JUNE 2026 VOLUME 58 NO 6

THE SURGICAL TECHNOLOGIST

OFFICIAL JOURNAL OF THE ASSOCIATION OF SURGICAL TECHNOLOGISTS, INC.

Effective Communication in Surgical Technology and Surgical Assisting

Speak Up!
to Promote Safe Practices

National Time Out Day is June 10, 2026

National Time Out Day encourages everyone to speak up for safe practices in the operating room. The Joint Commission, the World Health Organization and the Council on Surgical and Perioperative Safety (CSPS) all promote the efforts to increase awareness for all surgical team members to make it a habit to practice safe surgical protocols each and every time patients undergo surgery.

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AST
Association of Surgical Technologists

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Member Number (toll free 8-4 pm MT, Mon-Fri)
800-637-7433 ▲ www.ast.org

STATEMENT OF EDITORIAL PURPOSE The purpose of the *Journal* is to advance the quality of surgical patient care by providing a forum for the exchange of knowledge in surgical technology and by promoting a high standard of surgical technology performance.

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Effective Communication in Surgical Technology and Surgical Assisting

Casey Rentmeester, PhD
Diana Amundson, MBA, CSFA, CST

This article explores the vital role of effective communication in surgical technology and surgical assisting, emphasizing its direct impact on patient safety and surgical outcomes. Particular attention is given to the importance of teamwork, role clarity, and relational coordination among surgeons, surgical technologists, and surgical assistants. The article also outlines practical, evidence-based communication strategies—such as closed-loop communication, active listening, and speaking up about safety concerns—to support a culture of safety in the operating room.

In This Issue

In Every Issue

A Note From the AST President

JOSEPH CHARLEMAN, DBA, CST, CSFA, FAST, AST PRESIDENT

BOARD MESSAGE

Greetings AST Members,

It is an honor to serve and represent you as president of the Association of Surgical Technologists (AST). The AST Board and I recognize the significant challenges surgical technologists face in an ever-changing healthcare environment, particularly in delivering the highest quality of patient care. In response, the Board has been working diligently to meet the needs of our membership and to enhance the support we provide across all areas of the organization.

Our CEO has been working tirelessly to strengthen connections with state assemblies and improve the delivery of educational offerings. I invite you to reflect on where our organization was three years ago and where we are today. Together, we have achieved important milestones, including:

- Recruitment of a new CEO
- Development and implementation of a comprehensive organizational strategic plan
- Launch of the new AST Community Platform: AST Scrub Hub - AST's Professional Peer Exchange (PPE) (Launching Summer 2026 to members)
- Establishment of several successful ad hoc committees

These accomplishments are the result of dedicated individuals who generously volunteer their time and expertise for the profession.

I ask our members to remember that the AST Board of Directors, standing committees, and ad hoc committees are all composed of volunteers who are not financially compensated for their service. AST depends on members who are willing to volunteer their time and energy separately from their professional and personal lives to advance our profession.

We need you to submit a Consent to Serve and become a voice for change and advocacy. I truly believe in the quote, "Be the change you want to see in the world" (Mahatma Gandhi). This sentiment captures the spirit of volunteerism and transformative leadership. If you wish to see change, I encourage you to get involved – submit your Consent to Serve. We need your perspective, your energy, and your leadership.

The AST Board and I value professional discourse. We do not always agree, but we consistently respect the sharing of ideas and the rationale behind them. Together, we are united and stronger. When we empower one another to succeed, we uplift our entire profession.

On April 25, 2026, I hosted an AST Virtual Town Hall meeting for state assembly board presidents with over 21 state assembly presidents in attendance. Two of our national board members – Brooke Oliver and Rachel Clark – joined the session. They provided updates on current advocacy initiatives, the National Conference, state assembly workshop ideas, and answered members' questions. We will continue to hold these biannual meetings every fall and spring for state assembly leadership.

I am also pleased to share that, based on feedback from a state assembly president, we will extend the fall virtual town hall invitation to all state assembly board leaders from each state. *(An invitation will be sent out later with a date and time.)*

Thank you for your continued support of AST and for your ongoing advocacy for the surgical technology profession.

Sincerely,

Dr. Joseph Charleman, CST, CSFA, FAST

President, Association of Surgical Technologists (AST)

Get Involved

Submit your CV & Consent located on the AST website: www.ast.org – About Us – Appointed Offices

AST EDUCATORS CONFERENCE

Save The Date!

Austin, TX
February 19-20, 2027
Preconference Event
February 18

Registration opening fall 2026.
Stay tuned for more information!

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AST News

AT A GLANCE

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Ready to get started? Email us at publications@ast.org.

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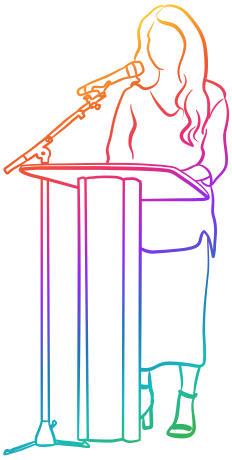

SAVE THE DATE

EDUCATORS CONFERENCE

AST EDUCATORS CONFERENCE

Mark your calendars as we prepare to head to Austin for AST's 2027 Educators Conference.

- Preconference Event: February 18
- Conference dates: February 19-20, 2027

Stay tuned, agenda coming soon!

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- State-specific legislative efforts driven by AST National to further along the profession.
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- Communications including *The Surgical Technologist,* monthly e-newsletters, AST social media sites, including special professional groups on LinkedIn, Facebook, and more.
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Bonus membership months are not applicable to members who recruit themselves, students or retired/disabled members. No substitutions will be permitted. Your membership must be current to receive the bonus months. Potential members MUST supply your name and your AST member number in order for you to receive bonus membership months. If a person's membership has lapsed for more than a year, they are considered a new member.

Reach out to our Member Services team at 1-800-637-7433 for more information.

MILESTONES

Congratulations to the following state assemblies as they celebrate anniversaries this month! AST appreciates your hard work, dedication, and all your years of service for making our state assemblies the backbone of this organization.

- Colorado/Wyoming – 25 years
- Nevada – 23 years

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Designed by S. David Stulberg, MD

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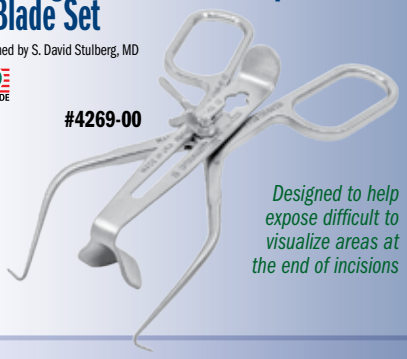
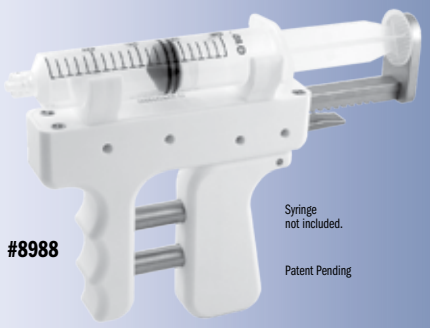


Designed to help expose difficult to visualize areas at the end of incisions



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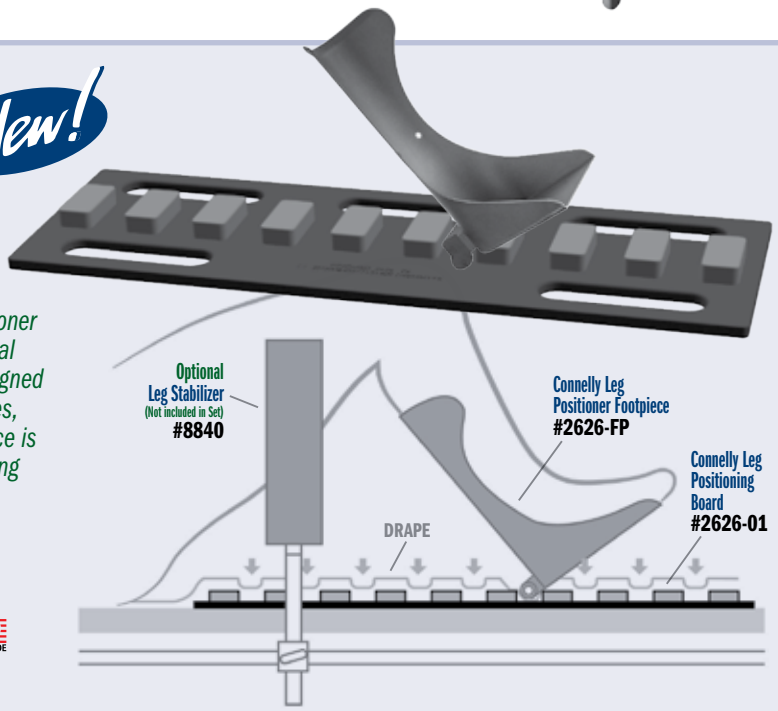

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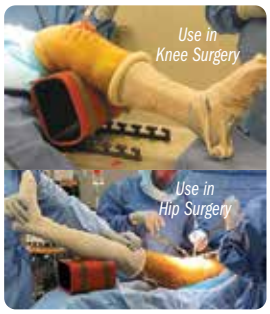

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September 20-26, 2026

AST
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Effective Communication in Surgical Technology and Surgical Assisting

Casey Rentmeester, PhD
Diana Amundson, MBA, CSFA, CST

Effective communication is a crucial element of nearly all human interactions, but it is especially important in surgical contexts, most notably when a patient's life is at risk. In recent decades, there has been increasing interest in the realm of health communication, which provides theories that guide communication between health professionals and among health professionals with their patients.

The field is nascent enough that it generally provides evidence-based practices that guide provider-patient interactions, nurse-patient interactions, or communication strategies between health professionals but has yet to guide, for instance, communication between surgeons and surgical technologists (STs) or surgical assistants (SAs). Our aim in this article is to help to close that gap through highlighting key theories in the field of health communication and then applying them to the realms of surgical technology and assisting.

