youngest and most vulnerable of patients, and to alleviate any confusion for families regarding the safe, quality surgical care their children are receiving. **B**

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**Survive?**

M. Sophia Newman, MPH

## Over the past 4 decades, the percentage of surgeons in private practice has drifted downward.

ALTHOUGH THREE-QUARTERS of surgeons owned small business practices in the 1980s, a recent survey showed that, as of 2022, they have become a minority among surgeons (44%).<sup>1</sup>

A separate study<sup>2</sup> released in 2024 found that 127,700 US physicians (in all specialties) had moved from private practice into hospital or corporate employment in the past 5 years (2019 to 2024).

In part, the change is related to a surge in activity by private equity firms, which buy and manage businesses before selling them for profit. Purchases of surgical and other medical practices by these firms rose from 75 in 2012 to 484 in 2021.<sup>3</sup> The trend is associated with market consolidation, increases in the cost of care, and reductions in care quality and patient safety<sup>3</sup>—and it is not entirely clear what

will happen when private equity firms, which use a profit model based on selling investments, exit healthcare in the areas in which they now control significant stakes.

However, the shift toward private equity can be seen as a mere symptom of private practice's malaise. This is in part because it began only after surgeon self-employment began to decline and in part because surgeons' willingness to sell to investment firms reflects the challenges that prevent them from continuing to operate independently.

What are those challenges? Why is private practice less popular than it once was? Is there a way to address surgeons' concerns so that private practice can continue, or is its end in sight?

### How Private Practice Differs from Employment

Important differences between private surgical practice and employment exist. Some of these variations make clear why a surgeon might choose self-employment. Private-practice physicians often cite flexibility and control over their work schedules and patterns as a key benefit to private practice.<sup>4-6</sup> In addition, many highly value their ability to maximize their accessibility to patients, provide continuity of care, and establish close relationships with patients and the surrounding community<sup>5,6</sup>—all of which they perceive to be compromised by the ways surgery is practiced within larger healthcare corporations.

Some studies also have shown superior quality of care and

higher income levels<sup>4</sup> in private practice compared to employment models; one study<sup>7</sup> from 2018 found that, at that point, full professors in vascular and cardiothoracic surgery earned 16% and 14% less, respectively, than private practitioners in those specialties.

But owning and operating a small business also comes with unique demands. Surgeons in private practice, particularly those practicing solo or in small groups, face considerable uncertainty. If the potential earnings may be high, it also is possible for the salary of a self-employed surgeon to vary considerably—and many would contend that the findings of higher income, if once true, are no longer reliably so.

While income is uncertain, there is a guarantee of administrative work: human resources, nonclinical record-keeping, and financial tasks that in an employment environment would be largely left to other staff members. These tasks can include sharing market knowledge and business strategy, hiring and firing employees, and negotiating with insurance companies.<sup>5</sup>

### Getting Paid

Negotiations with payers can be especially tricky. Numerous factors influence rates of payment to private practices.<sup>5</sup> These include the penetration of health maintenance organization and preferred provider organization insurance types in a given locale, as these plans tend to flourish only where healthcare provider competition is high enough to crowd out most opportunities for private practice; the concentration of the health insurance market with

one large insurer, which reduces chances for private practice surgeons to negotiate pay rates; and the population of surgeons in a given area, which is another measure of competition.

Whatever the conditions, a 2019 ACS primer for surgeons in private and small-business practice notes that “private practices are often at a disadvantage in these negotiations unless they offer some unique service, due to comparatively low patient volume relative to larger facilities.”<sup>5</sup>

To some surgeons, the challenge of getting paid can be critical. David J. Welsh, MD, MBA, FACS, who practices general surgery in Batesville, Indiana, and is a member of the ACS Board of Regents, has been in private practice since 1989. He recalled revelations about reimbursement he had while sorting paper medical records for archival and disposal.

“I started looking at these things, and this was even prior to electronic health records, so there was even billing information,” said Dr. Welsh. “Seeing what I was paid for the same procedure 10, 15, 20 years ago, it’s much reduced. They’re paying less for the same thing.”

Richard J. Harding, MD, FACS, an endocrine-focused general surgeon at Arizona Advanced Surgery, in Phoenix, had the same observation. At a Town Hall meeting at Clinical Congress 2023, Dr. Harding described increasing economic pressures that reduced his annual pay by approximately \$100,000, although he completed an unchanging number of relative value units.

Separately, he verified that the decline was related to reduced

insurance reimbursements and added more detail. “My salary is the same as it was 3 years after I got out of my surgical training 28 years ago,” explained Dr. Harding. “So, I have not seen an increase in my income in 20 or more years, which means, when you factor in the cost-of-living adjustment, that’s like getting a 25% to 30% decrease of salary; they pay you less and less.”

This shift makes entering private practice—as opposed to maintaining one—even more challenging. Terah Isaacson, MD, FACS, a general and colorectal surgeon who owns Bayou City Surgical Specialists, PLLC, in Houston, Texas, finished a surgical fellowship in 2012, and entered a 4-year period of practicing in locum tenens, including about a year in a private practice. Interested in the flexibility of self-employment, she then sought a path into owning a practice.

“The reimbursements just weren’t there,” she said. “I had some people kind of laugh at me. A representative from one of the health plans was like, ‘Oh, that’s nice. You’re making a private practice.’ Most of these plans were giving individual surgeons less than Medicare rates,” an option incompatible with keeping revenue greater than costs.

### Prior Authorization and Coding Pitfalls

The issues extend past poor pay rates. Dr. Welsh explained, “A lot of it has to do with the overburdening of rules and regulations—people making you jump through extra hoops you didn’t have to jump through before.”

He cited the rise of prior authorization as a burden that particularly hits surgeons in self-

employment. Prior authorization is a payer's requirement for a clinician to obtain approval for a procedure before providing it to the patient, to ensure insurance will cover the bill.

At its inception decades ago, the obligation was largely confined to particularly expensive new technologies. Over time, insurers have expanded prior authorization to many diagnoses and treatments—including, Dr. Welsh noted, upper endoscopies and generic drugs.

Dr. Harding said the requirement has created a significant administrative burden that cuts into his surgical group's already narrowing profit margins. "We've actually had to set up a whole department within our group to do this with people who are specialized in prior authorization," to ensure payment in advance of procedures, avoid authorization-related delays,

and limit negative impacts on patients' health.

Similarly, pitfalls in billing and coding can compromise the viability of private practice. Drs. Welsh and Isaacson both noted coding and billing as increasingly tricky. Dr. Harding explained, "My group, for instance, has seen a half a million dollar decrease in revenue since they changed the hernia codes last year. Even though the doctors actually increased the number of hernias that they operated on, they still make considerably less money, as much as \$60,000 to \$80,000 per person."

### **Dwindling Pool**

While these issues affect a self-employed surgeon's ability to remain in private practice, a lack of interest in joining private practice likely contributes to the decline of this part of the surgical workforce.

A study<sup>4</sup> in 2005 suggested the problem might be solvable in medical education. The study found a program to bring medical students in contact with private practice surgeons through brief preceptorships received positive ratings from nearly all its 107 participants, with many calling private practice "pleasant" and 9% reporting the experience had led them to consider a career in surgery.

But in the 20 years since that study was conducted, barriers to entering private practice may have deepened beyond what mere familiarity can resolve. Although there is a surfeit of retiring surgeons now exiting private practice,<sup>8</sup> thus increasing the chances that a private practice will be available to purchase, the younger generation faces ever-deepening student debt<sup>9</sup> and surgical training out of sync with self-employment's high degree

**"My group, for instance, has seen a half a million dollar decrease in revenue since they changed the hernia codes last year."**

Dr. Richard Harding





## Advice For Entering Private Practice

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Consider joining an existing private practice group, rather than starting your own

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Connect with someone who has been in private practice for ongoing mentorship

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Closely consider market characteristics in the locations you wish to practice

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Contract with an accountant versed in medical practice

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Consider hybridizing your revenue streams with contract-based and/or locum tenens work

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of autonomy, both of which may render young surgeons unable or unwilling to invest in practice ownership.

The marketplace and surgical trainees may be ill-matched in other ways, too. Some rural areas may offer local healthcare marketplaces with less competition and thus may be relatively easy places to start new surgical practices. But only rural students are likely to express an interest in rural practice,<sup>10</sup> and despite efforts to facilitate rural careers (including a scholarship Dr. Isaacson and her husband are creating for students interested in rural medicine at the University of Kansas School of Medicine in Salina), the picture is grim. Medical school matriculants from rural areas declined by 28% between 2002 and 2017, even as overall student body sizes increased by 30%.<sup>11</sup>

One upshot is that the relatively few surgeons who wish to enter private practice anywhere now sometimes face dwindling support. When Dr. Welsh left surgical training in 1989, he said, most of his fellow surgical trainees embarked on private practice. “We were able to compare notes and learn from each other about how to set things up,” he said.

He described the work of

establishing his rural, solo private practice as “trial by fire” and “slow going.” But Dr. Welsh also said the process, which took about a year, was made easier by his training hospital, which allowed him to take its old equipment out of storage and get it refurbished for his own use, as well as a local hospital that gave him a loan.

This approach is less feasible now. Dr. Isaacson, who began her private practice in 2016 and prioritizes a rural surgical career, described hospitals as competition and mainly cited her husband, Daniel Howell Jr., MD, FACS, also a general and colorectal surgeon, as support.

### Models that Work for Private Surgical Practice

Despite these mounting concerns, some self-employed surgeons continue to thrive. Drs. Welsh and Harding both pointed out that certain surgical specialties, including ophthalmology, cosmetic surgery, and orthopaedic surgery, are doing well. Some of these specialties, such as cosmetic surgery, can benefit from concierge models, while others, like orthopaedic surgery, have capitalized on combining diagnostics, surgery, and physical therapy into one-stop surgical centers.

However, not all surgical disciplines align with concierge or surgical center models. Neither approach is feasible in general or rural surgery. Even if they were possible somewhere, they would not be a logistical fit for the area Dr. Welsh serves, which he described as “a hard-working community, a lot of farmers, a lot of factory workers.” Instead, he has hybridized his solo practice with contract work.

For Dr. Harding, responding to financial pressures compelled a different move. First, he gradually moved from a three-surgeon practice to a 22-surgeon one, hoping to benefit from improved negotiating power with payers. More recently, his group merged with another 22-surgeon practice, into “probably one of the biggest general surgery groups in the country.”

This experience is atypical; most independent practices in the US are between one and 15 physicians,<sup>6</sup> and consolidating to a group of 44 surgeons may only be feasible in specific urban settings. Moreover, although this model may have created opportunities to negotiate more successfully for payment, it has not led to the “economies of scale” he said the group had aimed to capture.

Dr. Harding said, “We were hoping that we would be able to share things like schedulers and billers. But you then have to hire all these IT people” to meet the requirements of the Centers for Medicare & Medicaid Services’ Merit-Based Incentive Payment System (MIPS).

While MIPS aims to increase high-quality, cost-effective care by requiring quality improvement, system interoperability, and cost-effectiveness, it also demands significant and ongoing IT overhead—an issue that has made financial benefits for Dr. Harding and his colleagues a wash. Nonetheless, the 44-surgeon group has lost just two practitioners to employment, Dr. Harding said, and the vascular surgeons in his group have enjoyed higher salaries than the general surgeons, the likely product of generous emergency room call stipends and better pay rates on some vascular-specific procedure codes. This stability offers a faint glimmer of success.

