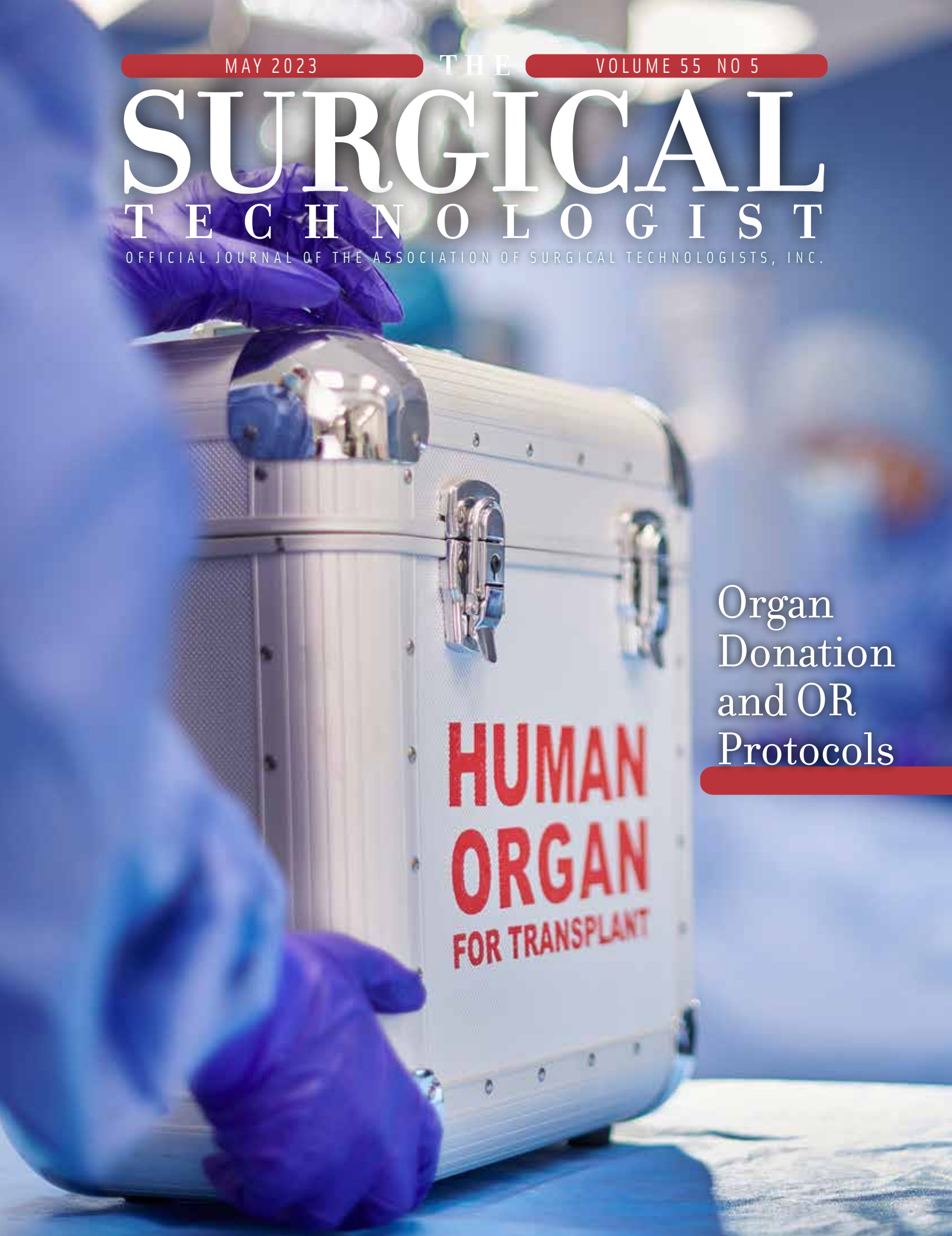
MAY 2023 VOLUME 55 NO 5

THE SURGICAL TECHNOLOGIST

OFFICIAL JOURNAL OF THE ASSOCIATION OF SURGICAL TECHNOLOGISTS, INC.