COMMUNICATION THEORIES THAT GUIDE HEALTHCARE

The most basic theory in the realm of communication comes from Dean Barnlund, who developed the Transactional Model of Communication.[1] In this theory, a sender directs a message to a receiver, who then provides feedback. When, for instance, a surgeon asks the ST for his or her scalpel

LEARNING OBJECTIVES

- Explain key health communication theories and their relevance to surgical settings
- Differentiate roles and demonstrate role clarity within the surgical team
- Apply practical communication strategies to promote patient safety and teamwork
- Demonstrate empathic and attentive communication with surgical patients

and the ST complies, the message has been received with appropriate feedback. While this theory does provide a general framework to understand communication, its simplicity often can fail to highlight that context often shapes communication. In health communication theory, scholars often distinguish between three basic relationships that play a role in healthcare settings: 1) social relationships between peers, friends, and fellow family members; 2) professional relationships between co-workers, physicians, and other health professionals; and 3) therapeutic relationships between health professionals and their patients or family members.[2] Theories of social intelligence inform us that it is a mark of intelligence to navigate these various contexts in different ways, as one should naturally act more freely and nonchalantly among one's friends or family members as compared with how one acts, for instance, in a professional environment among colleagues.[3]

Thus, above and beyond the transactional theory of communication, we need a more nuanced theory if we are to consider the unique sorts of relationships that occur between surgeons and SAs or STs. Ludwig von Bertalanffy's General Systems Theory (GST) provides a fitting complement to the transactional theory in that it emphasizes that the system in which the communication occurs influences the communication behaviors of individuals within it.[4] Rather than the intimate physician-patient relationship that dominated pre-modern versions of healthcare where family doctors with highly personalized relationships with patients, these days most healthcare interactions in industrialized societies occur in healthcare systems. Bertalanffy's theory can help us to understand the innerworkings of those systems through the lens of communication. This is especially helpful when we are investigating communication between professionals who play different roles in the system with different scopes of practice. In such environments, teamwork becomes critically important to ensure processes operate smoothly and patient health outcomes are met. Instead of one doctor having to know all the nuances of each patient situation, a team-based approach allows for specialization such that various individuals are responsible for specific aspects of the overall care experience.[5] In such a context, effective communication plays a critical role in the achievement of patient outcomes.[6]

The Association of Surgical Technologists (AST) provided a position statement on teamwork in 2013 that outlined the following features that align well with systems theory: 1) teamwork is an essential part of the surgical environment in that it helps to provide a seamless, safe, and efficient surgical experience with a positive patient outcome; 2) due to the surgical arena being a highly technical and fast-paced environment, health professionals must strive for increased proficiency via team collaboration that leverages good interpersonal skills to provide safe, quality outcomes for the patient; 3) team players need to learn and refine their skills in communication, conflict negotiation and resolution, and consensual decision making in the surgical environment in order to achieve exceptional team and patient outcomes.[7] In striving to achieve these outcomes, two concepts from systems theory are especially important, namely, role ambiguity and role clarity. Role ambiguity refers to not understanding one's role in the system.[8] If, for instance, an SA tries to take on the role of the surgeon by working outside one's scope of practice, there might be confusion as to which tasks are delegated to which individual, which can lead not only to frustration but poor patient outcomes. Role clarity, on the other hand, refers to understanding how one's role fits within the system.[8] In the context of healthcare, role clarity occurs when the health professional not only understands how one's role interacts with the roles of others in a team, but also how one's role plays a part in the greater whole of the system.

Students seeking certification in surgical technology or surgical assisting should understand that STs and SAs have different roles in healthcare systems. STs typically work with several surgeons and thus must be competent and flexible to adjust to specific surgeon's nuances. Since STs will commonly work with the same surgeons regularly over the course of their careers, it can be helpful to make note of the subtleties of practice each surgeon prefers during surgery so they can attend to those preferences more efficiently in similar procedures in the future.[9] SAs, on the other hand, typically work with one surgeon exclusively, or — in other health system set-ups — with a specialty group. Given the increased frequency of collaboration, SAs must become highly adept at responding to the unique surgeon's expectations and needs. Placed in terms of the context of health communication, both STs and SAs must develop the skills to ensure "relational coordination," that is, "a mutually reinforcing process of communicating and relating across arenas of expertise for the purpose of task integration."[10] When things go smoothly in the surgical environment and everything is "firing on all cylinders,"

> "Placed in terms of the context of health communication, both STs and SAs must develop the skills to ensure 'relational coordination,' that is, 'a mutually reinforcing process of communicating and relating across arenas of expertise for the purpose of task integration.'"

the surgical team is demonstrating relational coordination.

Communication is a crucial skill utilized within the operating room and among the surgical team. To achieve a successful outcome for the patient, the operating room team must work together as a cohesive unit. Each member must know one's specific role and successfully communicate with each other throughout the surgical procedure to maintain a smooth and efficient perioperative process. The principles of sterile technique state that "movement in and around the sterile field must not compromise the sterile field," which includes conversations among the various team members within the operating room.[11] Even though every team member requires surgical masks, talking should be kept to a minimum, and necessary conversations should be focused primarily on the patient and the surgical case being performed. Any personal conversations should be held until the conclusion of the procedure when the surgical incision is closed to prevent possible contamination via airborne moisture droplets.

PRACTICAL COMMUNICATION SKILLS

Practical communication skills can promote a positive surgical environment and outcome for the team and surgical patient. Generally speaking, surgeons appreciate effective communication skills and value team members who can present information and ideas clearly and directly.[12] It is good practice to speak respectfully and professionally and show appreciation for team members' work and contributions. Evidence from the field of health communication shows that best practice includes repeating orders, names of medications, solutions, and count information. If there is any uncertainty, STs and SAs should ask for verification and confirmation.[13] Strong communication skills help to create a "culture of safety" where people are encouraged to speak up when they identify breaks within sterile technique or have questions or concerns. If the surgeon or another team member is about to alter the course of the standard operating procedure, it is acceptable to state the concern in the form of a question to help determine the appropriate next step of the procedure. This culture enables surgical teams to collaborate to express their ideas after the procedure and collectively create solutions to prevent future misunderstandings and contaminations. This moral obligation, known as surgical conscience, helps the team maintain surgical asepsis practices and techniques and gives the patient the highest possibility of a successful outcome.[14]

Successful teamwork also requires active listening skills between surgical team members. These skills are essential to comprehend each person's role throughout the surgical procedure during the "timeout" phase of the procedure, which is the brief pause immediately before starting the surgery where the operating room team verifies the patient's identity, the details of the procedure, and the surgical site. When the "timeout" is announced, each person within the operating room must cease all activities and give their undivided attention to the surgeon to verify the details as to the specific procedure to ensure everyone is on the same page. Listening skills can be specific to the operating room throughout the procedure but must also be utilized throughout the perioperative care of the surgical patient. A ST or SA must know what is happening in the room while the surgeon is working. In the realm of health communication, the term that captures this holistic attention is "circumspection," which entails a "sight" that "knows" what is going on around oneself.[15] One aspect of circumspection is to pay attention to the monitor alarms that indicate the patient's vitals are not at the proper levels, which increases their risk for potential complications. In such situations, something must be done either on the field or with anesthesia through medication to correct the levels before the procedure can continue. Paying close attention to the surgeon is critical when unexpected occurrences are encountered during the procedure so the ST or SA can help identify the appropriate actions needed and steps that can be taken to help achieve a positive patient outcome following the procedure.

Listening skills are not limited to the operating room but are crucial throughout interactions with the patient and the patient's family members. Often, surgical patients have anxiety about not being in control or knowing what is happening during their procedure. This fear is typically height-

> "Strong communication skills help to create a 'culture of safety' where people are encouraged to speak up when they identify breaks within sterile technique or have questions or concerns."

ened for patients who are very ill, have comorbidities, or have never personally experienced a surgical procedure before.[16] The primary concerns center around not waking up from anesthesia, being unable to provide for their family following surgery, or having the surgery exacerbate the problem instead of alleviating it.[17] As a healthcare professional who is a team member guiding and assisting a patient at a vulnerable point in life, the goal should be to make eye contact, be receptive to the patient's fear, show sensitivity and empathy as to what the patient is experiencing, and attempt to alleviate as much anxiety as possible through empathic responses, which refer to communication that recognizes the feelings of the patient.[18] Using a soothing tone and monitoring the patient's body language, best practice is to utilize reassuring statements such as "We are going to take very good care of you" and "We will see you in the recovery room when it's all done" to ease anxiety.[19] It is especially important not to promise the patient something you cannot follow through on, use your words cautiously, and use a soothing tone of voice to calm the patient before the induction of anesthesia. On the whole, STs and SAs should focus on the primary goal of patient safety and work hard to become a productive and respected surgical team member, providing the patient with a positive and successful experience.

ABOUT THE AUTHORS

Dr. Casey Rentmeester is the Associate Dean of Academic Success and a Professor of Philosophy at Bellin College in Green Bay, Wisconsin. He is author of *Heidegger and the Environment*, co-editor of *Heidegger and Music,* and has published roughly 50 peer-reviewed journal articles and book chapters. He regularly teaches courses in the medical humanities, including courses in biomedical ethics and health communication.

Diana Amundson is the Program Director and an Instructor for the Bachelor of Science in Surgical Assisting Program at Bellin College in Green Bay, Wisconsin. She has been in the healthcare field and the surgical technology and surgical assisting professions for 14 years and has taught in higher education for the past four years. She regularly teaches core courses throughout the surgical assisting program and educates the community and future generations about the importance of surgical technology and surgical assisting professions.

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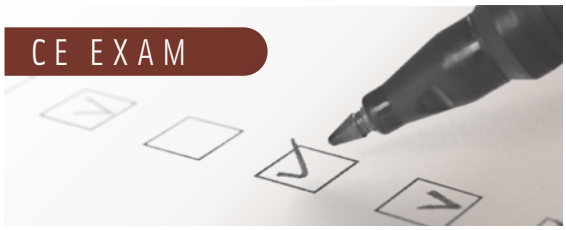

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Effective Communication in Surgical Technology and Surgical Assisting

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1. **What is the primary limitation of Barnlund's transactional theory of communication in surgical settings?**
   a. Assumes all communication is therapeutic in nature
   b. Oversimplifies communication by ignoring contextual factors
   c. Focuses too heavily on written communication
   d. Does not account for feedback between sender and receiver

2. **Which concept from systems theory refers to not understanding one's responsibilities within the healthcare team?**
   a. Role ambiguity
   b. Relational coordination
   c. Circumspection
   d. Role clarity

3. **What practice is recommended for surgical technologists to better adapt to different surgeons' preferences?**
   a. Keeping a journal to note surgeon-specific nuances
   b. Limiting communication to reduce distractions
   c. Avoiding asking questions during procedures
   d. Shadowing only one surgeon for consistency

4. **What term describes the mutually reinforcing process of communicating across areas of expertise to integrate tasks?**
   a. Collaborative delegation
   b. Relational coordination
   c. Therapeutic communication
   d. Professional rapport

5. **According to sterile technique principles, personal conversations in the operating room should be:**
   a. used to train students during the procedure.
   b. encouraged to maintain team morale.
   c. minimized and focused on the patient and procedure.
   d. only between the surgeon and anesthesiologist.