Meanwhile, Dr. Isaacson reflected that, when entering

private practice 8 years ago, “I probably wouldn’t have ever imagined where I am today.”

Dr. Isaacson and her husband and business partner, Dr. Howell, established a private practice, initially avoiding debt through limited locum tenens work. Dr. Isaacson sometimes added call at local hospitals, stopping only when pay rates proved insufficient, and struggled with what she described as “the hamster wheel” of financial, administrative, and clinical private practice tasks.

“As a result, I got a little bit creative about what I saw private practice as and started working in a surgicalist model about 4 years ago,” she said.

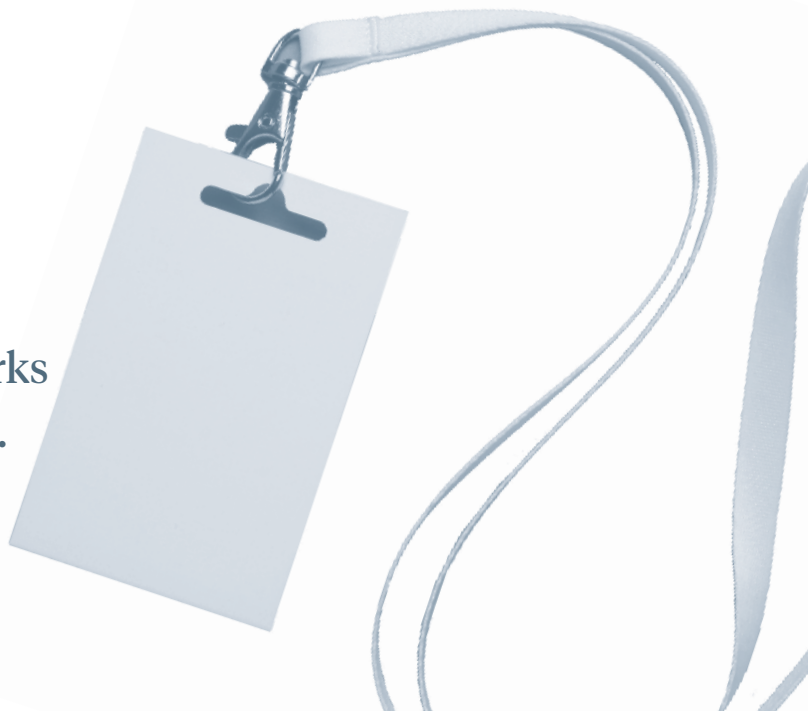
A surgicalist is a sort of freelance surgeon. Unlike a locum, who may work in a locale briefly and then never return, a surgicalist is an independent contractor who works in a hospital on an ongoing basis. The model pays at a set rate per 24-hour shift and permits flexibility in how many days per month a given surgeon wishes to commit to a location.

The company Dr. Isaacson works with, Synergy Health Partners, places surgeons at 14 active general surgery sites nationally,<sup>12</sup> as well as other sites focused on orthopaedic surgery. Through them, Dr. Isaacson and her husband work at a hospital in Cookeville, Tennessee, 7–10 days a month.

She has combined this work with ongoing but intermittent shifts at a critical access hospital in Belleville, Kansas, her rural hometown. There, despite patient need, the hospital is too small to fund a full-time surgeon position. “If I’m not there, and for 30 years or 40 or 50 years prior to me showing up, family practitioners would be doing the surgery,” Dr. Isaacson said.

She now handles elective general surgery cases at the hospital, while other visiting surgeons handle caseloads in their own surgical disciplines and family practitioners continue to complete endoscopic, obstetrical, and minor procedures. Because of her self-employed status, she can undertake ongoing

Unlike a locum, who may work in a locale briefly and then never return, a surgicalist is an independent contractor who works in a hospital on an ongoing basis.



# ACS Resources for Private Practice Surgeons

The ACS Practice Management hub ([facs.org/practice-management](https://facs.org/practice-management)), particularly its sections on Coding and Billing and Resources for Surgeons in Private/Small Surgical Practices

ACS Communities ([facs.org/communities](https://facs.org/communities)), online forums where surgeon members can request advice from peers

The ACS Coding Hotline for advice on how to code a procedure

ACS Quality Programs ([facs.org/quality](https://facs.org/quality)) for aid in optimizing payment under quality-based rules

SurgeonsVoice.org, where surgeons can contribute to ACS efforts to push for legislation that will decrease prior authorization, improve rural healthcare, lower student debt, and otherwise help surgeons thrive


part-time work in Belleville, permitting her to meet the needs of the local population and fulfill a commitment to rural health while enjoying closeness with her family in the area.

## Future of Private Practice

While a future in which every surgeon is strictly employed by a hospital remains hard to foresee, how exactly private surgical practice will survive is unclear.

While Dr. Harding is pessimistic about the future of private practice (“I have to say, I just don’t see it working”), he said he remains slightly hopeful about his own group, which has just hired a new chief operating officer who has her eye firmly on the bottom line. Meanwhile, Dr. Welsh advised engaging with ACS resources, and all three surgeons offered advice to those starting out (see sidebars, pages 20 and this page).

Although what we can predict about the future of private practice is incomplete, one fact is clear: an impending surgeon shortage as older surgeons retire and are replaced by a less populous generation<sup>8</sup> means that the US—particularly underserved and rural areas—will soon need every surgeon it can get, no matter their employment type.

As Dr. Isaacson concluded, “It can’t be a dead model. I don’t think the country is ready for that.” 

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# Trends for **2024 Match** Reveal More Applicants Interested in Surgery

Matthew Fox, MSHC

## The National Resident Matching Program’s (NRMP) annual Match, the day wherein medical trainees learn whether they have matched into a main residency practice location, is a time of excitement for hopeful physicians, including surgeons.

TENS OF THOUSANDS OF INDIVIDUALS APPLY TO THEIR desired hospital, health systems, and specialties, and the majority are successfully placed.

March 15 was the 2024 Match Day in the US, and an all-time high number of applicants showed that interest in medicine as a career continues to grow. The field of surgery also remains desirable, as general surgery and other disciplines had exceptionally high match rates.

Overall, match rates for all applicant types remain steady compared to previous years. However, observations and suggestions can be gleaned for medicine, including surgery, by examining the numbers and trends, particularly in the context of a workforce in need of reinforcement.

### Overall Numbers

By any metric, this 2024 Match was a successful one. A total of 50,413 applicants registered across all physician domains, including general surgery and other surgical disciplines, which is an increase of nearly 5% from 2023. 44,853 of these applicants certified a rank order list, another record high that increased more than 4% from last year.<sup>1</sup>

Within these records numbers, the four main applicant types, including US MD seniors (the largest applicant group), US DO seniors, US citizen international medical graduates (IMG), and non-US citizen IMGs applied for 41,503 positions across 6,395 residency training programs—also all-time high figures.<sup>1</sup>

Most significantly, 38,941 positions were filled, representing a match rate of 93.8%—a 0.5 percentage point increase from 2023.<sup>1</sup> An additional 2,575 positions were offered in the Supplemental Offer and Acceptance Program (SOAP) to applicants who did not match in the algorithm phase of the Match, in which 2,399 additional positions were filled.<sup>2</sup>

It is clear that the desire for a career as a physician has never been higher.

“We’ve got a consistently growing field of applicants who are seeking residency training,” said Donna L. Lamb, DHSc, MBA, president and CEO of the NRMP. “This year, there were many applicants, and many positions with more than 100 additional programs, and they are consistently being filled. This is an effective mechanism in which to get physicians into programs.”

### Surgery Grows

The increases across the board also apply to the field of surgery, which continues to experience remarkably high match rates, with each discipline greater than 99% (see Table 1, page 27).<sup>3</sup> And, importantly, interest and position availability also remain high and are often growing.

“The trend is that we’re getting more applicants who are interested in surgery, and with that every year there have been an increased number of positions available to applicants,” said Jennifer Serfin, MD, FACS, a general, critical care, and trauma surgeon, as well as a designated institutional official

at Good Samaritan Regional Medical Center in Corvallis, Oregon.

The NRMP numbers bear out these observations, especially when looking back farther than 2023. In general surgery (designated as “Surgery: Categorical” within the NRMP data), for example, 1,717 positions were offered across the US in 2024, and 1,712 were filled, representing a 99.7% match rate. The open positions grew modestly from the 2023 Match, which offered 1,670 positions.<sup>3</sup>

But compared to 2020, the growth is more noticeable, as 1,536 positions were offered that year—meaning that positions offered have increased by nearly 12% since only 4 years ago (see Table 2, page 28, for growth between 2020 and 2024).<sup>3</sup>

All other surgery disciplines experienced growth in this timeframe as well, showing that surgery is an enduring career path. For example, the number of offered obstetrics-gynecology positions was 1,539 in 2024 versus 1,443 in 2020; orthopaedic surgery grew to 916 positions in 2024 versus 849 in 2020; otolaryngology was 382 in 2024 versus 350 in 2020; and so on.

The Match numbers show that interest and trainee participation in surgery is healthy and, as Dr. Lamb notes, “Match data are a critical bellwether of the future physician workforce.” So, while the field is growing, is it growing fast enough to meet the needs of the US population?

### **Surgeon Workforce and Distribution**

The NRMP Match data for 2024 indicate that the number of surgeons in training is trending upward over time, which is positive.

However, when reviewed in the context of recently released physician workforce data from the Association of American Medical Colleges (AAMC), questions arise about how the number of positions

available is reflecting the need for surgeons. A recent report on the AAMC findings in the *Bulletin* noted that there is a projected shortage of 13,500 to 86,000 physicians in the US by 2036—and this includes a projected shortage of 10,000 to 19,900 surgeons.<sup>4</sup>

Compared to the shortfall, the current rate of growth for surgery positions, while significant, may not be enough to compensate.

“The increase in the number of positions and applicants interested in surgery is all definitely positive, but whether we’re going to catch up to the need is questionable,” said Dr. Serfin.

The challenge of addressing the shortfall via residency goes beyond sheer numbers. Specifically, there is an issue with the geographic maldistribution of surgeons, which is in part reflected in training.

Using general surgery as a reference point, in states that have large urban populations, such as New York, California, Texas, and so on, the number of available positions and programs is considerable. New York offered 381 positions in 2024, California 234, and Texas 192.<sup>3</sup>

Meanwhile, predominantly rural states such as North and South Dakota offered eight and four positions, respectively, while Idaho, Montana, and Wyoming offered no surgery residency positions at all, despite being home to, combined, millions of people.<sup>3</sup> While this has potential implications for permanent practice after residency, where there is a slight preference for remaining in the state of training for licensed practice,<sup>5</sup> it also contributes to a decreased healthcare workforce in areas already affected by lower access to surgeons (see Table 3, page 30).