Organ Donation and OR Protocols

stryker

Prepped and ready

Introducing

Bone Mill+™

with Prep+ disposable cartridge for automated tissue removal

A well-prepped O.R. ensures everyone can safely do their best work. Designed with that in mind, new Bone Mill+ with Prep+ disposable cartridge is ready to help turn tissue removal and bone milling into a safe, automated process.

Greater quantity

46% more* Prep+ bone yield compared to manual cleaning**[1]

Helps reduce risk

Eliminate fatigue/injury associated with manual bone processing*[1]

Designed to save time

96% felt it reduces time spent handling bone*[1]

Advancing neurosurgery.
Transforming lives.

800 253 3210
neurosurgical.stryker.com

strykerpoweringgold.com

1. Engineering Notebook Record_D0000220921
*Based on average results
**10 minute Bone Mill+ cycle vs 10 minutes of manual soft tissue removal

D0000242378 Rev. AA

AST
Association of Surgical Technologists

6 West Dry Creek Circle ▲ Littleton, CO 80120
Tel 303-694-9130 ▲ Fax 303-694-9169
Member Number (toll free 8-4:30 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.

THE SURGICAL TECHNOLOGIST (ISSN 0164-4238) is published monthly by the Association of Surgical Technologists, Inc, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031. Telephone 303-694-9130. Periodical postage is paid at Littleton, Colorado, and additional mailing offices. Correspondence to *The Surgical Technologist* can be sent to communications@ast.org.

ADVERTISING Contact: ***exhibits_advertising@ast.org.*** Acceptance of advertising in *The Surgical Technologist* in no way constitutes an endorsement by the Association of the product, organization, or service advertised. Similarly, mention of a commercial product by trade name, organization, program, or individual and that person's statements in any article does not constitute an endorsement by the Association of the product or sanction of the organization, program, or individual. The Association accepts health-related and recruitment advertising and reserves the right to decline ads at its discretion. While the Association takes every precaution against mistakes, it assumes no responsibility for errors or inaccuracies.

SUBSCRIPTIONS A one-year subscription is $40 for nonmembers and $55 (US funds) for foreign. Back issues are available for $5 each (specify date of issue). Written requests for replacement issues will be honored up to 60 days after date of publication only. Please address all requests to the editor.

JOURNAL DEADLINES The deadline for editorial copy is 8 weeks prior to the cover date (eg, the deadline for the July issue is May 1).

POSTMASTER Send address corrections to The Surgical Technologist, 6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031.

MAY 2023 | VOLUME 55 NO 5

THE SURGICAL TECHNOLOGIST

OFFICIAL JOURNAL OF THE ASSOCIATION OF SURGICAL TECHNOLOGISTS, INC.

Organ Donation and OR Protocols

Michael Ghio, MD; Anil S. Paramesh MD MBA FACS

Organ transplantation is a complex life-saving operation. Today, advancements in transplantation offer promising treatment options for a variety of complex diseases. It is an exciting and growing surgical specialty. Perioperative care during transplantation procedures exposes staff members to novel protocols, ethical challenges, and innovative surgical procedures. As with many other complex surgical procedures, a team approach with dedicated and knowledgeable team members usually leads to the best outcomes.

In This Issue

In Every Issue

Rally the Troops

KEVIN CRAYCRAFT, CST, FAST

PRESIDENT'S MESSAGE

As the ripples of the 2023 spring state assembly season settle down, my attention turns to that moment each year that brings us together to celebrate our professions, and our shared goals of quality patient care, in a positive light. All of which can be accomplished during the AST Surgical Technology Conference from May 25-27, 2023, in Chicago, Illinois. It has been many years since we have been to Chi-town for conference and what great city to return to this year. The conference will take place at The Sheraton Grand Chicago Riverwalk right along the Chicago River with nearby numerous sights to see, including Navy Pier, 360 Chicago, Willis Tower, International Museum of Surgical Sciences, Art Institute of Chicago, architectural tours and "The Bean" just to name a few. So, let's get together in Chicago and enjoy the continuing education sessions, the great food and maybe catch some Chicago blues music! On behalf of the AST Board of Directors we can't wait to see you in The Second City.