6. **Which communication approach is recommended to help reduce a patient's anxiety before anesthesia induction?**
   a. Using empathic responses and reassuring statements
   b. Providing detailed technical explanations of the procedure
   c. Avoiding eye contact to maintain professionalism
   d. Promising specific outcomes to build trust

7. **Which communication practice helps create a "culture of safety" in the operating room?**
   a. Delegating communication to the circulating nurse
   b. Avoiding questions to prevent slowing the procedure
   c. Speaking only when spoken to by the surgeon
   d. Repeating orders and asking for verification when uncertain

8. **What is the purpose of the "timeout" phase before surgery begins?**
   a. Allow the team to prepare instruments
   b. Allow anesthesia to stabilize the patient
   c. Provide the surgeon time to review imaging
   d. Final opportunity to confirm patient and procedural information

9. **What does the article describe as "circumspection" in the context of surgical practice?**
   a. Ability to follow the surgeon's instructions without question
   b. Practice of documenting procedural steps
   c. Holistic awareness of what is happening in the operating room
   d. Method for reducing preoperative anxiety

10. **The patient concern that is commonly associated with preoperative anxiety is the fear of:**
    a. being unable to afford the procedure.
    b. postoperative dietary restrictions.
    c. interacting with unfamiliar staff.
    d. not waking up from anesthesia.

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Establishment of a 24/7 Robotic Acute Care Surgery Program at a Large Academic Medical Center

Daniel Gage[1] Taylor Neilson[1] Megan G. Pino[2]
Daniel Eiferman[3] Jennifer Knight-Davis[3]

Abstract

Background For many years, robotic surgery has been an option for various elective surgical procedures. Though robotic surgery has not traditionally been the first choice for acute surgical patients, recent work has shown promise in broader applications. However, there are limited data regarding how to establish an institutional robotics program for higher acuity patients. This project aimed to map a pathway for the creation of an acute care surgery robotic program at a large academic medical center.

Methods Various stakeholders were gathered jointly with our surgical faculty: anesthesia, operating room leadership, surgical technologists, circulating nurses, Central Sterile Supply, and Intuitive Surgical Inc. representatives. Staff underwent robotics training, and surgical technologists were trained as bedside first assistants. Nontraditional robotic operating rooms were allocated for coordinated placement of appropriate cases, and pre-made case carts were arranged with staff to be available at all hours. A workflow was created between surgical faculty and staff to streamline add-on robotic cases to the daily schedule.

Results Six faculty and two fellows are now credentialed in robotics surgery, and additional surgeons are undergoing training. Numerous staff have completed training to perform operative assistant duties. The operating capacity of robotic acute care surgeries has more than doubled in just one year, from 77 to 172 cases between 2022 and 2023, respectively. Two add-on cases can be accommodated per day. Select patients are being offered robotic surgeries in the acute surgical setting, and ongoing efforts are being made to create guidelines for which patients would best benefit from robotic procedures.

Conclusions Launching a successful robotic surgery program requires a coordinated, multidisciplinary effort to ensure seamless integration into daily operations. Additional assistance from outside technology representatives can help to ensure comfort with procedures. Further studies are needed to determine the acute patient population that may benefit most from robotic surgery.

Keywords Robotic surgery · Robotic surgery program · Acute care surgery · Emergency general surgery · Minimally invasive surgery · Laparoscopic surgery

Minimally invasive surgery (MIS), comprised of laparoscopic surgery and robotic surgery, has been a validated, widely adopted alternative to open surgery for several decades. First reported in 1910, laparoscopic techniques were initially criticized and did not gain traction until much later in the century [1]. Today, approximately 15 million MIS procedures are performed annually, with the United States accounting for nearly 5 million cases [2]. These numbers continue to rise each year, creating a greater demand for MIS platforms, programs, and trained personnel.

MIS has profound benefits compared to open surgery, the most notable being reductions in operative and postoperative complications, hospital stay, recovery time, and postoperative pain [3]. MIS techniques have been implemented across most surgical subspecialties and have become the gold standard approach for the diagnosis and treatment of many thoracic and abdominal disorders. Some commonly performed MIS procedures are cholecystectomy, appendectomy, and

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hysterectomy [4–6]. Historically, these are more frequently performed in the ambulatory setting.

Within MIS, laparoscopic surgery and robotic surgery are comparable in terms of morbidity and mortality outcomes. Some studies have even reported lower total complication rates in patients undergoing robotic surgery, specifically for hysterectomy, gastrectomy, and rectal cancer resection procedures [7]. Though rates of conversion to open surgery and total postoperative length of stay are not significantly different between laparoscopic surgery and robotic surgery as a whole, several studies investigating specific surgical procedures have associated robotic surgery with lower conversion rates and shorter length of stay [8–13]. Higher postoperative cosmesis satisfaction, sexual function, and continence have been identified, indicating that robotic surgery may result in improved quality of life outcomes compared to laparoscopic surgery [8, 14–16]. Despite its potential for improved outcomes, robotic surgery has remained limited in clinical application due to higher healthcare system costs, longer total operative times, or physical space constraints.

Robotic surgery has been increasing in utility over the last decade, with an eightfold increase from 2012 to 2018 in the United States [17–19]. Further, robotic surgery has been gaining traction in the complex procedural setting due to the increased dexterity and precision it offers over traditional laparoscopic surgery. The most widely used robotic surgical system, the da Vinci Surgical System, utilizes specialty cameras that provide a three-dimensional view of the surgical field and endo-wristed instruments that provide tremor elimination [20, 21]. Surgeons and students can also train on the equipment, which acts as a virtual reality surgical simulator [22, 23]. Studies have shown that novice surgical trainees have a shorter learning curve for robotic compared to laparoscopic platforms, as well as better fatigue and physical comfort levels [24, 25]. As more qualified individuals become competent and confident in operating on robotic platforms, the number of robotic surgeries performed annually has increased, outcomes have improved, and interest in establishing robotic training programs at large academic medical centers has skyrocketed.

Recent work has begun examining outcomes of the use of robotic surgery in the acute surgical setting [26–28]. While its use may be contrary to historic trends for management of acutely ill surgical patients, robotic surgery has shown promise in this broader application. There is limited information, however, as to how to establish a program at a given institution [29]. In this study, we detail a pathway to the creation of a robotic program capable of completing acute care surgery cases at a large academic medical center.

Methods

This single academic institution project evaluated a novel protocol for the integration of robotic acute care surgery into the division of Trauma, Critical Care, and Burns at the Ohio State University (OSU).

Establishment of a multidisciplinary robotic surgery team

Various stakeholders involved in the operative department environment were identified. In addition to acute care surgeons, representatives from anesthesiology and Central Sterile Supply, operating room front desk staff, circulating nurses, surgical technologists, and Intuitive Surgical, Inc. staff were included. These individuals were mutually introduced to create an open channel of communication, led by a robotic surgical faculty liaison. Longitudinal, multidisciplinary discussions were held to identify barriers to the expansion of robotic acute care surgery and to workshop possible interventions.

Surgical training in robotics

Surgeons obtained institutional certification to complete robotics cases through completion of their residency training or through an apprenticeship program. The apprenticeship program was led by experienced robotic surgeons and run collaboratively between the Division of Trauma, Critical Care, and Burns and the Division of General and Gastrointestinal Surgery, Minimally Invasive Surgery. Existing surgical faculty were eligible to obtain their robotics certification after successful completion of five robotics cases as an apprentice. A training program was developed specifically for operating room staff, such as surgical technologists and circulating nurses, to increase familiarity with robotics cases. The program included lectures and workshops led by a representative from Intuitive Surgical, Inc. This provided staff with additional exposure to robotic surgery, both in and out of the operating room.

Robotic surgery platform

OSU utilizes the da Vinci Surgical System by Intuitive Surgical, Inc. for all robotic surgeries.

Allocation of robotically capable operating rooms and scheduling of robotic surgery cases

At our institution, there are four designated operating rooms capable of accommodating robotic platforms on any

given day. Surgeons who identified a need for a robotics case worked in coordination with the robotics scheduling team to book surgical cases in robotically capable operating rooms. The operating room front desk and robot program coordinators were contacted to assess availability of such operating rooms. Whenever possible, cases were scheduled on an elective basis. When cases were deemed emergent, additional scheduling considerations were given and changes to existing cases were occasionally made to accommodate the new robotics cases.

Preparation of surgical case carts

Upon scheduling of robotic surgical cases, Central Sterile Supply was contacted and notified of the need for sterile robotic surgery case carts to be prepared. Designated universal da Vinci Surgical System robotic case carts contained the following instruments: Monopolar curved scissors, Maryland Dissector, Tip Up Grasper, Large Needle Driver, Cadiere Grasper, and Prograsp. For cases involving cholecystectomy, an additional two large clip appliers were added. Two universal case carts were prepared in advance to allow for add-on robotic surgery cases each day.

Pre- and intraoperative workflow

Circulating nurses and surgical technicians prepared robotic and open instruments in the standard, sterile fashion. Anesthesia and surgery preoperative evaluations and consents were obtained from patients in standard fashion. An on-site Intuitive Surgery, Inc. representative was consulted for all robotic cases and was available to assist with operating room setup, technical support, and troubleshooting. During cases, Central Sterile Supply was available to provide additional sterile instruments, as needed. Surgical technologists performed bedside assistant duties. If needed, surgical residents also functioned as bedside assistants. This workflow is outlined in Fig. 1.

Results

The Ohio State University (OSU) is a large academic medical center containing 1,404 beds. The Division of Trauma, Critical Care, and Burns currently employs 15 full-time faculty and two fellows who complete cases independently. Annually, the division completes over two thousand cases at OSU Main Campus and a smaller community hospital in Columbus, Ohio.

OSU was among the first academic institutions to adopt the da Vinci Surgical System. In 2023, 3,485 robotic cases were completed at OSU, spanning multiple specialties, including general surgery, colorectal surgery, surgical oncology, urology, and obstetrics and gynecology.

The implementation of OSU's robotic surgery program led to the formal training of dozens of individuals at various levels of employment. Within the Division of Trauma, Critical Care, and Burns, six acute care surgeons are now certified to complete robotic surgeries independently. All operating room staff have completed additional in-service training and are now able to skillfully aid these surgeons during robotic procedures.

As the program has expanded, the division has obtained block time to place appropriate acute and elective outpatient cases. This required a multidisciplinary effort between surgeons and operating room staff to coordinate new robotic procedures with minimal disruption to daily operating room flow. Furthermore, the program and clarified workflow allowed for accommodation of robotic cases overnight and on non-business days, leading to 24/7 availability for patients.