### **Working Together**

The NRMP plays an indispensable role in transitioning medical school graduates to their residency practice locations and, therefore,

**Table 1.**  
2024 Residency Match Rate by Surgery Discipline

Specialty	Fill Rate	Positions	Unfilled Positions
Neurological Surgery	100%	241	0
Plastic Surgery (Integrated)	100%	213	0
Thoracic Surgery	100%	48	0
Orthopaedic Surgery	99.9%	916	1
General Surgery	99.7%	1,717	5
Otolaryngology	99.7%	382	1
Obstetrics-Gynecology	99.6%	1,539	6
Vascular Surgery	99.0%	100	1

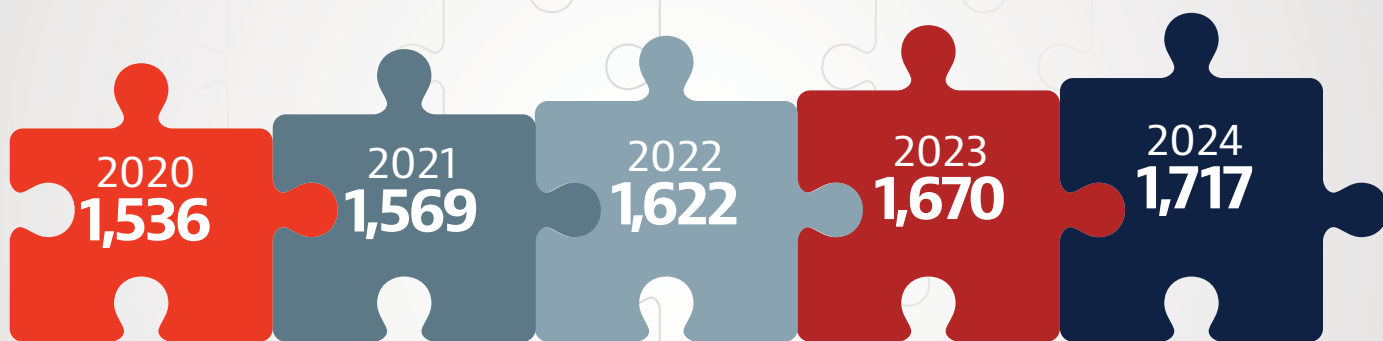
replenishing and growing the eventual practicing physician workforce across the US, but it is not the role of the NRMP to create new residency programs or positions.

The NRMP itself has oversight of the time that people begin applying for residency through the 45th day after their start of residency programs to ensure that this transition takes place, that applicants maintain their binding commitment, and that applicants move into the programs they are supposed to be moving into so that there is sufficient training across the US, with as equal distribution as possible.

The work of addressing the future workforce is performed in tandem with the AAMC, which collects and disseminates valuable student and workforce data and administers the Medical College Admission Test, among other roles, and with the Accreditation Council for Graduate Medical Education (ACGME), which accredits all residency training programs in the US. But there are limits to what the organizations can do.

“No group has the authority to mandate to the ACGME, for example, that they need to create a practice location or specialty in an area

**Table 2.**  
Available General Surgery Residency Positions Offered, 2020 to 2024



of need, or that certain specialty positions are needed in a given area,” Dr. Lamb said. New institutions or programs are assessed on their merits based on minimum common program requirements and specialty requirements, regardless of location.

Addressing these needs and identifying solutions will require engagement and partnership with government entities, and there is action taking place on that front, Dr. Lamb noted.

Representatives Terri Sewell (D-AL) and Brian Fitzpatrick (R-PA) last year introduced legislation to the US House of Representatives, the Resident Physician Shortage Reduction Act of 2023, that would expand the number of Medicare-supported medical residency positions by 14,000 over 7 years.<sup>6</sup> While this would still only barely address the lower-end projections of the AAMC-projected physician shortage, it would represent a significant increase.

Dr. Lamb suggested the other way the government can play a role is by formally identifying areas of need for physicians and surgeons and then allocating the additional positions in a way that benefits population health.

“The conversation is going to need to include every organization and some of the congressional leaders that can help figure out how we can address a physician shortage in a way that’s equitable across the country,” she said.

The ACS has a role to play for surgery, supporting relevant legislation such as the Ensuring Access to General Surgery Act of 2023. This legislation would allow “the Health Resources and Services Administration to study and define general surgery workforce shortage areas and grant the Secretary of Health and Human Services the authority to provide a general surgery shortage area designation.”<sup>7</sup>

### Role of Surgery Program Directors

The number of available residency positions in the US, the rate at which they are filled, and conversion into practicing physicians in areas of need is addressed in national-level dialogue, but surgery program directors can play a part in helping to guide their trainees.

“I think that potentially pivoting some of our training and mentoring of our trainees to seek positions and locations where there are deficiencies in surgeons, as well as maintaining and supporting the workforce through emphasizing well-being, can have an impact on our workforce challenges,” Dr. Serfin said.

While individual surgery program directors have the responsibility to grow and maintain their programs, broader organizational support can be significant. The Association of Program Directors in Surgery (APDS), for which Dr. Serfin serves as the recruitment taskforce chair, supports program directors, and provides resources to help guide their decision-making, including keeping track of surgery residents matched by the NRMP.

Particularly in general surgery, “we try to emphasize matching the right resident to the right program because the specialty has such a wide variety of programs and opportunities, so support needs to be offered on a case-by-case basis,” Dr. Serfin said.

She explained that a smaller program like Samaritan, where she practices, tends to focus more heavily on bread-and-butter general surgery training, with exposure to multiple specialties, and that fosters an environment where residents are ready and able to practice at the time of graduation. The program developed a high percentage of graduates who go into general surgery practice, rather than fellowship, which differs from the output

## Some programs receive 400–600 application for two spots, while others receive more than 2,000 applications for their position.

of larger, more urban programs. For reference, Oregon offered 27 general surgery residency positions in 2024.<sup>3</sup>

This difference is both a benefit to training in a smaller, rural program, but also represents a challenge.

“We need to create an educational environment where we foster interest in rural practice or in filling those positions that are in need without stifling clinical interest, and the interest of furthering training,” Dr. Serfin said.

Another pragmatic challenge that is becoming more pressing is the volume of applications. The number is often increasing more quickly than the capacity to review them thoughtfully and intentionally, she noted, adding that some programs receive 400–600 application for two spots, while others receive more than 2,000 applications for their positions. Depending on the size of the recruitment team at the institution, it can be challenging to review those applications in a holistic manner that considers the unique characteristics of candidates. And the APDS encourages a holistic approach to application review.

“Program directors are all encouraged to thoughtfully consider applications based on how the applicant would fit into their program and what the program can offer them,” Dr. Serfin said. “The limitation to that holistic review is the time it takes while dividing time among applications.”

Tools to aid in processing applications exist, but the growing numbers of applicants being processed through the NRMP is a factor that may need to be addressed to make the process more efficient for surgery program directors.

### Looking Ahead

The NRMP’s position as the organization responsible for matching most US residents to their training programs affords it a chance to gather data that make

the matching process increasingly useful to programs and communities alike.

According to Dr. Lamb, one of the key ways that the organization will increase its impact is by collating and, eventually, releasing demographic and professional information on its applicants.

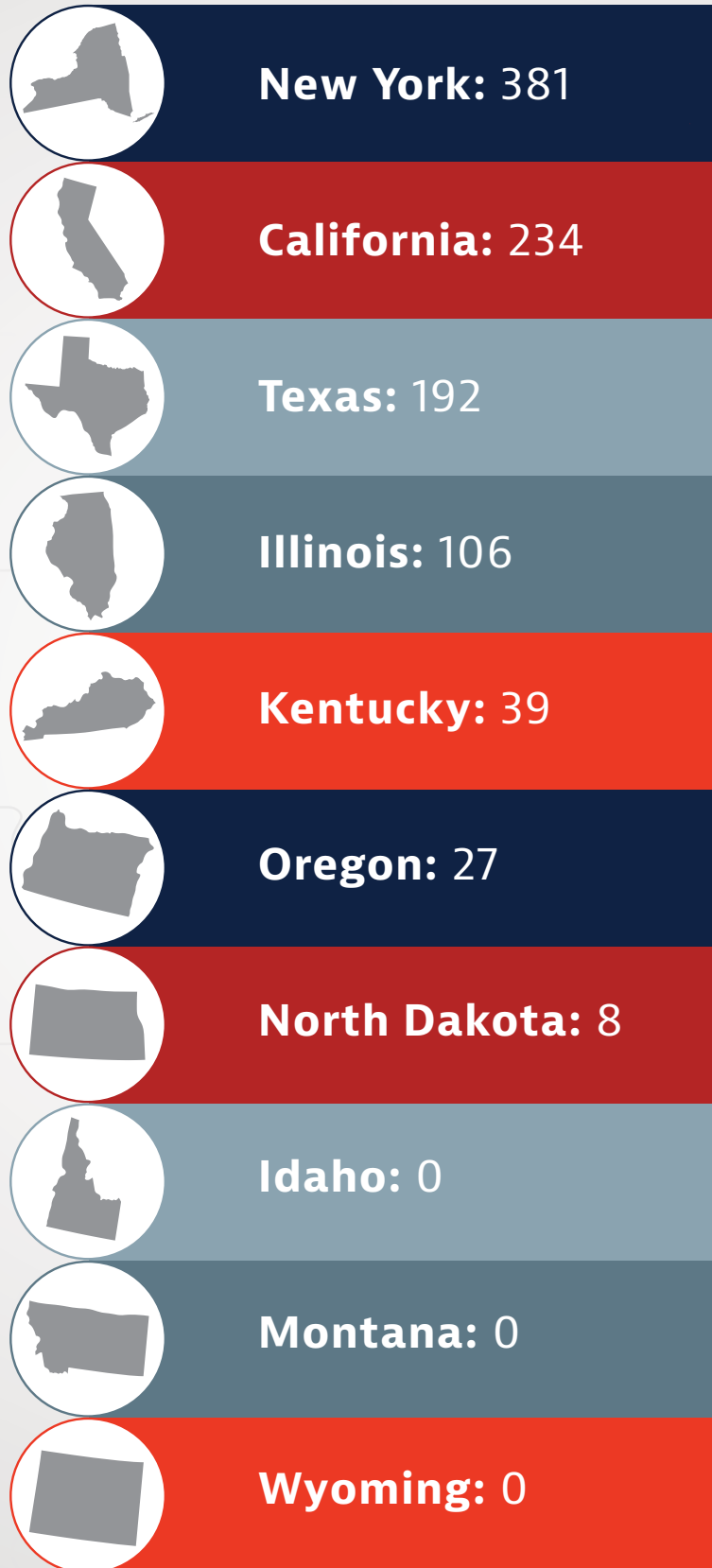
“We are trying to provide information to medical schools, institutions, and programs so they can look at their mission, aims, and competitiveness, and determine whether or not the actions that they’re taking to attract the type of residents they want or need for their programs and community are actually working,” she said, explaining that this information will “allow applicants a more comprehensive understanding of how they align with the program they want to be in.”

Currently, applicants often find themselves in a “black box” of information when determining whether a program is the right fit for them, but demographic data for programs or specialties will allow applicants to take a more active role determining their compatibility. For programs, the data will show the gaps and opportunities that exist to help ensure equity in employment of individuals representing all racial, gender, sexual, and disability identities.

Generating this kind of demographic data is a large-scale effort, and the NRMP expects to begin releasing a series of comprehensive data reports to the public in late 2026 or early 2027. As of this article’s publication, the organization currently has available on its website a charting tool that contains demographic data for the 2022, 2023, and 2024 matching residents.<sup>8</sup>

On the horizon, one initiative for the NRMP includes a pilot for a voluntary rank order list lock for programs to finalize their lists, which demonstrates to applicants that no changes will be made in their rankings after an in-person visit by the applicant. Another initiative is a joint study

**Table 3.**  
2024 General Surgery Positions Offered in Select States







with the AAMC to determine whether preference signaling—the ability for candidates to signal interest in individual residency programs by specialty—has any effect on ranking or matching.

Ascertaining and studying this information may help to bolster the residency programs by getting trainees to the places they want to be and where they will find success, in the most effective manner possible.