Now I need to shift away from the excitement of the upcoming national conference and face the reality of the challenges ahead. As I complete my first term as president of the AST Board of Directors, I can't help but to reflect on my many years of involvement. I have been an AST member since the late 80s and I have served in various capacities over the years. However, over the past two years, I have had the privilege of serving on the AST Board of Directors, attending state assemblies, collaborating with the standing committees, and interacting with the AST members across the nation. I would be lying to say it's all been rainbows and butterflies.

The overarching theme recently has been focused on the workforce shortage in our profession and many other professions. First of all, we need to understand some of the factors that have contributed to the workforce shortages. As a profession we have seen the closure of various accredited programs by the federal government over the last decade, an increase in travelers, and the impact of COVID-19 on the healthcare professions in general. All of which has resulted in non-accredited programs popping up, and on-the job-training being the quick fix to fill the needs in hospitals throughout the United States.

> AST has limited influence on the administration in your local healthcare facilities; however, you, the healthcare provider, do have that influence. Your local facilities depend on you to provide patient care hence your voices are the voices they need to hear.

I have heard from many members regarding this issue and asking for myself and AST to step in and fix this problem. If it was that simple, the problem would already be solved. Believe me, I would like nothing more than to "fix" this issue and protect the profession I love.

AST and the AST Board of Directors have been monitoring the developing issue of on-the-job training (OJT) and hiring practices of healthcare facilities (HCF). AST is developing and providing information for CSTs, program directors, state assemblies and members to use when discussing the issue of OJT with their human resources and surgery department administration and others who may be proponents of OJT. AST relies on its grassroots team to assist in combatting this important challenge that OJT presents to the profession. AST has limited influence on the administration in your local healthcare facilities; how-

ever, you, the healthcare provider, do have that influence. Your local facilities depend on you to provide patient care hence your voices are the voices they need to hear. AST has begun a rally-the-troops effort to assist in addressing the OJT issue and the lack of accredited programs. In this effort we are providing strategies for approaching administration and human resources, along with talking points regarding benefits of well-educated graduates of accredited programs, promotion of collaboration between surgical facilities and accredited programs, development of new accredited programs to strengthen our future and patient safety concerns. You can find the Rally the Troops article on the AST website. This information has proven helpful in multiple situations, and we hope it will provide the support you need in dealing with these issues in your hometowns.

I can't think of a better time to get together with our colleagues and exchange ideas than at the AST Surgical Technology Conference in Chicago.

Let's "Rally the Troops" and protect our profession.

AST News

AT A GLANCE

CALL FOR SPEAKERS

AST is looking for speakers for our 2024 and 2025 Surgical Technology Conference and Educators Conference, as well as our upcoming webinar series. Know someone would be a good fit for either event? Apply or encourage them to complete our speaker form on our website – ast.org – Conference.

DISCOUNTS

MEMBER-GET-A-MEMBER

Earn two or more months of FREE membership with the Member-Get-A-Member program. Recruit colleagues and AST will extend your membership by the appropriate number of months. Here's how:

- Recruit a valid new member at the one-year membership rate of $80.
- Make sure that each person you recruit provides AST with your name and your AST member number when filling out their application.
- After AST receives the recruited member's application, we will extend your membership by two months for each person you recruit.
- Recruit two members at the $80-level, and we'll extend your membership by four months! The more people you recruit, the longer you membership gets extended.

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.

Call our Member Services team at 1-800-637-7433 for more information.

SAVE THE DATE

EDUCATORS CONFERENCE 2024

February 17-18, 2024 with the Leadership Symposium February 16
The Florida Hotel & Conference Center
Orlando
Stay tuned for the line up later this summer with registration opening in the fall!

WRITE FOR US

CALLING ALL WRITERS!

We are always looking for new CE authors and surgical procedures that detail the latest advancements in the surgical arena. We'll also help you every step of the way, AND you'll earn CE credits by writing a CE article that gets published! Here are some guidelines to kick start your way on becoming an author:

- An article submitted for CE must have a unique thesis or angle and be relevant to thse surgical technology profession.
- The article must have a clear message and be accurate, thorough, and concise.
- It must be in a format that maintains the Journal's integrity of style.
- It must be an original topic (one that hasn't been published in the Journal recently).