Since the formal initiation of robotic acute care surgery cases at OSU in early 2022, there has been a gradual increase in the number of cases completed within the division. A total of 77 robotic cases were completed in 2022, and a total of 172 robotic cases were completed in 2023, a 223% increase. The majority of cases completed

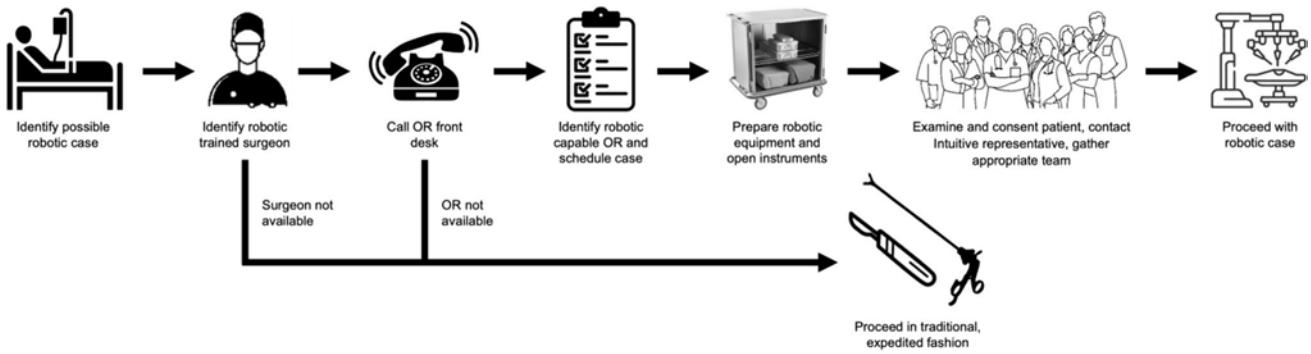

Fig. 1 Workflow for robotic acute care surgery cases at our institution. These are the steps required to identify both a case and surgeon so they can be added onto the operating room schedule each day

included cholecystectomy, inguinal hernia repair, ventral hernia repair, and appendectomy (Fig. 2). These numbers continue to rise as more trained individuals, robotic equipment, and robotically capable operating rooms become available.

Discussion

Robotic surgery has long been an option for patients undergoing various elective surgical procedures. Multiple studies have offered comparative analysis between traditional laparoscopic techniques and newer robotic ones, and recent work has begun examining outcomes of the use of robotic surgery in the acute surgical setting [4, 30, 31]. Patient safety is of upmost importance in the consideration of adoption of new surgical techniques and modalities. Data have suggested similar outcomes in robotic surgery compared to more traditional approaches [32–34], and some larger medical centers have begun developing programs to offer these interventions to their patients [28].

With advancements in minimally invasive surgical techniques, increasingly more procedures are being performed using robotic platforms. Thus, the ability to operate robotically is becoming a vital skillset required of all surgeons. Acute care surgeons are often urgently consulted intraoperatively to evaluate acute pathologies and intervene rapidly. Without surgeon knowledge of robotic systems, patients may be subjected to more invasive procedures, leading to increased morbidity, lengths of stay, and recovery times. Exposure to robotic surgery has become a part of fellowship training in other programs across the country [35] and remains a core component of OSU's curriculum at both the residency and fellowship levels. Our surgical residents and fellows routinely participate in robotic cases across all years of their training, underscoring the importance of such training in the foundational development of surgeons.

Though robotic surgery has been emerging as a modality for the management of acutely ill patients, the availability of

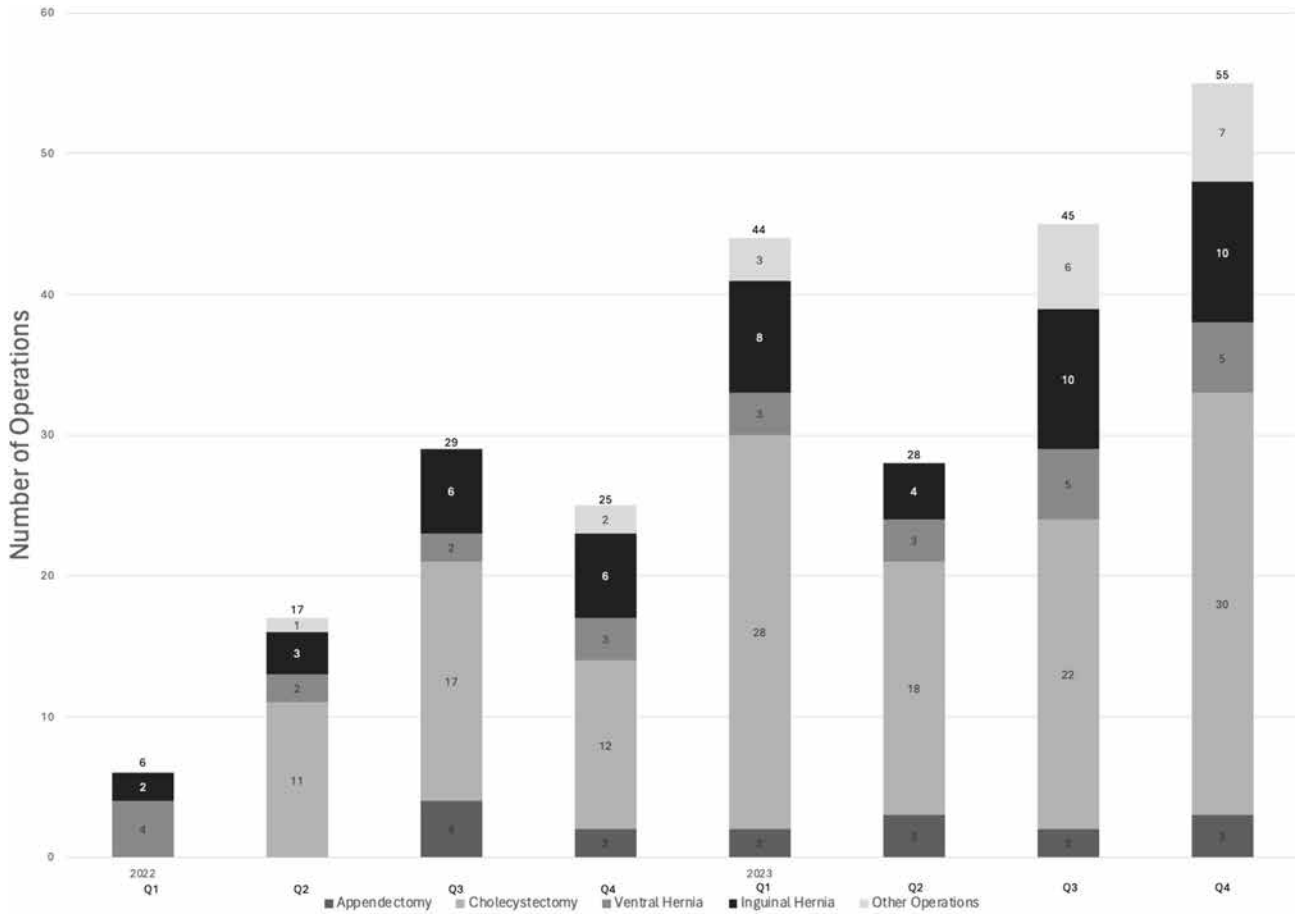

Fig. 2 Increase in robotic acute care surgery cases performed at OSU from 2022 to 2023. Since robotic acute care surgical cases began being performed at OSU in early 2022, the number of robotic cases completed has steadily increased. Data are stratified by quarterly totals per calendar year (2022, $n=77$; 2023, $n=172$)

robotic platforms on short notice remains challenging during typical business hours. Scheduled robotics cases often utilize available consoles during working daytime hours – hours which acute care cases do not necessarily conform to. Our experience at OSU has demonstrated the importance of multidisciplinary collaborations to make additional staff and resources available for robotics cases to proceed at any hour. Previous work has demonstrated that robotic procedures like cholecystectomy that occur outside of typical business hours are equally as safe as those that occur during the day [36].

Engaging all participatory parties in the development of OSU's robotics program was a key component to its early success. Prior to the program's development, robotic surgery cases were solely performed on an elective basis at OSU. This meant, previously, operating room staff had at least one day to prepare for cases. With the introduction of daily add-on robotics cases, the streamlined, advance preparation of universal robotic case carts by Central Sterile Supply staff members was essential to feasibly integrate additional robotics cases into daily operations. Collaboration between faculty and operating room staff led to the creation of a standardized acute care surgery set that could be applied to most cases completed within the Division of Trauma, Critical Care, and Burns.

Surgical robotics training for not only surgeons but also operating room staff was another crucial component of the program. OSU surgical residents and fellows were provided ample opportunities to practice on robotic platforms through virtual reality simulations and to hone their skills in the operating room during live cases. Current surgical faculty were offered robotics training through an apprenticeship model, derived through a close partnership with colleagues specializing in elective minimally invasive surgery. As surgeons completed cases on an elective basis and gained the confidence and competence necessary to complete cases independently, they graduated from apprentices and became teachers to new apprentices. Interested operating room staff were provided formal training in robotic assistant duties, both by surgical faculty and by the Intuitive Surgical, Inc. Representative. After those who were interested were trained, additional efforts have continued, and all staff are now trained to participate in these cases.

This peer-inclusive, growth-oriented model allowed for a gradual expansion of individuals at OSU with surgical robotics expertise. This subsequently increased the availability of trained individuals and the possibility of completing a robotics procedure at any given time. At first, our institution underwent a three-month trial period where cases were carefully selected with interested staff members as well as our Intuitive, Inc. representative, who all volunteered to be available as a call team when a potential case was identified. This allowed for the early identification of any possible pitfalls which could be addressed before additional expansion. Now, multiple surgical teams can be assembled around the clock for emergent cases, limited only by the availability of a robotic platform and robotically capable operating room. Resources can be quickly organized for emergent add-on robotics cases in the same way they are coordinated for other modalities. Again, we emphasize the importance of a coordinated effort by all invested team members to successfully scale up the team's robotic proficiency and capacity for additional cases. As a continued effort to provide quality care in this setting, our surgeons and operating room staff work in conjunction to evaluate all cases completed robotically with special attention to cases completed outside of regular business hours to ensure the appropriateness of case selection and utilization of resources during this time. There are limitations to the generalizability of this study as it was performed at a single, large academic medical center. Additionally, we did not distinguish between elective verses non-elective operative cases in our initial assessment of the ability to scale our program.

In conclusion, robotic surgery is a validated, safe method for surgical intervention of many acute care pathologies, and its applications should continue to be expanded. Through implementation of robotic surgery programs such as the one outlined in this study, medical centers may be able to complete both outpatient and emergent robotic surgery cases on a 24-h basis. Collaborating openly with all stakeholders in the robotic operating room environment and working to address unique barriers to completion of safe, standardized robotic cases at each institution will be key to individual programs' success. Additional studies from our group will seek to compare outcomes from the use of robotics in acute care surgery to more traditional modalities of acute care surgery. Special attention will be given to comparison of cases completed electively through our group as well as add-on or after-hours cases. We hope to use these data to determine which patients may benefit most from robotic surgery intervention as well as how our robotics program can address disparities for patients undergoing acute care surgery.