The process will continue to be refined, but the 2024 Match numbers and trends indicate that resident surgeons are entering into a thriving and competitive profession. **B**

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Xingjie Li, MD (left), Daniel Tomey, MD, and Orett Burke Jr., MD (right) recently matched into surgical specialty programs at Washington University in St. Louis, Houston Methodist Hospital, and Tufts Medical Center.




# AI Has Potential to Transform

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In recent years, advances in artificial intelligence (AI) have augmented the delivery of healthcare services around the world. The integration of AI into health systems, however, has been concentrated in high-income countries (HICs) due to the relative ease of implementation with abundant resources and established infrastructure. In rural areas and low- and middle-income countries (LMICs), AI technologies are challenging to deploy due to limited resources, though they may hold significant promise for improving healthcare delivery and patient outcomes in such settings.

# Global Surgical Systems

DIFFERENT TYPES OF AI technologies include machine learning algorithms, predictive analytics, artificial neural networks, cloud-based language and signal processing, data mining, and virtual simulation. Each has the potential to provide innovative solutions for issues related to surgical care delivery in remote regions and LMICs, including education and training, collaboration and care delivery, and health policy and planning.<sup>1</sup>

Given the staggering burden of global surgical disease, AI may offer novel, multifaceted approaches to surgical systems strengthening in resource-limited settings, although significant limitations do exist. While the intricacies of these innovations are beyond the scope of this article, the principles and applications of these tools are evaluated here within the context of healthcare delivery and extrapolated to surgical systems.

A surgical system is the concept of an integrated ecosystem dedicated to the provision of surgical care, and includes workforce (i.e., surgeons, obstetricians, anesthesiologists, nurses, and community health workers); infrastructure (i.e., facilities, electricity, water, laboratory capability, blood supply, sterilization capacity, referral, and prehospital systems); service delivery and quality improvement processes; health financing and budget allocation; and information and data management.

## Applications of AI in Surgical Systems

### Education and Training

Within the surgical system, human resources are the core tenet of the provision of surgical care. Rural regions and LMICs are disproportionately plagued, however, by the maldistribution of the specialist surgical workforce (e.g., the relative density of surgeons, obstetricians, and anesthesiologists per 100,000 population). In addition, the majority of medical schools and training programs worldwide are clustered in densely populated areas, rather than the rural regions where disease burden and unmet needs for surgical care are relatively higher.<sup>2,3</sup>

Achieving the necessary expansion of international surgical systems relies heavily on preparing current and future trainees to fill the workforce void as they progress to practicing independent providers. Advances in AI have the potential to revolutionize surgical training to help meet this critical need.

Through the use of immersive and personalized learning experiences, AI can enhance surgical education, training, and performance improvement. AI-powered simulation platforms allow surgical trainees to engage in hands-on experiences in a safe environment without the need for cadavers or live patients, allowing them to practice various procedures repeatedly and refine skills.

With personalized learning and the creation of virtual mentoring, AI can assess a trainee's technical strengths and weaknesses, and provide targeted feedback and guidance to improve specific skills. These virtual mentors can draw from vast repositories of surgical data and best practices, offering insights and advice based on real-world cases and expert knowledge, which is particularly beneficial in regions of the world where specialist training may be limited. By leveraging machine learning algorithms, virtual mentors can adapt their teaching approaches to suit the learning styles and progress of each trainee, maximizing the effectiveness of the training process.<sup>4</sup>

AI-driven simulation and augmented reality systems have the added ability to function remotely, which is especially advantageous in overcoming the geographical barriers to access to specialist education and training.<sup>4</sup> Additionally, remote functionality obviates the need for in-person educators, which offloads the burden for those few practicing surgeons in a metaphorical "surgeon desert" that lack the time and bandwidth (or possibly, experience, as in the case of sparse laparoscopic expertise in many LMICs) to train their successors.<sup>5</sup> Together, such AI applications have the potential to enhance the effectiveness of, increase access to, and reduce the cost of training programs and overall accelerate the development of competent surgeons to increase workforce density.


Overleaf: National Aeronautics and Space Administration (NASA) Earth Observatory images by Joshua Stevens, using Suomi NPP VIIRS data from Miguel Román, NASA's Goddard Space Flight Center. (Public domain, via Wikimedia Commons.)

## Collaboration and Care Delivery

Modeling estimates have shown a shortage of one million specialist surgical, anesthetic, and obstetric providers in 136 LMICs.<sup>2</sup> Concentrated in the world's poorest regions, this burden underscores the need for access to specialist expertise to improve outcomes for patients affected by surgical conditions. Additionally, the low density of crucial collaborators (including radiologists, pathologists, and others not typically associated with surgical care), as well as associated diagnostic equipment such as computed tomography or nuclear medicine, are deficiencies often overlooked that greatly contribute to disparities in service delivery and access to timely care.<sup>5</sup> AI-driven tools that facilitate this type of access have already been deemed transformative in supporting virtual collaboration to improve international surgical care.<sup>6,7</sup>

Through AI-powered telemedicine platforms, surgeons in underserved regions can connect with other specialist surgeons from around the world to seek real-time guidance on complex cases. In the absence of direct expert consultation, data mining and augmented reality technologies can provide offline access to vast repositories of surgical scenarios and diagnostic datasets that can supplement decision-making. Through artificial neural networks, AI image and signal processing algorithms also can assist in image analysis and data classification, which allows for pattern recognition and the rapid interpretation of medical imaging in areas with lower densities of radiologists.

Although human intelligence and processing cannot fully be replicated or replaced, the AI-driven assistance in detection and classification of abnormalities does have the potential to drastically increase individual throughput, and thereby aid in timely diagnosis and treatment planning.<sup>5,6</sup> Improvements in diagnostic efficiency may translate to lives saved, specifically in fields where timely diagnosis and expedient surgical intervention are crucial. Leveraging AI for remote consultation and diagnostic support can help to address accessibility barriers and, ultimately, improve global surgical patient outcomes.



Through the use of immersive and personalized learning experiences, AI can enhance surgical education, training, and performance improvement.

# As the next frontier of global surgery emerges, AI holds immense potential to improve healthcare outcomes in resource-limited settings through surgical systems strengthening.

## Health Policy and Planning

The overarching consideration for surgical systems strengthening is the coalescence of policy and planning to address the lack of universal access to surgical care at regional, national, and international levels. Through the collaboration and shared governance of stakeholders, the current status of surgical disease burden must be evaluated and understood in order to effectively meet gaps in care and translate practice into policy. Emerging AI technologies can be employed to conduct surveillance of population patterns such as traumatic injury data and thereby inform health policymaking.

AI offers transformative potential in addressing public health challenges requiring surgical care, such as road traffic injuries. Algorithms that rely on machine learning and data mining have the power to use digital street imagery to identify patterns in road traffic collisions and trends in helmet use prevalence. This helps policymakers develop targeted interventions to reduce the burden of injuries.

AI-powered predictive models also can forecast future trends in road traffic, which enables proactive planning for emergency response and trauma care services. With the ability to predict traumatic injury severity based on pattern recognition, AI has the potential to aid policymakers in optimizing resource allocation and streamlining referral systems. As a result, patients in rural and remote regions would have better chances of receiving equitable and timely access to surgical services and tertiary care.

Through the integration of AI into health policy and planning, systems-based efforts to mitigate the impact of injuries on the global surgical burden can be significantly enhanced.<sup>1,6</sup>

## Challenges of AI Integration in Global Surgery

### Infrastructure and Resources

The implementation of AI in surgical systems strengthening faces numerous limitations and barriers, foremost among them is inadequate infrastructure to deploy and sustain the advanced technology.

Many LMICs and rural regions lack the necessary existing digital infrastructure, including reliable electricity, internet connectivity, and computing equipment. Not only is a physical resource framework required to support the use of AI, so are trained individuals adept in the use and maintenance of this technology and equipment. The lack of standardized data collection systems and electronic health records in resource-limited settings further complicates the integration of AI into surgical systems, as these advanced technologies rely heavily on robust, quality data for machine learning and data mining.<sup>6</sup>


On the other hand, the lack of digitized health record systems in these settings provides an opportunity for AI-driven tools, such as natural language processing and image and signal processing, to improve care delivery. With the ability to identify, understand, and categorize information, these computer-based technologies can digitize handwritten patient charts, and process and categorize the data into databases that can be used for coordinated patient care, as well as for research and quality improvement processes.<sup>5</sup>

Certainly, one of the looming barriers to integrating AI in resource-limited settings is cost. There is no doubt that addressing these infrastructure gaps requires significant financial investment to ensure that surgical systems are equipped with the physical and human resources necessary to leverage AI effectively.

In order to thoroughly inform cost-effectiveness analyses, economic modeling studies should be expanded to assess the integration of AI and needed resources in regions with inadequate infrastructure. Given the current staggering expenditures resulting from a lack of access to surgical care worldwide, however, the return on investment in terms of economic and welfare gains is likely to support the potential for scalability of AI interventions in LMICs and rural regions.

### Ethical Implications

The ethical implications of AI applications in global surgical systems strengthening are as important to consider as the logistical and resource challenges.



While AI holds promise in enhancing access to surgical care, there are concerns regarding equity, bias, and privacy.

AI-driven technologies may exacerbate existing disparities, as they are likely to disproportionately benefit populations with greater access to resources and digital infrastructure, widening the gap between affluent and marginalized communities. It is equally important to recognize that improving access to timely diagnosis does not necessarily equate access to treatment if the necessary surgical care for the diagnosed condition is not available to the patient, which creates its own ethical dilemma.<sup>6</sup>


As AI tools such as machine learning depend on training algorithms that are context-specific, there are inherent flaws in the generalizability of technologies developed using population-based datasets in HICs. The under- or misrepresentation, then, of regional and ethnic populations not included in the learning datasets can lead to discriminatory bias and limited use.<sup>7</sup>

Successful implementation depends on foundational tenets of ethical global surgery collaboration, which involves the inclusion of local stakeholders in the development of such interventions. It is crucial that any implementation is driven by local needs, with a recognition of system constraints and bandwidth, to avoid both biases and failure to launch.

Additional concerns regarding data management in AI-powered technologies involve the autonomy of individuals, particularly regarding informed consent and data privacy. As machine learning and data mining platforms require open access to datasets, including personal health information, ensuring the privacy and security of this data is vital to avoiding unauthorized access or misuse.

The concepts of telemedicine, remote consultation, and cloud computing for data management raise concerns about data sharing across international borders.<sup>5,7</sup> Given the nascent stage of integration of AI into healthcare delivery, further research and consideration of international data-sharing protocols and standardized, robust regulatory frameworks are needed to inform the implementation of AI technologies and to ensure equitable and ethical use.

As the next frontier of global surgery emerges, AI holds immense potential to improve healthcare outcomes in resource-limited settings through surgical systems strengthening. The possibilities of AI have been demonstrated in general healthcare delivery and can be extended to surgical care delivery in LMICs and rural regions, though further modeling and research is needed to inform investment.

AI technologies may help address shortfalls in surgical care by enhancing education and training to build workforce capacity, facilitating collaboration and care delivery to expand surgical infrastructure, and by providing data to guide resource allocation and policy development. Effective implementation of these technologies, however, requires addressing cost and infrastructure barriers and adherence to ethical principles to minimize bias and protect patient privacy and autonomy. 