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

MILESTONES

HAPPY ANNIVERSARY!

Congratulations to the following state assembly as it celebrates 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.

- Tennessee - 23 years

Use the AST Certificate of Attendance for Healthcare Facility In-services

Two of the most fequent questions that AST receives are:

"Are live in-services offered by the healthcare facility accepted for CE credits?"

and

"Do the live in-services count towards fulfilling the requirement of four live CE credits for CSTs and eight live CEs for CSFAs?"

The resounding answer for both of these are "Yes."

In-services have been accepted for CE credits for many years as long as the in-service is planned and offered in-house at no cost to the CST and CSFA employees. Additionally, if the healthcare facility invites a healthcare manufacturer representative to provide an in-service such as providing information about a new piece of equipment or instrumentation that the surgery department purchased the CE credits are accepted.

Live in-services will be recorded as such and when logging into the AST website to view your Member Dashboard they will be indicated in the "Live CE" number.

Reasons why there may be a delay in recording of CE credits

However, there are two primary reasons why there may be a delay in recording the CE credits.

1. The certificate of attendance that is provided by the healthcare facility does not contain the required information including the word "in-service."
2. If a healthcare manufacturer representative provides the certificate that has the name of the manufacturer on the certificate, it is viewed that the manufacturer possibly provided a program that should have been pre-approved by AST.

Both of these issues can be easily solved by using the AST Certificate of Attendance that is available on the AST website – ast.org – Members – HCF Inservice Certificate.

Please encourage your healthcare facility surgery department supervisor or clinical educator to use the certificate. This certificate meets all the requirement and even includes a title at the top that reads "Certificate of Attendance – Healthcare Facility Sponsored Educational In-Service."

By using this certificate, it will streamline the process and gets you closer to renewing your credential. After all, renewing your credential is a 2-Step Process:

- **Step One:** Earn and submit your CE credits to AST. The CST in the two-year certification cycle must earn 30 CE credits of which 4 must be live. The CSFA in the two-year cycle must earn 38 CE credits of which 8 must be live.
- **Step Two:** Submit the NBSTSA CST or CSFA certification renewal application on the NBSTSA website, nbstsa.org.

Testifying at Hearings – Dos and Don'ts

Vanessa Hannemann, AST DIRECTOR OF GOVERNMENT AFFAIRS

LEGISLATIVE NEWS

The Association of Surgical Technologists works very hard with local state assemblies to advocate for minimum education and certification standards for surgical technologists to ensure surgical patient safety.

Advocacy is a lot of work, even before legislation is introduced. There is much research, preparation, and education before introducing legislation. Sometimes thousands of hours of work is done before surgical technologists get a hearing in state legislatures.

Once a hearing is scheduled, much of the work becomes urgent and last minute. Hearings are often scheduled only days in advance. Also, when a hearing is scheduled, organizations that want to change the legislation often come out of the woodwork. Suddenly hundreds of emails are flying around, meetings are occurring all day every day, and the team is working around the clock.

Your testimony is very important, and you may not get another opportunity in the future. **Your testimony could help shift the future of surgical technology in your state.**

Surgical technologists who live in the state are needed to testify at the hearings. Legislators want to hear from local surgical technologists that live in the state, not national associations, or out-of-state surgical technologists. Local surgical technologist testimony makes a difference. State assembly members may receive an urgent email stating they are needed to testify. Most states have remote testimony now, so testifying from home is almost always an option!

Do – Respond to Requests to Testify

It is very important to respond to requests to testify at hearings if you're available. Do not assume someone else will step up. Hearings often occur during business hours on weekdays, so most surgical technologists are at work. Often hearings are comprised mostly of program directors and students because working surgical technologists are unavailable.

The more surgical technologists who testify, the more surgical technologists can share their entire message at the hearing. Testimony is often limited to 90 seconds or two minutes. If the time limit is 90 seconds, and surgical technologists have 10 minutes of messages, they can say all the important messages if 10 people testify for 90 seconds (30 seconds is introduction and closing). If not enough people testify, important messages must be left unsaid.

Don't – Cancel

If a surgical technologist drops out at the last minute, surgical technologists can share only part of their message at the hearing. Parts of the message are lost when people cancel because hearings often require people to register ahead of time and do not allow replacements.