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Declarations

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Establishment of a 24/7 Robotic Acute Care Surgery Program at a Large Academic Medical Center

#515 JUNE 2026 1 CE CREDIT $6

1. **What was the primary goal of the project described in the article?**
   a. To compare robotic and laparoscopic surgery outcomes
   b. To map a pathway for creating an acute care surgery robotic program
   c. To reduce hospital costs
   d. To train more anesthesiologists

2. **Which robotic surgical system is used at OSU for all robotic surgeries?**
   a. Zeus Surgical System
   b. da Vinci Surgical System
   c. Mako Robotic System
   d. CyberKnife System

3. **How many robotic acute care surgery cases were completed at OSU in 2023?**
   a. 77
   b. 120
   c. 172
   d. 250

4. **Which of the following was NOT listed as a benefit of minimally invasive surgery (MIS) compared to open surgery?**
   a. Reduced hospital stay
   b. Increased operative complications
   c. Shorter recovery time
   d. Less postoperative pain

5. **What was a key strategy for ensuring 24/7 availability of robotic acute care surgery at OSU?**
   a. Hiring more surgeons only
   b. Preparing universal robotic case carts in advance
   c. Limiting surgeries to daytime hours
   d. Outsourcing surgeries to other hospitals

6. **Which minimally invasive surgery (MIS) approach did the article say was first reported in 1910?**
   a. Open surgery
   b. Laparoscopic surgery
   c. Robotic surgery
   d. Radiation therapy

7. **What was the percentage increase in robotic acute care surgery cases from 2022 to 2023?**
   a. 50%
   b. 100%
   c. 223%
   d. 300%

8. **Which of the following procedures was most commonly performed as a robotic acute care surgery at OSU?**
   a. Coronary artery bypass
   b. Cholecystectomy
   c. Thyroidectomy
   d. Mastectomy

9. **What was a major challenge in providing robotic surgery for acute care patients?**
   a. Lack of interest from surgeons
   b. Availability of robotic platforms on short notice
   c. High patient refusal rates
   d. Excessive paperwork

10. **According to the article, what was one major operational change that enabled 24/7 availability for robotic acute care surgery?**
    a. Replacing all daytime elective robotic cases with emergency-only cases
    b. Obtaining block time and clarifying workflow to accommodate robotic cases overnight and on non-business days
    c. Limiting robotic surgeries to a single operating room staffed only during business hours
    d. Ending the use of pre-made case carts to reduce sterile processing workload

ESTABLISHMENT OF A 24/7 ROBOTIC ACUTE CARE SURGERY PROGRAM AT A LARGE ACADEMIC MEDICAL CENTER
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CE Provider: Sharing Your Expertise as a Speaker or Trainer

Cortney Hartman, MBA, CST, FAST

BEYOND THE MAYO

Think about the last time you taught a new surgical technologist how to properly load a needle driver, or when you explained why a count must be done *this way and not that way.* Did you feel a spark of pride in sharing what you know? If so, you've already tasted the energy that comes with education—and it might be time to take your expertise to the stage.

Certified Surgical Technologists (CST®s) have valuable knowledge that can shape the profession, and one of the most impactful ways to share it is by becoming a continuing education (CE) provider. Whether through in-services, workshops, writing for *The Surgical Technologist,* poster presentations, or podium presentations, CSTs can expand their influence by helping peers grow in skill and confidence.

Why CE Matters

Healthcare evolves constantly. New procedures, devices, and safety standards emerge every year. Continuing education ensures CSTs stay competent, certified, and ready to provide the best patient care. But CE is about more than keeping up with credits—it's about advancing the profession itself.

When CSTs provide CE, they:

- Keep peers up-to-date with innovations in surgery.
- Create platforms for professional dialogue and networking.
- Strengthen recognition of CSTs as experts and thought leaders.
- Inspire the next wave of educators, speakers, and mentors.

By stepping into the CE space, you're not just sharing knowledge—you're shaping the culture of surgical technology.

Opportunities for CST CE Providers

The options for delivering CE are wider than many realize:

1. **Hospital In-Services**
   - Short educational sessions for CSTs, nurses, and other OR staff.
   - Great entry point for first-time presenters.
2. **State Assembly Conferences**
   - Local opportunities to present topics and build credibility.
   - Networking hub for future speaking engagements.
3. **AST National Conference**
   - The biggest stage for CST speakers, offering national visibility.
   - Often begins with poster or breakout sessions before moving to full lectures.
4. **Online Education**
   - Webinars, CE modules, or courses hosted independently or through platforms like AST or HSPA.
   - Growing demand as professionals seek flexible learning options.
5. **Workshops & Simulation Training**
   - Hands-on learning environments for skill development.
   - Perfect for CSTs with a knack for teaching technique.

Choosing a Topic

The first question every aspiring CE provider asks is, *"What would I talk about?"*

The answer is simpler than you think. Start with:

- **Your Expertise:** What do coworkers already ask you about? (e.g., robotics, cardiac, orthopedics, instrumentation).
- **Your Passion:** Which topics do you enjoy most?
- **Current Trends:** Safety protocols, new devices, or professional development.
- **Professional Gaps:** Where do CSTs struggle most in your facility?

Popular CE topics include patient safety, surgical technology updates, professional advancement, and teamwork.

Building the Presentation

Once you've chosen a topic, it's time to structure your presentation:

1. **Start with Outcomes:** What should learners know or do differently after your session?
2. **Organize Simply:** Introduction, 3–4 main points, and a conclusion.
3. **Engage Your Audience:** Use questions, case studies, or demonstrations.
4. **Visual Aids:** Slides, photos, or videos can clarify and reinforce.
5. **Practice:** Rehearse until you're confident and within time limits.

Tip: Avoid cramming too much information. Clarity and impact matter more than volume. Most presentations only last 50 minutes to leave time for Q&A at the end.

Getting Credit Approval

If you want your session to qualify for official CE credits, it must go through an approval process. For CSTs, AST is the primary provider of CE credit. Here's how it works:

- **Submit Objectives:** CE proposals require clear, measurable learning objectives.
- **Provide References:** Back up your content with reputable sources.
- **Align with Standards:** Ensure the topic aligns with the AST Core Curriculum or professional practice standards.
- **Plan Ahead:** The approval process takes time—submit early for conferences.

If you're presenting at a hospital in-service, check whether your education department or AST-affiliated state assembly can sponsor CE credit. Remember to title it "OR Inservice".

Turning CE Into a Career Path

For some CSTs, presenting once at a state assembly is enough. But others discover a passion for teaching that can grow into a full or part-time career. CE can become:

- A stepping stone to becoming a full-time educator.
- A pathway to consulting or entrepreneurship.
- A platform for writing articles or developing online courses.

Some CSTs even create their own CE businesses, offering workshops, webinars, or digital courses that generate income while advancing the profession.

Skills to Strengthen

To succeed as a CE provider, CSTs benefit from developing:

- **Public Speaking:** Confidence and clarity in front of groups.
- **Instructional Design:** Structuring sessions for maximum learning.
- **Technology Skills:** Using presentation software, online platforms, and multimedia tools.
- **Storytelling:** Turning OR experiences into memorable teaching points.

Most of these skills can be learned through practice, workshops, or mentorship.

Overcoming Common Barriers

Every potential CE provider faces doubts:

- **"I'm not an expert."** Expertise doesn't mean knowing everything—it means sharing what you know well.
- **"I hate public speaking."** Confidence grows with practice, and smaller in-services are a safe place to start.
- **"What if no one cares?"** If the topic has helped you in practice, it will likely help others too.

The most important step is saying yes to the opportunity. Everything else can be learned along the way.

Rewards of Becoming a CE Provider

CSTs who step into CE roles often describe the rewards as life-changing:

- **Professional Recognition:** Being seen as a thought leader in the profession.
- **Personal Growth:** Confidence and communication skills expand with every presentation.
- **Networking:** CE providers meet peers, educators, and industry leaders who open new doors.
- **Impact:** Every session multiplies your knowledge across dozens or hundreds of peers.

Sharing your expertise may start as giving back to the profession, but it often becomes a defining career chapter.

Closing Thoughts

Every CST has knowledge that could help others—whether it's a specialty technique, a safety lesson, or a strategy for professional growth. Becoming a CE provider is one of the most powerful ways to extend your impact beyond the Mayo stand.

If you've ever thought, *"I wish more people knew this,"* that thought is your cue. Don't wait for someone else to step up. You already have the expertise. You just need the courage to share it.

The Power of Mentorship: Why Seasoned CSTs Must Step Up

Kendria Stevens-Hulsinger, CST

The path we choose in life is often created by moments that leave a footprint on our hearts. For me, the journey toward becoming a surgical technologist began at the age of 16, in a hospital room filled with anxiety and hope. My grandmother was about to undergo open heart surgery. The surgeon came in explaining the procedure with both clarity and compassion, but to my 16-year-old brain, I was hooked! In that tense moment, something in me awakened, and I was overcome by a curiosity about the world of surgery and the people who make healing possible.

Title: The Power of Mentorship: Why Seasoned CSTs Must Step Up

The journey from surgical technology student to Certified Surgical Technologist (CST®) is one marked by growth, grit, and a thousand unspoken lessons learned along the sterile path. Those of us who have been in the trenches for a decade or more know that no textbook or skills lab can fully prepare someone for the realities of

the operating room. That's why mentorship isn't a luxury or a bonus in our field—it's a responsibility.

After 23 years in the profession and now serving as a senior program director and a board member of the California State Assembly of Surgical Technologists, I can say with confidence: seasoned CSTs are the gatekeepers of our profession's integrity, wisdom, and future. Our collective experience holds value not just for the next case, but for the next generation.

Why Mentorship Matters

Surgical technologists are often trained in a sink-or-swim environment. While this builds resilience, it can also lead to anxiety, burnout, and a feeling of isolation among new techs. A seasoned CST who steps in to provide guidance can change the entire trajectory of a newcomer's experience.

Mentorship provides:

- **Emotional support** during stressful cases or difficult learning curves
- **Real-world context** for clinical skills and classroom learning
- **Accountability** for professionalism, punctuality, and sterile discipline
- **Career direction** through shared stories, goals, and exposure to growth paths

Mentorship is not just helpful—it's transformational.

Breaking Down the Barriers to Mentorship

One of the most common refrains I hear from veteran CSTs is, "I don't have time," or "I'm not a teacher." The truth is, mentorship doesn't have to be formal or time-consuming. It starts with presence, patience, and a willingness to model the standard.

Some CSTs worry about stepping on toes or not being "qualified" to mentor. But mentorship is not about perfection—it's about intention. You don't need to know everything. You just need to care.