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Dr. David Flum



Dr. Giana Davidson

# Patient-Provider Decision-Making Is Crucial for Patients with Appendicitis

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THE APRIL ARTICLE in the *ACS Bulletin* “Are Antibiotics the Answer to Treating Appendicitis?” demonstrates how much the treatment of appendicitis is in evolution. For the past 120 years, appendectomy has been the preferred treatment for appendicitis. It is a “one-and-done” approach to appendicitis that often can be completed with an overnight hospitalization or outpatient procedure.

However, an appendectomy may not be right for everyone. Like all surgical procedures, there are risks, discomfort, and time required for recovery. For many, the out-of-pocket costs for emergency surgery can have devastating financial consequences. Over the past 15 years, multiple randomized studies comparing antibiotics alone to appendectomy have demonstrated that a nonoperative approach is an effective alternative to appendectomy, albeit resulting in 25%–30% of patients having an appendectomy by 90 days, and as many as 50% having surgery in 3 to 5 years.<sup>1</sup>

These two treatment options confer a unique set of risks (e.g., primary treatment failure and recurrence versus surgical complications, disability, and cost) and benefits (e.g., more rapid return to work with antibiotics versus decreased chance of readmission with initial appendectomy) for patients to consider (see Table, page 40).

Surgeons are growing increasingly aware of the evidence from these clinical trials, and as described in the article, often have strong beliefs about which treatment is better and

when they should or should not offer antibiotics as an option. Furthermore, surgeons and emergency medicine teams face increasing pressures for time while on call and few tools exist to support effective communication for patients and their families. Patients often have limited knowledge of these treatment options and may prioritize specific risks and benefits differently than surgeons.

For example, a surgeon may not want to offer antibiotics to a patient with an appendicolith because they consider the 40% chance of needing an appendectomy too great. A patient with an appendicolith may view this as a 60% chance of avoiding a surgical procedure, and given their circumstances (e.g., limited insurance, childcare or work responsibilities), antibiotics might be a completely reasonable choice.

After years of conducting the Comparison of Outcomes of Antibiotic Drugs and Appendectomy (CODA) trial—the largest randomized control trial (RCT) of antibiotics for appendicitis and the first large-scale US trial—and now helping to implement its findings, we think all patients should be offered information about these two options and given support as they choose the treatment that is right for them. We recognize that health systems also need to make available structures and supportive tools for clinical teams, patients, and their families to use when having these conversations in the emergency room.

Informing patients about their treatment options for appendicitis

has unique challenges. There is a lot of evidence to summarize, several competing outcomes to describe, a time-sensitive emergency room setting, and varied clinical experiences and biases about using antibiotics instead of surgery. Lastly, there is no billing code to enable the direct compensation of the time required for surgeons to explain these options.

In situations like this, decision support tools (DSTs) are helpful, because they provide information to patients in formats that are readily accessible and at a reasonable level of literacy and numeracy, often using video-based materials. DSTs also prompt the patient to elicit preferences about outcomes. Taken together, these benefits reduce the burden on surgeons to explain the options and lead to a more informed conversation between the surgeon and patient.

Concurrent to the CODA trial, our group developed a DST for appendicitis treatment ([www.appyornot.org](http://www.appyornot.org)). The AppyOrNot Appendicitis Decision Support Tool has three main components (see Figures 1–3, page 41):

- A video describing appendicitis and treatment options with race and language-concordant narrators
- An outcome prioritization section
- A treatment suggestion based on prioritized outcomes

The [appyornot.org](http://www.appyornot.org) DST has been used by more than 10,000 patients worldwide and is part of a Patient-Centered

**Table. Deciding between Antibiotics and Surgery for Appendicitis: Findings from the CODA Study**

What Is Important to the Patient	 <b>Antibiotics</b>	 <b>Surgery</b>
<b>Good Health</b>	After 1 month, participants rated their general health about the same in both groups.	After 1 month, participants rated their general health about the same in both groups.
<b>Initial Time in ER and Hospital</b>	During the first visit, time spent in the ER or hospital was about the same in both groups.	During the first visit, time spent in the ER or hospital was about the same in both groups.
<b>Symptoms Go Away</b>	After 1 month, symptoms like pain or fever were about the same in both groups.	After 1 month, symptoms like pain or fever were about the same in both groups.
<b>No Surgery</b>	Approximately 7 in 10 (71%) did not have surgery within 3 months.	An appendectomy is surgery.
<b>No Initial Hospital Stay</b>	Approximately half (47%) did not have to be admitted to the hospital for their antibiotics treatment.	Almost all (95%) participants were admitted to the hospital for their surgery.
<b>Less Work Missed</b>	Participants missed an average of 5.3 days of work.	Participants missed an average of 8.7 days of school or work.
<b>Fewer Healthcare Visits</b>	Nine in 100 (9%) participants needed to visit an ER or urgent care clinic within 3 months.	Four in 100 (4%) participants needed to visit an emergency room or urgent care clinic within 3 months.
<b>Appendicitis Does Not Return</b>	Appendicitis can come back if the appendix is not removed. Future CODA reports will tell us how often that happens.	The appendix is fully removed when surgery is successful.
<b>One-Time Treatment</b>	Approximately 40% at 1 year, 46% at 2 years and approximately 50% by 3 years had surgery. Approximately 60% who had an appendix stone (appendicolith) had surgery within 3–4 years.	Most likely to be completed in one hospital visit.
<b>Complications (Unexpected Problems)</b>	For every 100 participants, there were approximately eight problems in the antibiotics group and approximately four problems in the surgery group. The higher number of complications in the antibiotics group was related to participants who had a small stone in their appendices.	

Outcomes Research Institute-funded tool called the Treatment Individualized Appendicitis Decision Making (TRIAD) implementation program<sup>2</sup>, now deployed at 17 hospitals.

TRIAD includes access to the DST, education for all clinicians and allied health professionals involved in appendicitis care, and electronic health record-based prompts and protocols to support antibiotics use. A recent presentation at the American Surgical Association described early results of the DST and its use by more than 8,000 people in 66 countries and all 50 US states.<sup>3</sup> Use of the DST improved knowledge and reduced the proportion of patients who were undecided about what treatment was right for them.

Once offered information about both treatment options, most patients (approximately 80%–85%) still wanted surgery, but for some, antibiotics was the favored approach. The DST can help clarify options and help people find a treatment that is right for them. For example, after using the DST, among the subset surveyed both before and after its use, the percentage of individuals who were uncertain about undergoing surgery decreased, while the proportion favoring antibiotic treatment increased from 14% to 21%.

The broader use of a DST can impact another area of concern regarding the use of antibiotics for appendicitis. As antibiotics move from the research arena to broader use in the community, there also have been concerns about whether they would be

used equitably and how long their effectiveness would last.<sup>4</sup>

In 2023, we surveyed 357 ACS Fellows and found most had serious concerns about the way antibiotics might be used in the community at large. These concerns were related to effectiveness, equity, and appropriateness of use. Specifically, 35% thought that their colleagues might be using antibiotics, not necessarily to avoid appendectomy, but to convert emergency into elective procedures, even in those who responded favorably to antibiotics. Approximately 20% were concerned that other surgeons would selectively offer antibiotics based on non-evidence-based characteristics (e.g., insurance status, social support, rurality), and 28% were concerned surgeons were using antibiotics among those excluded from prior RCTs such as those who are immunocompromised or pregnant.

The broader use of the DST, especially if used as part of the TRIAD implementation program, can address all these issues head-on. TRIAD is aimed at helping surgeons share the evidence of antibiotics for appendicitis in an unbiased and patient-centered fashion. It addresses inequity by providing information in languages and with narrators that are selected by the patient and tackles the issues of appropriateness by educating clinicians and patients about eligibility criteria for antibiotics.

Lastly, this tool deals with the role of appendectomy after a successful response to antibiotics with both clinician training and

Figure 1.

Figure 2.

	Not Important	Somewhat Important	Extremely Important
Reduced chance of readmission to the hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce chance you will need a procedure to remove an infection (like removing a drain from the belly)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Avoid having appendicitis again	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Miss less work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce chance of having surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 3.

# Which treatment is better for my patient, given their unique circumstances, preferences, and priorities?

patient education. Working in coordination with the ACS and its Emergency General Surgery Verification Program, ongoing improvement with input from patients and surgeons with a plan for expansion of this tool is planned. We encourage surgeons and systems to join the TRIAD implementation program, either by providing their patients with access to the DST or by taking part in the nationwide implementation program rolling out over the next year.

When it comes to treatments for appendicitis, it's time for the question to shift from "Which treatment is better?" to "Which treatment is better for my patient, given their unique circumstances, preferences, and priorities?" This transformation demands a change in the way we inform patients and solicit their perspectives. The wider use of the DST and programs like TRIAD can help with that.

When our community creates DSTs like [appyornot.org](#), we demonstrate a willingness to challenge convention and "walk the talk" on patient-centered care. We believe this also is a model for how ACS Fellows should help close the gap between evidence generation and practice change. **B**

*Dr. Flum was the PI of the CODA Trial and Dr. Davidson was the co-PI of the CODA Trial and led the Clinical Coordinating Center. Drs. Davidson and Flum are co-PIs of TRIAD.*

## Disclaimer

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

**Dr. David Flum** is vice-chair for research in the Department of Surgery at the University of Washington School of Medicine in Seattle. He also is a professor of surgery and an adjunct professor of health services and pharmacy.

**Dr. Giana Davidson** is section head of emergency general surgery and assistant dean for professional development in the Office of Faculty Affairs at the University of Washington School of Medicine in Seattle. She also is a professor in the Department of Surgery and adjunct professor in the Department of Health Systems and Population Health.

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Dr. Anthony Duncan

# Cancer and Community Showed Me the Importance of Asking for Help

Anthony J. Duncan, MD

“Will you help me?” It may seem like a simple question, but how often do we truly ask for help?

FOR THOSE UNFAMILIAR with my journey, I was diagnosed with metastatic testicular cancer in January 2023. Following this diagnosis, I reflected on my experiences and penned an ACS *Bulletin* article highlighting the importance of self-care within our field. Since its publication in August 2023, I have undergone standard chemotherapy followed by a retroperitoneal lymph node dissection at the Mayo Clinic in Rochester, Minnesota. For several months thereafter, I believed, like many patients in my situation, that I had been cured. However, last fall, my tumor markers began to rise once more.

Initially, there was hope that this elevation was due to low testosterone, causing an increase in my beta-hCG levels, as my computed tomography (CT) scan remained negative. Despite medication supplementation, my markers continued to rise, and a recent CT scan revealed new posterior mediastinal nodes. This news was difficult to digest, to say the least. Testicular cancer is often labeled as one of the “good cancers” due to its high initial cure rate. However, with this news, came a challenging treatment decision.

I was presented with two options: a chemotherapy

regimen that carried a 100% risk of peripheral neuropathy or a less-studied regimen involving high-dose chemotherapy with autologous bone marrow transplant. As a surgical resident, both options could significantly impact my life.

Standard treatment protocols dictate outpatient care with a 24/7 caregiver present. If I couldn’t find a caregiver, admission for the duration of treatment was an option. Initially, my inclination was toward admission. Who would

want to dedicate 2–3 months as my caregiver? Moreover, I didn’t want to burden anyone.

I hesitated to reach out for help or share my struggles with others. When asked how I was doing or what assistance I needed, my response was always that I was fine or that I didn’t need anything. But was that truly the case?

It wasn’t until someone posed the question: “What would you do if you were on the other side?” My immediate response was that I would want to help.

After being diagnosed with metastatic testicular cancer, Dr. Anthony Duncan received treatment at the Mayo Clinic.