Actionable Ways CSTs Can Mentor the Next Generation

1. **Model excellence every day**
   Students and new techs are always watching. The way you prep your back table, handle conflict, or speak up in a timeout becomes part of their professional blueprint.
2. **Speak life into their potential**
   A simple "you did well in there" or "I saw how you caught that count error—good job" can shift someone's mindset for the better. Affirmations from a respected CST are powerful.
3. **Invite them into learning moments**
   When the case is over, take a moment to debrief. Ask, "What did you notice? What would you do differently next time?" Create a space for reflection and growth.
4. **Demystify the profession**
   Talk to them about certifications, career paths, union options, specialties, and the realities of being on call. This insight can help them plan and stay invested long term.
5. **Advocate for their success**
   If you see someone with potential, speak their name in rooms of opportunity. Recommend them for jobs, additional training, or recognition. Sometimes, one advocate can change everything.
6. **Create a no-judgment zone**
   New CSTs will make mistakes. So did you. Be the person they can come to for honest feedback without shame. A culture of safety starts with psychological safety.

What's in It for You?

Mentorship doesn't just benefit the mentee. It:

- Reinforces your own knowledge and accountability
- Deepens your sense of purpose and pride
- Leaves a lasting legacy in the field
- Builds stronger teams and smoother workflows

Mentorship is also one of the clearest pathways to leadership. It sharpens your communication, empathy, and instructional skills—key traits for those looking to move into education, management, or advocacy roles.

Changing the Culture, One Tech at a Time

Our profession is at a crossroads. As more CST®s retire or shift into other roles, the demand for skilled, confident, and professional technologists is only growing. We cannot afford to let new techs sink without support.

Mentorship has the power to:

- Reduce burnout and turnover
- Improve patient outcomes through better team synergy
- Cultivate a more inclusive and supportive culture
- Elevate the image and recognition of CSTs across healthcare

A Final Word: You Were Once Them

Think back to your first week in the O.R. The nerves. The adrenaline. The fear of breaking sterility. The hope that someone—anyone—might offer a tip or a kind word.

Be that person now.

If you have even a few years under your belt, you have wisdom worth sharing. If you've weathered the long shifts, the tough surgeons, the intense emergencies, and still show up with pride—you are exactly what the future of surgical technology needs.

Let us not hoard our knowledge. Let us pass it on, deliberately, compassionately, and often. Because when we mentor, we don't just shape careers. We shape the profession.

About the Author

Kendria Stevens-Hulsinger, CST, is a seasoned Certified Surgical Technologist with over 23 years of experience in the operating room and surgical education. She currently serves as Senior Program Director at Pima Medical Institute, where she oversees five surgical technology and four sterile processing programs. In addition, she is a board member of the California State Assembly of Surgical Technologists. Kendria is a passionate advocate for mentorship, professional development, and advancing the next generation of CSTs. Her leadership is rooted in fostering excellence and cultivating a culture of support, with a commitment to leaving a lasting impact on the surgical technology profession.

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- The Workforce Shortage: A Message from AST
- Turning the Workforce Chute into a Ladder
- CSTs Many Lifesaving Roles
- Education and Certification as an Appropriate Minimum
- Standard for Surgical Technology and Patient Safety
- AST Position Statement on Minimum Education for Surgical Technologists
- AST Position Statement on Accreditation, Certification, Official Title of the Profession, and OJT Training
- ACS Statement Supporting Surgical Technology Accredited Education and the CST
- AORN Job Description Supporting Surgical Technology Accredited Education and the CST
- AST Encourages Healthcare Facility Leaders to Support Local, Accredited Surgical Technology Educational Programs
- AST Recommendations for CSTs, Program Directors, and State Assemblies when Addressing OTH Training with a Healthcare Facility
- Message to Surgical Technology Program Directors Regarding Alternative Certification Credentials from the AST, ARC/STSA, and NBSTSA
- Should Healthcare Facilities Require CST Certification for Surgical Technologists? Yes...Here's Why

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ADVOCATING FOR THE PROFESSION

Dr. Samuel D. Gross: Pathologist, Surgeon, and Medical Author

AST Staff

MEDICAL MARVELS

"Hence military surgery, or, more correctly speaking, military medicine and surgery, has always occupied a deservedly high rank in public estimation."[1]

Early Education and Practice

Samuel David Gross, MD, was one of six children born on a farm near Easton, Pennsylvania. He grew up speaking Pennsylvania Dutch, a dialect of German, and at the age of 12 learned English.[2] He supposedly had made the decision of wanting to be a physician at the age of 5. His father died when Dr. Gross was 9 years old and after that, his mother raised the children, keeping the family together, teaching them strong moral values based on her devotion to the Lutheran faith.[2]

Like most other children living in the rural countryside, he attended country schools. At the age of 17, as was typically done at that time when a young man wanted to learn the practice of medicine, he began an apprenticeship with a local doctor, Joseph K. Swift.[2] Through Dr. Swift's tutorage, he learned the basics of medical care including how to apply plaster casts, bleed patients, and make pills.[2] He also assisted Dr. Swift during surgical procedures and childbirth. Motivated by the need to complete formal education, Dr. Gross left the apprenticeship to attend the Lawrenceville Academy (called the Lawrenceville School starting in 1883) in New Jersey.[2]

In 1824, Dr. Gross returned to Dr. Swift's practice with the intention of eventually attending medical school at the University of Pennsylvania. Soon after returning to Dr. Swift's practice, however, he was accepted as a private student of Dr. George McClellan, the father of the Civil War General George B. McClellan.[2] Dr. Gross was accepted into Jefferson Medical College, a college that Dr. McClellan had founded in 1825, located in Philadelphia, Pennsylvania, and completed his medical degree in 1828. His medical degree thesis was titled "The Nature and Treatment of Cataract."[2]

Figure 1 *Samuel D. Gross, MD (July 8, 1805 – May 6, 1884)*

Translator, Anatomist, and Author

After completing his medical degree, Dr. Gross opened his own private medical practice in Philadelphia, but the practice was slow in attracting patients. In the

attempt to bring in additional income, Dr. Gross translated several French and German medical publications into English. His most important contribution that received much attention from the medical community was *Elements of Operative Surgery* (1829) by Alphonse Tavernier, 19th century French physician.[2]

Dr. Gross, however, believed that the US medical community should have its own library of medical literature to refer to when needed. He, therefore, began writing his own books. His first book, *Treatise on the Anatomy, Physiology, and Diseases and Injuries of the Bones and Joints*, was published in 1830.[2] The book was critically acclaimed by the medical community, but did not produce enough income for Dr. Gross, who then moved back to Easton to open a practice that became more successful.

Figure 2 *The Gross Clinic (Thomas Eakins, artist)*

In 1833, Dr. Gross was appointed as a demonstrator of anatomy at the Medical College of Ohio. In 1835, he accepted the position as professor of pathological anatomy as well as chair of the department at the Cincinnati Medical College.[3] It was at the college, through his lectures, that he developed the first systematic study of morbid anatomy* in the US. Later in life, in 1856, Dr. Gross returned to his alma mater in Philadelphia, Jefferson Medical College, as a professor of surgery and remained at the college until his passing.[3]

In 1839, he published his landmark work, *Elements of Pathological Anatomy*, which is considered the first systematic, comprehensive publication on the subject in the US.[2] The book was extremely popular and sold many copies, but he never received any royalties for sales of the first edition. It did, however, establish his name worldwide and he became one of the most celebrated physicians in the US. The book underwent several editions and was a leading reference for over 25 years.[2]

During his career, Dr. Gross published multiple medical works that were the first of its kind in the US. In 1843, he published *Wounds of the Intestine*, a comprehensive clinical study based on his animal research. In 1851, he published another book, *A Practical Treatise on Diseases and Injuries of the Urinary Bladder*, that gained him even more recognition for his skills as a surgeon.[2] The book was accepted as the primary authority for urological surgery. In it, Dr. Gross described the pioneering procedure for incising into

the bladder to remove a calculus. In 1854, he published the influential book *A Practical Treatise on Foreign Bodies in the Air-Passages*. Again, Dr. Gross established the first systematic approach to this medical procedure in the US.[2] The publication served as the primary authority until the invention of the rigid bronchoscope by Gustav Killian.*

When the US Civil War began, Dr. Gross published *A Manual of Military Surgery* (1861) and a plagiarized copy soon appeared on the Confederate side.[2] In honor of the US centennial, Dr. Gross published *A History of American Surgery from 1776 to 1876*, that was recognized for its historical importance.

Along with staying busy publishing projects, Dr. Gross served as an editor for multiple medical journals including the *North American Medico-Chirurgical Review* and the *Louisville Medical Review*.[2]

He was one of the founding members of the Americal Medical Association and served as its president in 1867. He was also the first president of the Philadelphia Pathological Society and vice-president of the German Surgical Society. He established a prize for original medical scholarship given by the Academy of Surgery every five years and is called the Samuel D. Gross Prize.[2]

In 1875, Thomas Eakins, who was a medical student under Dr. Gross, painted *The Gross Clinic* that is now considered one of the greatest works of 19th century American art (Figure 2). Eakins submitted the painting for exhibition at the 1876 Centennial Exposition in Philadelphia, but the judges demanded that it only be shown in the medical displays because of the graphic representation of a surgical procedure.[2] It displays Dr. Gross lecturing a group of Jefferson Medical College students in the medical amphitheater during a procedure for the removal of bone affected by osteomyelitis. Eakins painted a self-portrait where he is slightly seen on the right-hand edge of the painting, next to the railing, with a white cuffed sleeve. Seen over Dr. Gross's right shoulder or left-hand side of painting is Dr. Franklin West, who was the clinic's clerk. At the head of the operating room table can be seen a medical student who is considered to be administering anesthesia to the patient. Adding to the spectacle is what is considered the patient's mother cringing in distress in contrast to the calmness of the surgeons performing the procedure. The painting is considered significant in showing how surgery had progressed to be a healing medicine that, for several years, particularly during the Civil War, was seen as one of pain and suffering and the only procedure performed was amputations. It also shows what a surgical theater looked like in the 19th century.

Just a few days before his passing, Dr. Gross operated on a patient removing a bladder stone. His library consisted of over 5,000 volumes along with diagrams and wet preparations that were willed to the Philadelphia Academy of Surgery. Dr. Gross is credited as being one of the greatest surgeons of his time who was an ardent advocate for advancing the practice of surgery and should also be remembered as the "first surgical pathologist in the history of medicine."[3]

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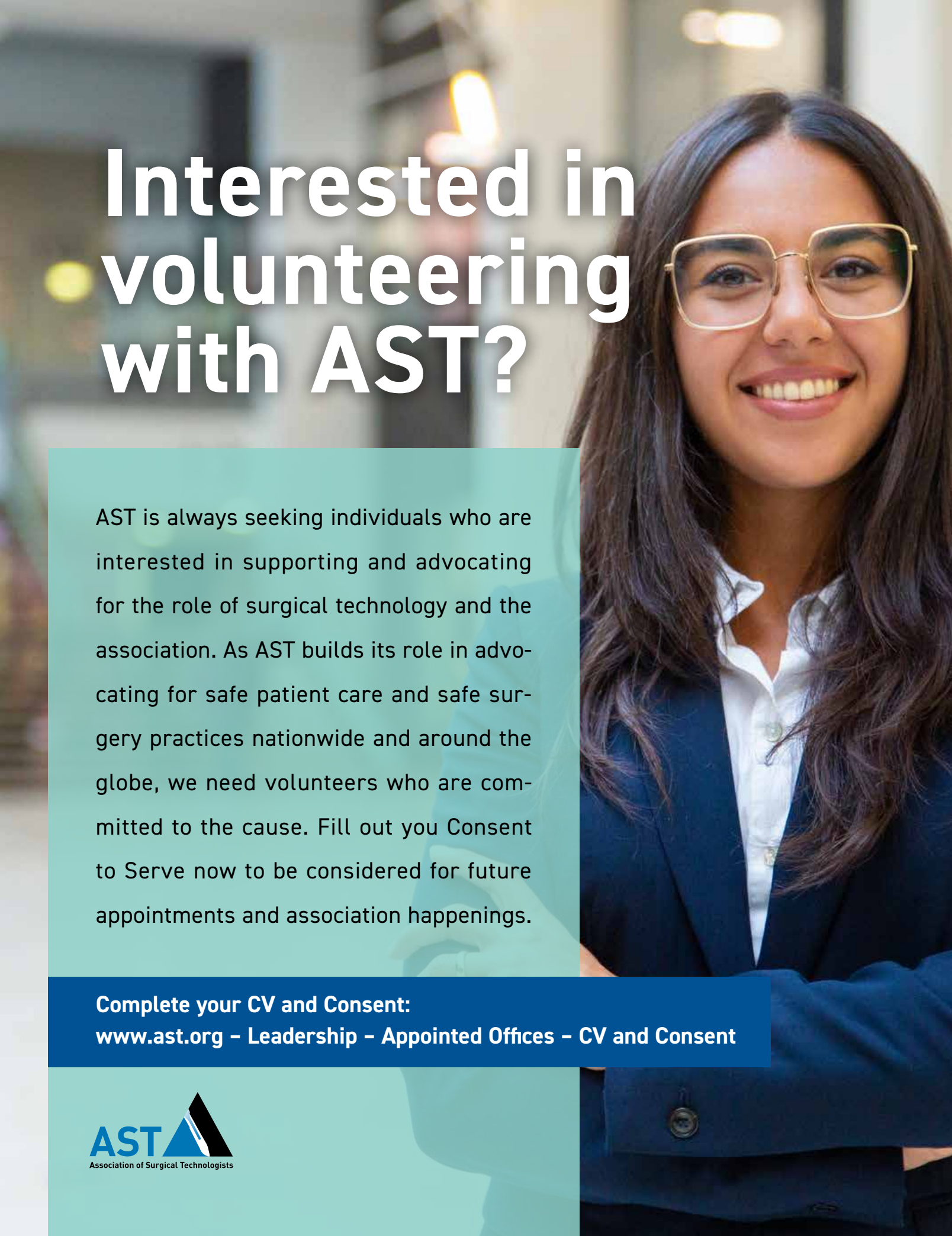
***Gustav Killian, MD:** German laryngologist who invented the rigid bronchoscope in 1897 and performed the first bronchoscopy that same year to remove a pork bone from the throat of a patient using topical cocaine as the local anesthetic.

***Morbid anatomy:** The study of the structure of diseased organs and tissues.



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Two-Layer Closure May Decrease Complications for Women Who Undergo a Cesarean Section

American Journal of Obstetrics and Gynecology

OF INTEREST IN THE MEDICAL ARENA

The previously used two-layer uterine closure for cesarean sections may decrease the complications experienced by women according to a study published in the *American Journal of Obstetrics and Gynecology*. Even though it is faster to perform, the single-layer uterine closure that has been used for many years may be responsible for causing abnormal bleeding and pelvic pain and increasing the incidence of rare complications such as placenta accreta*.

In 2023, there were 3,593,396 live births in the US and 32%, or 1,161,896, were cesarean section deliveries.[1] This rate is expected to increase from 2024 through 2026. Globally, cesarean sections have significantly increased from 7% to 21% in 1990 to 2023, far exceeding the World Health Organization's recommended rate of 10% - 15%.[2] Multiple factors have been indicated as the driving force behind the increase including advanced maternal age, women who are affected by obesity, and multiple pregnancies.[3]

For many years, surgeons performed an endometrium-free uterine closure by suturing similar tissue layers to allow the incision to heal without any defects. In the past three decades, however, the technique switched to a single-layer closure combining the three uterine layers that bring the endometrial layer to the outside of the uterus. The advantages of the single-layer closure include reducing the risk of bleeding and a faster closure. In the long term, the single-layer closure can cause defects in the uterine scar.

To support the two-layer closure, Clarel Antoine, MD, Associate Professor, Department of Obstetrics and Gynecology, NYU Grossman School of Medicine, lead a research team in reviewing the outcomes of observational studies and meta-analyses that included six trials as well as the results of a previous study published by Dr. Antoine. The primary goal of the review was to propose a two-layer, endometrium-free hysterotomy closure that may reduce scar effects and postoperative complications.[4]

In a retrospective study, Bujold et al reported an approximately 4-fold increased risk of uterine rupture during labor after the patient had previously undergone a cesarean section with single-layer technique hysterotomy closure as compared to the double-layer closure.[5] This prompted research into the role the choice of uterine closure has on the risk of scar defects.

Antoine et al reported a strong link between the two-layer closure and reduction in complications such as abnormal placentation and post-cesarean complications. The research team reported the results of a 30-year retrospective cohort study that included 727 cesarean deliveries of which all the patients underwent a two-layer uterine closure.[6-8] The findings of the study showed that an endometrium-free closure technique may prevent abnormal placentation in subsequent pregnancies.

The findings by Antoine et al are strengthened by a metanalysis published by Lino et al in 2025 that compared the single-layer closure with two-layer closure and by recent randomized controlled trials.[9] The metanalysis included six trials that included 4 randomized controlled trials and 2 quasi-randomized trials. The trials, involving 491 women, showed that not including the endometrium in the uterine closure reduced the risk of uterine scar defect after cesarean section and intermenstrual bleeding.[9,10-12]

The authors did indicate the effectiveness of the two-layer closure needs further study regarding more complicated situations such as advanced labor or when the uterine lining has thinned.[4] For a woman who has been in labor for a long period, the uterine lining has thinned to the point where it is difficult to distinguish the three layers of the uterus.

"Given the increasing number of cesarean deliveries performed each day worldwide, we believe that the endometrium-free closure technique is a first step toward significantly reducing long-term cesarean complications affecting women's health worldwide," the article concludes.[4]

The authors reported no conflicts of interest.

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***Placenta accreta:** During an uncomplicated pregnancy, the placenta attaches to the decidualized endometrium. A complication that can disrupt this normal process is placenta accreta that involves the abnormal invasion of placental trophoblasts into the uterine myometrium. Placenta accreta is a rare, but life-threatening disorder that requires an immediate hysterectomy to control the excessive hemorrhaging.

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ARIZONA STATE ASSEMBLY

Program Type: Workshop
Date: September 19, 2026
Title: Bring the Heat
Registration: azsaofast.org
Location: HonorHealth NSSC, 2500 W Utopia Road, Phoenix, AZ 85027
Contact: Teresa Sochacki, azsa.assembly@gmail.com
CE Credits: 4 Live Planned

ARKANSAS STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 3, 2026
Title: Fall Workshop/Business Meeting
Location: TBA, Fort Smith, AR
Contact: Tamara Morgan, PO Box 10301, Fort Smith, AR 72917, 479-414-6720, arkstateassembly@gmail.com
CE Credits: 6 Live Planned

FLORIDA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 26, 2026
Title: Florida Surgical Technologists: YOU Matter!
Location: Sheraton Orlando North Hotel, 600 N Lake Destiny Road, Maitland, FL 32751
Contact: Florida State Assembly, flsastateassembly@gmail.com
CE Credits: 6 Live Planned

GEORGIA STATE ASSEMBLY

Program Type: Workshop
Date: September 12, 2026
Title: 25th Anniversary Celebration
Registration: ast-gasa.com/fall-2026-meeting
Location: Brenau Downtown Center, 301 Main Street SW, Gainesville, GA 30501
Contact: Erin Baggett, PO Box 109, Auburn, GA 30011, 678-226-6943, gasawebmaster@gmail.com
CE Credits: 7 Live Planned

IOWA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 10, 2026
Title: Fall 2026 Workshop and Business Meeting
Registration: ia.ast.org/
Location: Mary Greeley Hospital, 1111 Duff Ave, Ames, IA 50010
Contact: Joyce Ortega, 515-954-8332, jaortega@dmacc.edu
CE Credits: 7 Live Planned

MISSOURI STATE ASSEMBLY

Program Type: Workshop
Date: September 19, 2026
Title: Missouri State Assembly Fall Workshop
Location: State Fair Community College, 1701 N 2nd St, Clinton, MO 64735
Contact: Victoria Thompson, PO Box 1740, Camdenton, MO 65020, 573-836-0637, missouriassemblyast@gmail.com
CE Credits: 8 Live Planned

NEBRASKA STATE ASSEMBLY

Program Type: Workshop & Webinar (webinar approved only for Nebraska State Assembly members)
Date: August 1, 2026
Title: NESA Summer Workshop 2026
Registration: ne.ast.org
Location: CHI Health Nebraska Heart, 7500 S 91st St, Lincoln, NE 68526
Contact: Castin Martin, PO Box 67034, Lincoln, NE 68506, 402-217-7735, nebraskastateassembly@gmail.com
CE Credits: 6 Live Planned

NEW YORK STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 2-4, 2026
Title: NYAST Fall Conference, Business Meeting, and Elections
Location: Renaissance Albany Hotel, 144 State St, Albany, NY 12207
Contact: Alisia Pooley, 315-575-0403, boardnyast@gmail.com
CE Credits: 12 Live Planned

PENNSYLVANIA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 19, 2026
Title: Shaping Tomorrow's OR
Location: Central Penn College, 600 Valley Road, Enola, PA 17025
Contact: Chris Kapp, 717-728-2230, christopherkapp@centralpenn.edu
CE Credits: 5 Live Planned