## I believe we often underestimate the impact we have on others' lives, even as residents, and the number of people we touch.

This prompted me to reflect on why I was reluctant to accept help and where this mindset originated. Why is it so difficult to actually tell others what I need, and why did I have the feeling I wanted to do this alone?

Much of our surgical training and profession instills a sense of independence. We are praised for our ability to handle stress, patient loads, long hours, and emotionally taxing situations. Yet, we often advise others to seek help when needed.

So, why the disconnect?

I don't have a definitive answer. However, after much thought and hesitation, I finally accepted that while I did much of my prior journey alone, this time I was going to do it differently. Because at the end of the day, does doing things alone and being completely independent really foster relationships? Does it allow for you to bond and share experiences with others or allow others to express their feelings?

Once I began to allow others to help, it was an incredible experience. With anything, there were absolutely highs and lows of asking for help. Of course, medical bills began to accumulate, and as a resident, expenses often exceed what we earn. I finally allowed my sister

to create a GoFundMe campaign, which was both intimidating and enlightening. It served as a means to inform those who were unaware of my situation and request assistance from countless individuals.

I believe we often underestimate the impact we have on others' lives, even as residents, and the number of people we touch. Within 24 hours, more than 150 people had donated, the majority of whom I had not seen or spoken to since medical school or the beginning of residency. The GoFundMe campaign allowed many people to become aware of my situation, and many individuals reached out to me to let me know that I was missed and that if I needed anything to let them know. Practically everyone who reached out informed me that I would be in their thoughts and prayers throughout this battle.

At the end of the day, I think we can all work on remembering our positive experiences, the patients who we save, and the lives that we change. This serves as a powerful reminder that we are not alone in our medical journey and that we make a difference in people's lives every day.

While this past year has been more stressful and life-

changing than any prior year, it also has transformed me as a person and physician. I have always prided myself on being fully independent, and now, I understand that could mean taking away the chance for people around us to help and show their care. I also have a great appreciation for everything I do now. Even as residents, we have a significant impact on the lives of patients, staff, and our coworkers, which is so important to remember as we continue through our lives and careers. **B**

### Disclaimer

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

**Dr. Anthony Duncan** is a general surgery resident at the University of North Dakota in Grand Forks, with plans to specialize in burn surgery and critical care. He also has a passion for medical education research and quality improvement.



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Dr. Ipek Sapci

# I Didn't Match. What's Next?

Ipek Sapci, MD

**It is Monday of Match Week, and all your friends found out they have matched, but you received unexpected news: You not only didn't match but you also didn't match into a preliminary position.**

**What do you do next?**

THIS IS WHERE the Supplemental Offer and Acceptance Program (SOAP) comes into the picture as the next step on the residency application journey. The National Resident Match Program (NRMP) is well known among residency applicants, but not everyone fully understands the details about the SOAP.

So, what is the SOAP? How does it work? What happens next? We aim to answer these questions in this viewpoint article and help demystify “the SOAP” you may have heard about.

## What Is the SOAP?

According to the NRMP, the SOAP is a system for which eligible unmatched or partially matched applicants may be offered unfilled residency program positions. This system works through a series of offer rounds.

The SOAP gives you an opportunity to apply both in your initial specialty and in other specialties in which you may be interested. It is important to recognize that the SOAP is not another Match program, and the applicants do not submit rank lists.

Applicants create lists of programs to which they would like to apply, then these are reviewed by the residency programs. Applications are submitted through the Electronic Residency Application Service (ERAS), and offer reviews occur through the NRMP. For programs using the ERAS, up to 45 applications can be submitted across all rounds by applicants for categorical, preliminary, or transitional residency positions.

If you are partially matched to an advanced program, you may only apply to preliminary or transitional year programs. Conversely, if you are partially matched to a preliminary program, you may only apply to advanced programs. If you are fully unmatched, you may apply to any available program.

During the SOAP process, applicants can only contact programs through their application on the NRMP Registration, Ranking, and Results system—a web-based software application through which all NRMP matches are managed. Applicants are not permitted to contact programs outside of this forum until the program initiates contact first.

Next, phone or video interviews are offered by programs to applicants during the week. Offers may be sent on Thursday of Match Week. Each applicant then has a set time to review and accept or decline the offers. Once an applicant declines an offer from a program, they will not be offered the same position in the following rounds.

The SOAP consists of 1 day submitting applications, 2–3 days of interviewing with the programs, and another day of reviewing and accepting and/or declining offers. Four cycles of offers occur on the Thursday of Match Week, and this is the final day of the SOAP.

Applying for residency is both exciting and stressful. It also can be mentally and emotionally challenging to process the news you received on Match Day and then proceed to prepare for the SOAP.

## How to Apply for the SOAP

First, you need to review the available spots on the SOAP and make a list of programs to which you would like to apply. It is important to have a clear goal in mind when applying to the SOAP and when you conduct interviews with the programs. For most applicants, this is to find out if the position can help you move forward in your career. Just like the main residency match, figuring out if you would be a good fit for the program and if you would enjoy training in the chosen specialty also are important considerations.

You should review the resources available prior to the start of the SOAP and be ready to apply in the SOAP on Match Monday, as it is recommended that you apply to all the programs in which you are interested. The NRMP and the American Medical Association have multiple guidelines that are published and updated every year. These resources cover a broad variety of topics and explain the SOAP steps in detail. They also include a review of the process, tips and tricks on how to prepare your application, and experiences of previous applicants.

In addition, social media platforms and forums can provide insights into the experiences of applicants. These can be a great resource and

## Key Steps of the SOAP

- 1 Make sure you are registered for the main residency Match. There is no unique registration process for the SOAP.
- 2 Review the eligibility criteria for the SOAP.
- 3 Review your application prior to Match Week in the NRMP. If you are considering applying in a different specialty, make sure relevant letters of recommendation are uploaded.
- 4 On Monday of Match Week, if you are unmatched or partially unmatched, you will be eligible for the SOAP.
- 5 Review and create a list of programs for which you would like to apply.
- 6 Start submitting your application by 11:00 am on Monday of Match Week. Review this step as the timing may change each year.
- 7 Do not forget that it is prohibited to initiate any contact with the programs.
- 8 Programs will start contacting residents and conduct phone, email, or video interviews, which can happen any time during the day, so make sure you are available.
- 9 Programs will send offers during the four rounds of offers on Thursday of Match Week. This usually takes place between 9:00 am and 8:00 pm. Each offer round will last for 2 hours.
- 10 During the offer rounds, you can accept or reject an offer. If you reject an offer from a program, this will not be offered to you again in the subsequent rounds, even if the position remains unfilled.
- 11 Remember, it takes a village. If you are a preliminary resident, discuss with your chief resident ahead of time, and take time throughout the day for interviews.

a good way to obtain updated information about available spots.

### Post-SOAP Match Process

I know residents who found their positions after the SOAP process was over. After the SOAP, there are typically several unfilled positions. If you are applying in general surgery, the Association of Program Directors in Surgery (APDS) can be a helpful resource.

Following the Match, unfilled positions are posted on the APDS website, and you can apply to programs outside of the Match. This process usually consists of a similar application package and enables you to find out about open positions. For preliminary residents, this provides you with categorical postgraduate year (PGY)-1 spots, as well as preliminary PGY-2 and categorical PGY-2 spots.

When the SOAP process is over, you might also consider applying to another specialty. Important questions to think about include:

- Am I genuinely interested in the specialty and the spot to which I am applying?
- Does this contribute to my growth as a physician?
- Does this align with the goals I set for my career and for myself?

Many physicians have never imagined training in the specialty that they ultimately chose. Have clear goals for yourself, and thoroughly consider whether applying to a different specialty is something that fits your short- and long-term objectives.

A colleague of mine, Bora Cengiz, MD, summarizes his experience of matching into a different specialty after a preliminary year in general surgery:

“Matching into a program once you go unmatched is exceptionally hard. Not only did I have to find a program that fits my career goals, but I also had to work with other people to have them send letters of recommendation. Once you get an offer, you are urged to take it since the thought of not having a job after a year of hard work crumbles on you. It was a rough time, but everything works out in the end for the better.”



## Support from Peers and Mentors

Receiving unexpected news and then spending Match Week looking for a position are extremely stressful. I want to highlight the importance of your social circle and people who support you during this process. Don't hesitate to reach out to individuals who have gone through these steps before you. There are numerous successful physicians who had to go through the SOAP process to get a training position and now excel in their fields.

During this process, your mentors, program director (if you are a preliminary resident applying for the second time), and peers are vital. Reaching out to them not only makes a big difference in terms of finding out about positions outside of the SOAP, but the support and guidance you receive boosts your motivation to continue your journey.

I can't emphasize enough the importance of supportive peers while you are going through this process. As a preliminary resident who went through the SOAP process myself, I was in a class with multiple other preliminary residents, and we would share resources we found with each other and frequently check in to make sure we were all doing okay and moving forward. I distinctly remember the chief resident of my service giving me time away from clinical duties during Match Week so I could focus on the SOAP process and increase my chances of finding a position.

Remember, other people have done this before you, and for many successful physicians, the SOAP was the first step in their stellar careers. It is important to keep a positive mindset and

continuously look for opportunities and available residency spots. Do not be discouraged by the setbacks along the way and look at the SOAP as a pathway forward. Resilience, hard work, and support from your friends and family will lead you to success. **B**

### Disclaimer

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

**Dr. Ipek Sapci** is a PGY-3 general surgery resident at the University of Illinois College of Medicine Peoria. Prior to residency, she completed a research fellowship in colorectal surgery. Her interests include colorectal surgery, surgical ergonomics, and clinical outcomes research.

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Dr. Ipek Sapci recognizes the importance of having support from a village that includes friends, mentors, and colleagues like Dr. Bora Cengiz (far left) who went through the experience of not matching.

# Cancer Staging Is More Accessible with AJCC Staging Online

FOR MORE THAN 60 years, the American Joint Committee on Cancer (AJCC)—of which the ACS is a founding organization—has set the standard for validating, revising, refining, and publishing TNM (tumor, node, metastasis) staging information in cancer patients around the world. Now, the AJCC is taking a significant step into the future by offering a new, convenient subscription service with the launch of AJCC Staging Online.

AJCC Staging Online is poised to become a valuable resource for oncologists and cancer registrars, offering access to the most current Cancer Staging Protocols Version 9 and *8th Edition Cancer Staging Manual* content.

“The ability to provide optimal cancer care has been greatly enhanced with the introduction of AJCC Staging Online,” said Robert K. Brookland, MD, FACR, FACRO, Chair of the AJCC. “Clinicians and registrars can now have instant and easy access to the most current versions of every disease site directly from the source of this authoritative and powerful staging system.”

For \$49.99 per year, individual subscribers gain unrestricted access to AJCC Staging Online, empowering them with the latest protocols and cancer staging

content. This resource—which has evolved from past manuals and now incorporates annual updates to select cancers based on scientific evidence—is useful to many healthcare professionals, including surgeons, pathologists, medical oncologists, radiologists, cancer registrars, and anyone working with cancer patient care and documentation.

With critical cancer staging information no longer confined to large volumes or individual protocols, cancer professionals will be able to access it anytime, anywhere.

“Based on a robust infrastructure investment supported by the American College of Surgeons, AJCC Staging Online represents a new ‘single source of truth’ that provides point-of-service access to all AJCC Version 9 protocols, currently employed AJCC 8th edition chapters, and other relevant information to clinicians and registrars,” said AJCC Vice-Chair Jeffrey E. Gershenwald, MD, FACS, FAAAS.

## Compelling Set of Features

AJCC Staging Online provides a strong set of features that will make the information more relevant and timelier than ever.

## Real-Time Updates

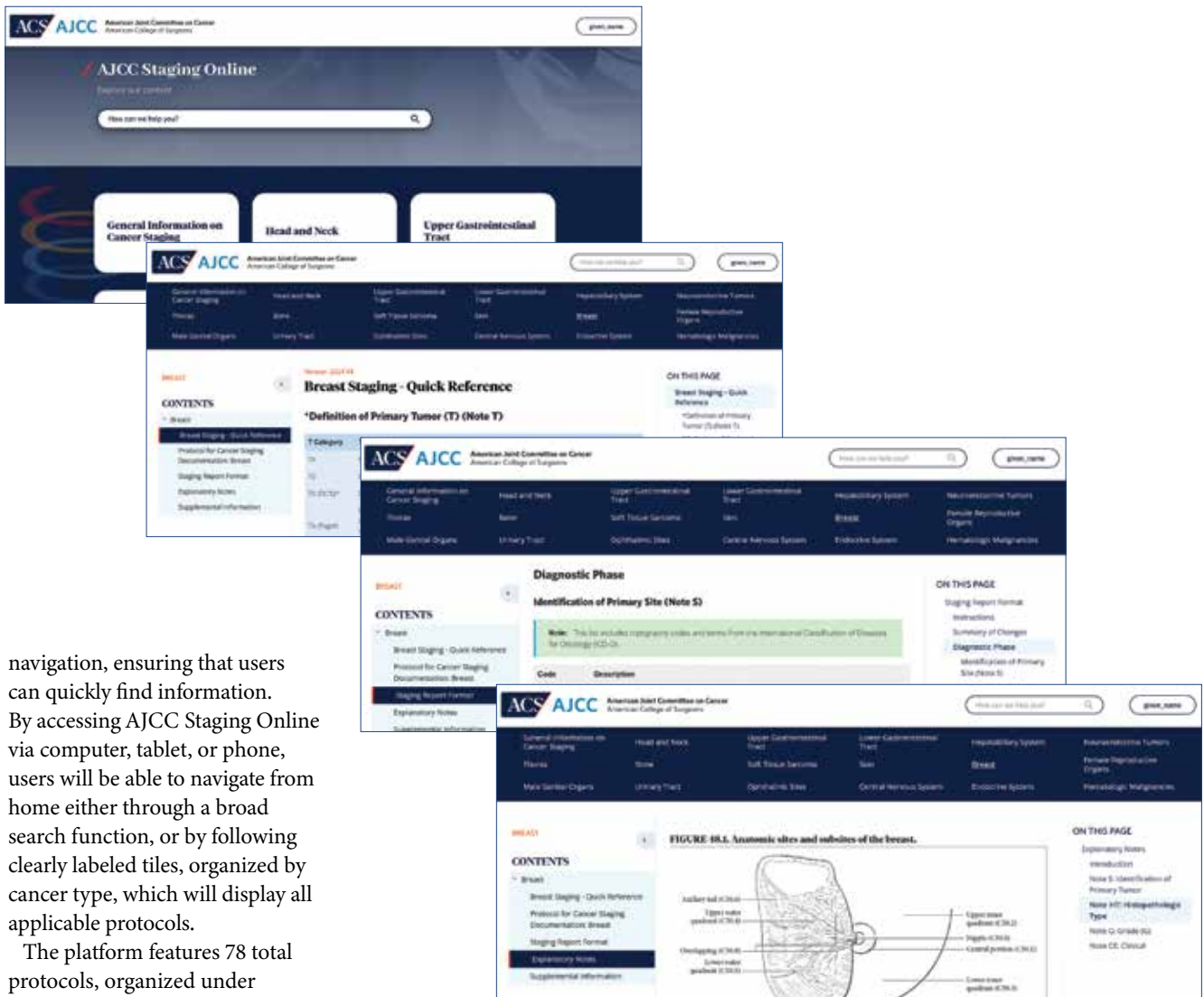
Instant access to the Cancer Staging Protocols Version 9 will keep users at the forefront of cancer staging. Importantly, this digital resource will be updated going forward to include new Version 9 protocols as they go into effect, including the seven new protocols for 2024:

- Neuroendocrine Tumors of the Appendix
- Neuroendocrine Tumors of the Colon and Rectum
- Neuroendocrine Tumors of the Duodenum and Ampulla of Vater
- Neuroendocrine Tumors of the Jejunum and Ileum
- Neuroendocrine Tumors of the Pancreas
- Neuroendocrine Tumors of the Stomach
- Vulva

Future protocols will be published January 1 of each year and immediately available within this new resource. An additional benefit of the subscription platform is that any changes or corrections to the staging information will be available on AJCC Staging Online first.

## User-Friendly Interface

The AJCC Staging Online website is designed for seamless



navigation, ensuring that users can quickly find information. By accessing AJCC Staging Online via computer, tablet, or phone, users will be able to navigate from home either through a broad search function, or by following clearly labeled tiles, organized by cancer type, which will display all applicable protocols.

The platform features 78 total protocols, organized under 18 main categories:

- General Information on Cancer Staging and End-Results Reporting
- Head and Neck
- Upper Gastrointestinal Tract
- Lower Gastrointestinal Tract
- Hepatobiliary System
- Neuroendocrine Tumors
- Thorax
- Bone
- Soft Tissue Sarcoma
- Skin
- Breast
- Female Reproductive Organs
- Male Genital Organs
- Urinary Tract
- Ophthalmic Sites
- Central Nervous System
- Endocrine System
- Hematologic Malignancies


Within each protocol, users will find all the integral information, tables, and data that AJCC publications are known for, including definitions of primary and regional tumors to assign TNM staging, prognoses and survival curves, and more.

### Real-Time Connection to Cancer Staging Resources

This subscription platform is a direct line to the expertise of the global force of volunteer oncologists who develop, update, and maintain the resource. The AJCC team is committed to ensuring a positive experience

for all users to receive the latest, most updated information.

“The American College of Surgeons AJCC Staging Online will revolutionize patient care by providing clinicians with staging information, up-to-date protocols, and survival information at their fingertips,” said Ronald J. Weigel, MD, PhD, MBA, FACS, Medical Director of ACS Cancer Programs. “This is the most trusted source for cancer staging and will provide the power of evidence-based cancer information anywhere, anytime.”

For more information, visit [store.facs.org/ajcc-staging-online](http://store.facs.org/ajcc-staging-online). 

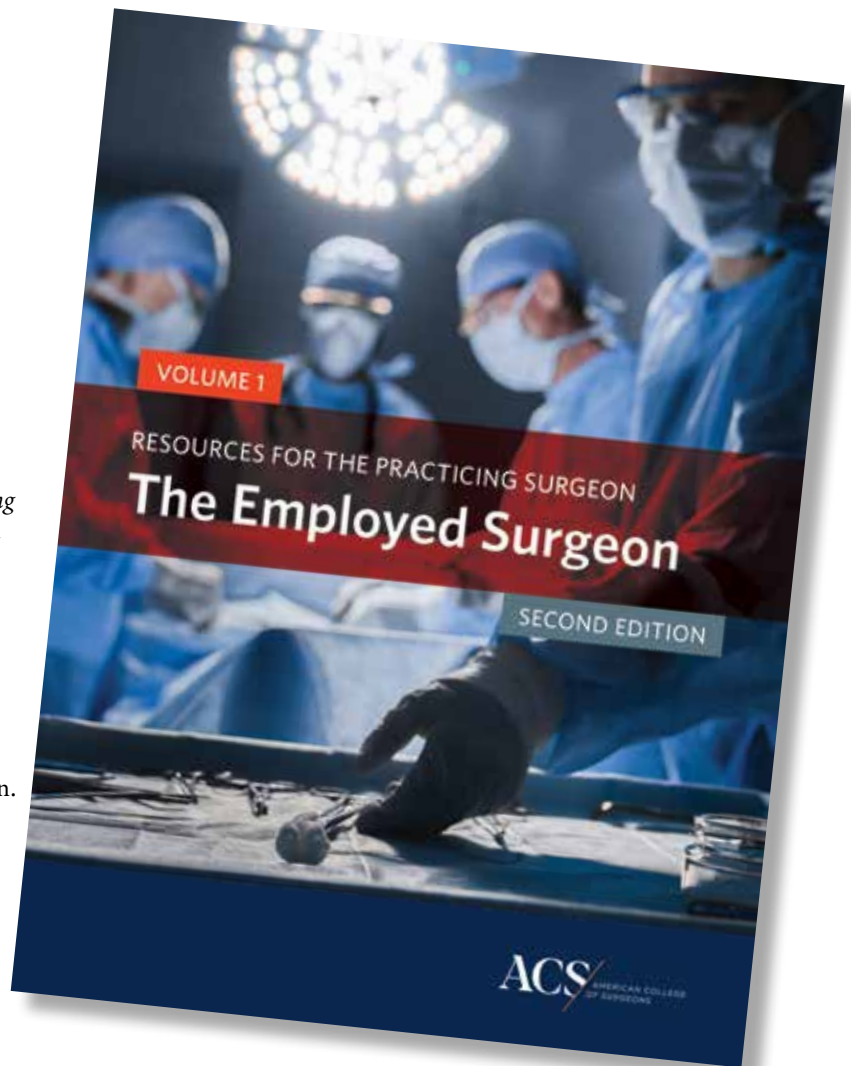
# ACS Releases Updated Primer to Address Career Needs of Employed Surgeons

THE ACS REVAMPED and expanded its *ACS Resources for the Practicing Surgeon: The Employed Surgeon* (2018) to address the ever-changing landscape of physician employment and the complexities of ensuring a surgeon's expertise is fairly and equitably measured and valued by his or her employer.

*ACS Resources for the Practicing Surgeon: The Employed Surgeon* (Second Edition) highlights some of the important principles of navigating career opportunities and the logistical, financial, and contractual nuances associated with becoming or maintaining one's position as an employed surgeon.

Authored by ACS Fellows experienced in practice management, as well as law and business professionals, this free primer is divided into four key sections:

- Part 1: Dimensions of Employment
- Part 2: Understanding Contracts
- Part 3: Perspectives on Surgeon Value & Compensation
- Part 4: Negotiation Basics



An appendix features useful checklists and sample documents to assist surgeons in meeting their employment goals.