SOUTH CAROLINA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 26-27, 2026
Title: SCSA 25th Fall Business Meeting and Workshop
Registration: scsaast.org
Location: Southeastern Institute of Manufacturing Technology, 1951 Pisgah Road, Florence, SC 29501

Contact: Katrina Williams, 843-615-7454, katrinawilliams89@yahoo.com
CE Credits: 12 Live Planned

TENNESSEE STATE ASSEMBLY

Program Type: Workshop Cruise
Date: October 2-5, 2026
Title: CE's at SEA
Location: Carnival Glory, 1492 Charles M. Rowland Dr, Cape Canaveral, FL 32920
Contact: Ellen Wood, 865-283-5901, ellenwoodtnast@gmail.com
CE Credits: 6 Live Planned

Program Type: Annual Meeting/Elections
Date: March 6-7, 2027
Title: CEs in the Hub City
Location: Jackson-Madison County Hospital, 620 Skyline Dr, Jackson, TN 38301
Contact: Ellen Wood, 865-283-5901, ellenwoodtnast@gmail.com
CE Credits: 12 Live Planned

TEXAS STATE ASSEMBLY

Program Type: Workshop
Date: September 12, 2026
Title: West TX Workshop
Registration: texasstateassembly.org
Location: Knipling Education and Conference Center, 21st St & Louisville Ave (6th Floor), Lubbock, TX 79410
Contact: Kristie Cole, PO Box 152982, Arlington, TX 76015, 806-787-8298, kcole@southplainscollege.edu
CE Credits: 8 Live Planned

Program Type: Workshop
Date: September 26, 2026
Title: South Texas CEs
Registration: texasstateassembly.org
Location: Texas State Technical College - Cultural Arts Center, 2425 Boxwood St, Harlingen, TX 78550
Contact: Kristie Cole, PO Box 152982, Arlington, TX 76015, 806-787-8298, kcole@southplainscollege.edu
CE Credits: 8 Live Planned

STATE ASSEMBLY ANNUAL BUSINESS MEETINGS

Members interested in the election of officers & the business issues of their state assembly should ensure their attendance at the following meetings.

ARKANSAS
Fort Smith
October 3, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

FLORIDA
Maitland
September 26, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

IOWA
Ames
October 10, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

NEW YORK
Albany
October 2-4, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

PENNSYLVANIA
Enola
September 19, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

SOUTH CAROLINA
Florence
September 26-27, 2026
Annual Meeting
2026 BOD Elections
& 2027 Delegate Elections

TENNESSEE
Jackson
March 6-7, 2027
Annual Meeting
2027 BOD Elections

Program Approvals: Submit the State Assembly Program Date Request Form A1 no less than 120 days prior to the date(s) of the program for AST approval. The form must be received prior to the first (1st) of the current month for program publication in the next month of the AST monthly journal ,*The Surgical Technologist.* The Application for State Assembly CE Program Approval A2 must be received at least thirty (30) days prior to the date(s) of the program for continuing education credit approval. An application submitted post-program will not be accepted; no program is granted approval retroactively.

Contact stateassembly@ast.org or 800.637.7433, ext. 2547.

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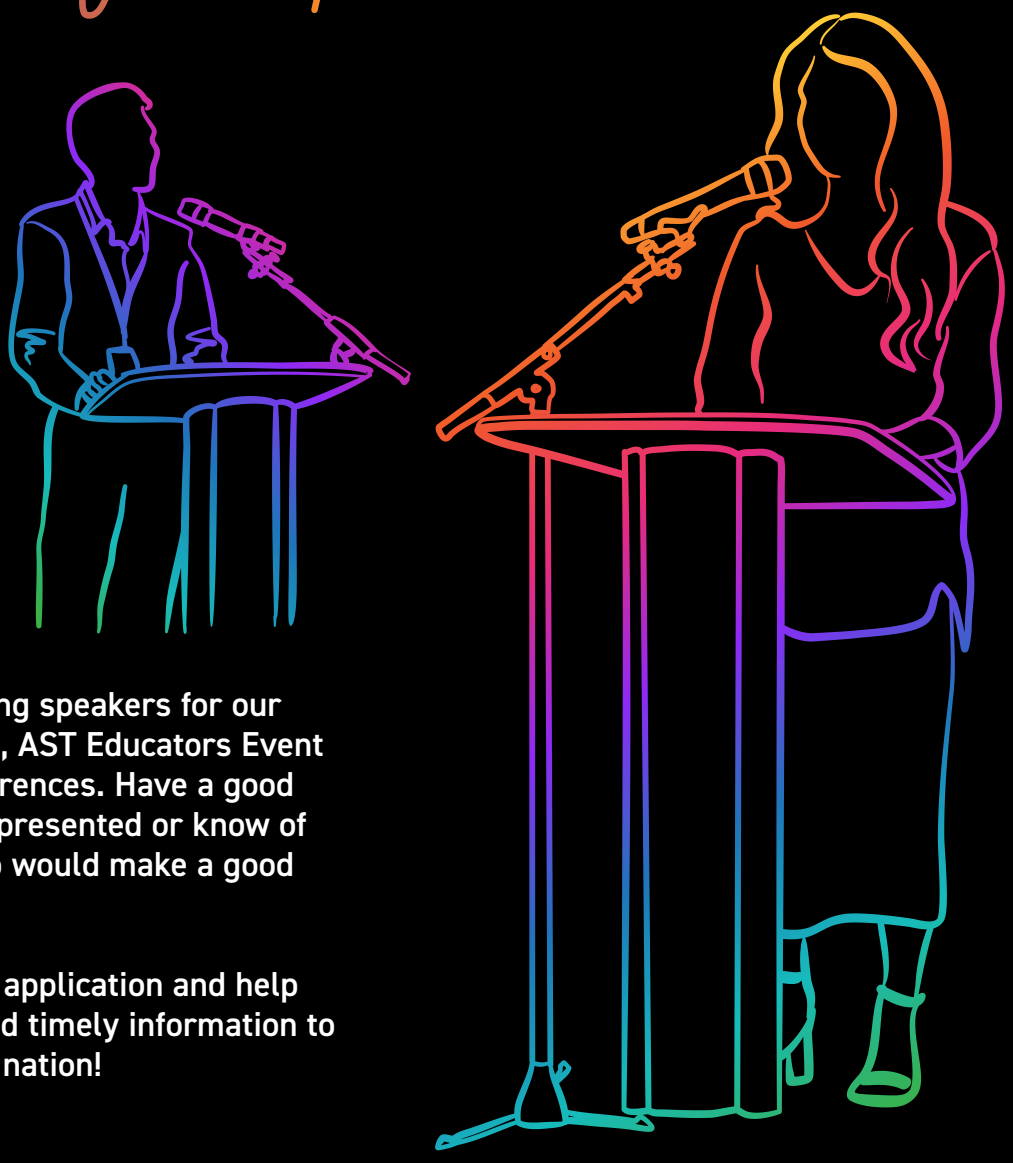

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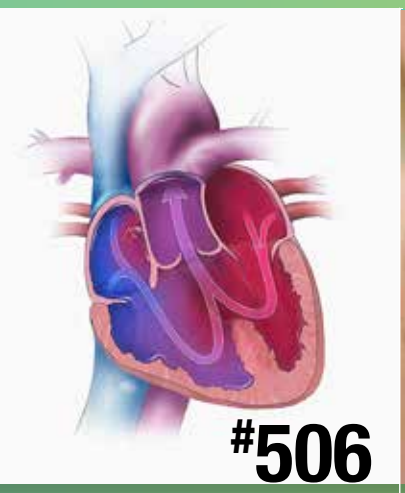

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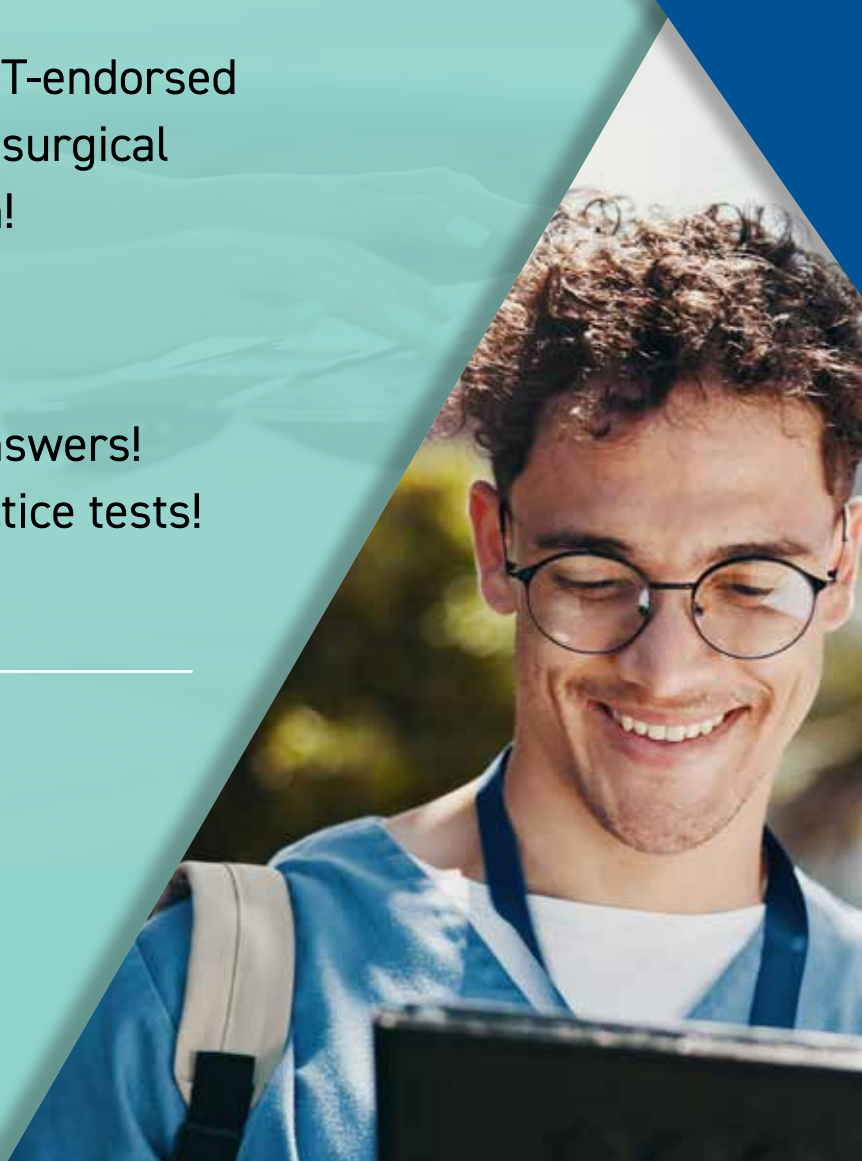

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