Check out the updated primer at [facs.org/for-medical-professionals/practice-management/employed-surgeons](https://facs.org/for-medical-professionals/practice-management/employed-surgeons). **B**



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# ACS 2024 Health Policy Scholars Are Announced

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

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

This year's scholars are:

- **Jeremy Cannon, MD, SM, FACS**, Beth Israel Deaconess Medical Center in Boston, MA (American Surgical Association Health Policy Scholar)
- **Vikas Dudeja, MB, BS, FACS**, The University of Alabama at Birmingham (Americas Hepato-Pancreato-Biliary Association Health Policy Scholar)
- **Annabelle Fonseca, MD, MHS, FACS**, The University of Alabama at Birmingham (The Society for Surgery of the Alimentary Tract Health Policy Scholar)
- **Donald Thomas Hess Jr., MD, FACS**, Boston Medical Center in Massachusetts (New England Surgical Society Health Policy Scholar)
- **Ashley Hilton, MD**, University of Colorado Hospital in Aurora (American Urogynecologic Society Health Policy Scholar)
- **Lisa Marie Knowlton, MD, MPH, FACS, FRCSC**, Stanford Medicine in California (Eastern Association for the Surgery of Trauma Health Policy Scholar)
- **Panagiotis Kougias, MD, MSc, FACS**, SUNY Downstate Health Sciences University in Brooklyn, NY (Society for Vascular Surgery Health Policy Scholar)
- **Krupa Patel, MD, MSc, FACS, FRCSC**, Rush University Medical Center in Chicago, IL (American Academy of Otolaryngology-Head and Neck Surgery Health Policy Scholar)
- **Bharat Ranganath, MD, FACS**, George Washington University in Washington, DC (American Society of Plastic Surgeons Health Policy Scholar)
- **Chethan Sathya, MD, FACS**, Cohen Children's Medical Center in New Hyde Park, NY (American Pediatric Surgical Association Health Policy Scholar)
- **John Scott, MD, MPH, FACS**, Harborview Medical Center in Seattle, WA (The American Association for the Surgery of Trauma Health Policy Scholar)
- **Marc Sher, MD, FACS, FASCRS**, Progressive Surgical Care in New Hyde Park, NY (American Society of Colon and Rectal Surgeons Health Policy Scholar)
- **Udai Sibia, MD**, Providence Saint John's Health Center in Santa Monica, CA (ACS Health Policy Scholar for General Surgery)
- **Mediget Teshome, MD, MPH, FACS**, University of California, Los Angeles (The American Society of Breast Surgeons Health Policy Scholar)
- **Theresa Williamson, MD**, Massachusetts General Hospital in Boston (American Association of Neurological Surgeons Health Policy Scholar) 

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The following articles appear in the June 2024 issue of the *Journal of the American College of Surgeons*. A complimentary online subscription to JACS is a benefit of ACS membership. See more articles at [facs.org/jacs](https://facs.org/jacs).

## Postoperative Opioid Prescribing via Rule-Based Guidelines Derived from In-Hospital Consumption: An Assessment of Efficacy Based on Post-Discharge Opioid Use

*Brendin R. Beaulieu-Jones, MD, MBA, MBI, Margaret T. Berrigan, MD, Jayson S. Marwaha, MD, MBI, and colleagues*

The authors found that rather than relying on fixed quantities for defined operations, rule-based guidelines for opioid prescribing offer a simple, yet effective, method for tailoring opioid prescribing to in-hospital opioid consumption.

## Outcomes and Management of Re-Establishing Bariatric Patients



*Pourya Medhati, MD, Omnia S. Saleh, MBBCh, Abdelrahman Nimeri, MD, FACS, and colleagues*

This study showed that recurrent weight gain was the most common symptom prompting patients to re-seek bariatric care. A multidisciplinary approach, which includes surgical and endoscopic revision and antiobesity medication, provides patients with the most successful strategy to address their symptoms and weight gain.

## Resection of the Primary Tumor and Survival in Patients with Single-Site Synchronous Oligometastatic Non-Small Cell Lung Cancer: Propensity-Matched Analysis of the National Cancer Database

*Jorge Humberto Rodriguez-Quintero, MD, Rajika Jindani, MD, Mohamed K. Kamel, MD, and colleagues*

Using real-world data from the National Cancer Database, the authors found that surgery to the primary site improves overall survival in patients with single-site oligometastatic disease.

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# Publication for Current and Aspiring Leaders in Surgery

With contributions from more than 80 current surgical leaders, the *Surgical Chairs Playbook* provides practical insights, real-world guidance, and innovative suggestions that will benefit current and aspiring leaders in academia and private practice.

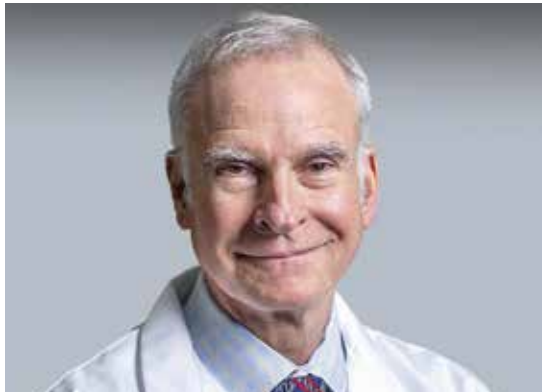


## Topics include:

- Managing priorities and resources in mission-focused organizations
- Growing leadership skills throughout your career
- Building productive interpersonal relationships
- Engaging with the business side of surgery

# Member News

## Weigel Is ASA President



Dr. Ronald Weigel

Ronald J. Weigel, MD, PhD, MBA, FACS, was elected president of the American Surgical Association (ASA). His term runs through April 2025.

Dr. Weigel—a renowned surgical oncologist—is the ACS Cancer Medical Director and, at the University of Iowa Health Care in Iowa City, he is the E. A. Crowell Jr. Professor and Chair of the Department of Surgery. He also has held several other leadership positions within the College.

## Blackmon Directs The Lung Institute at Baylor



Dr. Shanda Blackmon

Shanda H. Blackmon, MD, MPH, FACS, was named executive director of The Lung Institute at Baylor Medicine in Houston, Texas. She also serves as a professor at the Baylor College of Medicine in the David J. Sugarbaker Division of Thoracic Surgery of the Michael E. DeBakey Department of Surgery. Previously, Dr. Blackmon, a cardiothoracic surgeon, was a professor of surgery at the Mayo Clinic in Rochester, Minnesota, and medical director of consumer digital platforms at the Mayo Center for Digital Health.

## Maker Is Surgeon-in-Chief of UCSF Cancer Center



Dr. Ajay Maker

Ajay V. Maker, MD, FACS, is the new surgeon-in-chief of the Helen Diller Family Comprehensive Cancer Center at the University of California San Francisco (UCSF). A surgical oncologist, Dr. Maker also is the Maurice Galante Distinguished Professor in Surgical Oncology and chief of the UCSF Division of Surgical Oncology in the Department of Surgery.

## Patel Receives Named Professorship at Michigan



Dr. Himanshu Patel

Himanshu J. Patel, MD, FACS, was installed as the first Richard L. Prager, MD, Research Professor of Cardiac Surgery at the University of Michigan in Ann Arbor. Dr. Patel also serves as section head of adult cardiac surgery and medical director of the Cardiovascular Network of West Michigan.



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

## Liska Heads Colorectal Surgery at Cleveland Clinic



Dr. David Liska

David Liska, MD, FACS, has been named chair of the Department of Colorectal Surgery at the Cleveland Clinic in Ohio. He also is the director of the Sanford R. Weiss, MD Center for Hereditary Colorectal Neoplasia, leads the Center for Young-Onset Colorectal Cancer, and is the James Church and Edward DeBartolo Jr. Family Endowed Chair in Colorectal Surgery. In addition, Dr. Liska is an associate professor of surgery at the Cleveland Clinic Lerner College of Medicine.

## Gomez-Sanchez Helps Lead Compliance at UCSF



Dr. Clara Gomez-Sanchez

Clara Gomez-Sanchez, MD, FACS, was appointed associate program director of compliance and logistics for the General Surgery Program in the Department of Surgery at the University of California San Francisco (UCSF). A vascular surgeon, she also is an assistant professor of surgery in the Division of Vascular and Endovascular Surgery.



## Sarkaria Is Chief at UT Southwestern



Dr. Inderpal Sarkaria

Inderpal S. Sarkaria, MD, MBA, FACS, is the new chief of the Division of Thoracic Surgery and a professor in the Department of Cardiovascular and Thoracic Surgery at The University of Texas Southwestern Medical Center in Dallas. Dr. Sarkaria previously was at the University of Pittsburgh Medical Center (UPMC) in Pennsylvania, where he held the Endowed Chair of Minimally Invasive Thoracic Surgery. He also served in the UPMC Department of Cardiothoracic Surgery in various roles, including vice chairman for clinical affairs, co-division chief of thoracic and foregut surgery, director of robotic thoracic surgery and thoracic surgery quality and outcomes, and co-director of the Esophageal and Lung Surgery Institute.

## Gemignani Moves Over to NYU Langone



Dr. Mary Gemignani

Mary L. Gemignani, MD, MPH, FACS, is the new chief of the Division of Breast Surgery at NYU Langone Health Perlmutter Cancer Center in New York, New York. She also is a professor in the Department of Surgery at NYU Grossman School of Medicine. Most recently, Dr. Gemignani was a professor of surgery at Weill Cornell in New York, New York, and attending surgeon of the breast service in the Department of Surgery at Memorial Sloan Kettering Cancer Center (MSKCC) in New York, New York. Additionally, she served as program director for the Breast Surgery Fellowship and co-director of the Young Women with Breast Cancer Program at MSKCC. **B**

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### Errata for April 2024 issue

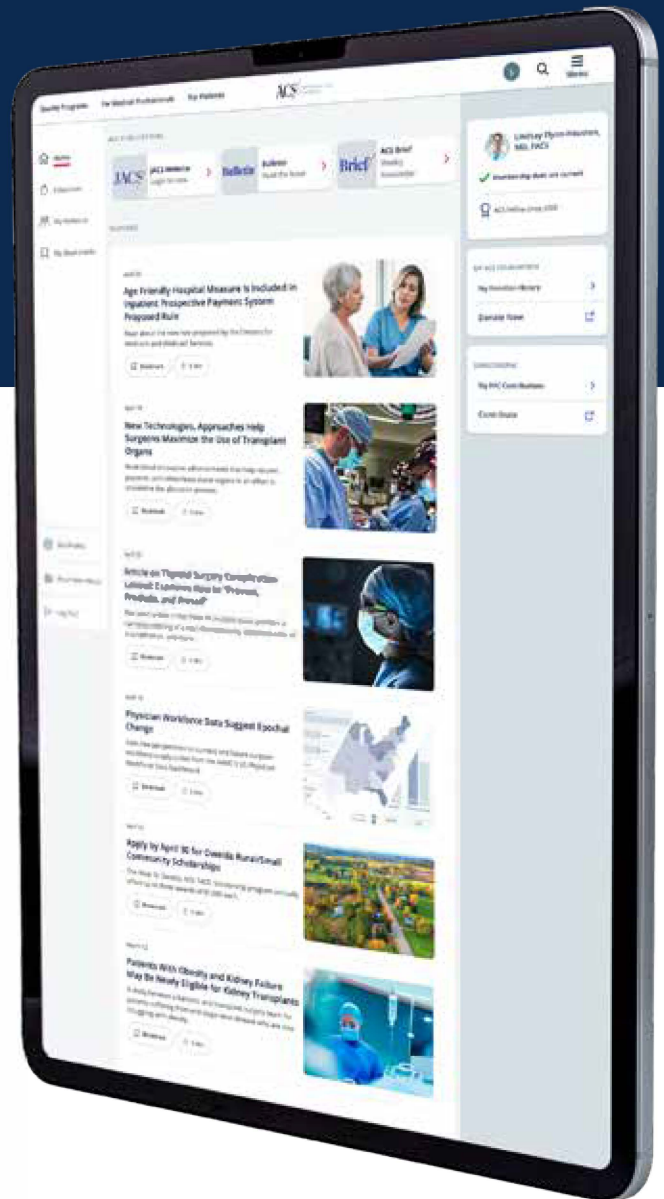
In the April issue of the *Bulletin*, an article titled "Physician Workforce Data Suggest Epochal Change" contained an error in the legend for Figure 2. The label "under 65 years, %" should have said "under 40 years, %." The article has been corrected online.

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