Do – Practice

Testifying is easy. It just takes a little practice. Practice saying your testimony at home a few times before the hearing.

Do – Set Time Aside and Be Patient

The hardest part is patience. Often three to 10 bills are slated for one hearing, so the surgical technology bill may not be heard for a while. Be prepared to wait many hours to testify and stay strong by remembering this may be your only chance to shape the future of your profession.

Do – Stay on Message

It's important to stay on message. The advocates will work together to develop key messages that address local concerns. Individual surgical technologists will have plenty of help to develop testimony. The wrong messages can sink surgical technologists' credibility and the campaign. The right messages can teach legislators a lot about the operat-

ing room, the importance of educated and certified surgical technologists in relation to patient safety, and, most importantly, stop negative policy or forward positive policy that shapes the practice of your profession for decades to come.

Do – Be Kind

When testifying, it's important to be respectful, calm, warm, and kind. Most legislatures are citizen legislatures essentially volunteering their time. Angry, emotional, defensive, or disrespectful behavior can ruin the reputation of surgical technologists in a state. It's important to talk to legislators like you would a respected neighbor. They respect surgical technologists too and always appreciate citizens getting involved. It is a rewarding experience.

It's so satisfying to see the tide turn during a hearing when legislators hear from the real people on the front lines, such as CSTs, program directors and instructors, and students. One can see their attitudes soften and their hearts and minds open once they hear from you.

So, when you are asked to testify, answer the call! If you're not available, help find someone who is!

CHICAGO

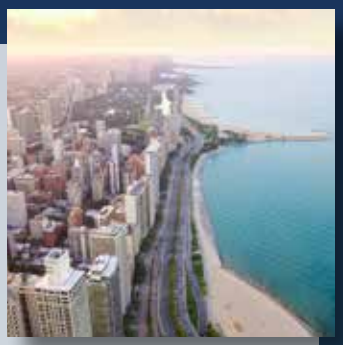
AST SURGICAL TECHNOLOGY CONFERENCE

MAY 25-27, 2023

AST
Association of Surgical Technologists

CONFERENCE AGENDA

Register Now! www.ast.org



May 25, 2023

8:00 AM-9:45 AM	Opening Ceremony & Keynote Speaker (1CE)
10:15-10:50 AM	Business Session 1
11:00-11:50 AM	Digital Technology in Craniofacial Rehabilitation (1CE)
	Update on Corneal Transplantation (1CE)
12:00 PM-12:50 PM	Advancements in the Surgical Management of Uterine Fibroids (1CE)
	So, You Have an Idea for a New Surgical Medical Device? (1CE)
1:00 PM-1:50 PM	Advances and Outcomes of Robotic Assisted Total Knee Replacement (1CE)
	Medical Laser Safety (1CE)
2:00-5:00 PM	Exhibits
7:00-9:30 PM	Opening Night Party

May 26, 2023

8:00 AM-12:00 PM	ASTSA Student Forum
8:00 AM-9:00 AM	Candidates Forum
9:00 AM-12:00 PM	Exhibits
12:00 PM-12:50 PM	Sialendoscopy - A Paradiagm Shift in the Management of Salivary Gland Disease (1CE)
1:00 PM-5:00 PM	State Assembly Leadership Forum (4CE)
1:00 PM-1:50 PM	Advances in Congenital Cardiac Surgery (1CE)
2:00 PM-2:50 PM	Cardiac Xenotransplantation: Where Are We? (1CE)
3:00 PM-3:50 PM	TBA (1CE)
4:00 PM-4:50 PM	Legislative Updates (1CE)

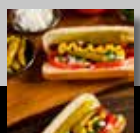
May 27, 2023

10:00 AM-10:50 AM	Advances in Minimally Invasive Transanal Surgery (1CE)
	Updates in Reconstructive Ankle and Foot Surgery (1CE)
11:00 AM-11:50 AM	Lung Transplantation in COVID 19 for ARDS Lung Damage (1CE)
	Vascular Surgery (1CE)
12:00 PM-12:50 PM	Assisting in Challenging OB/GYN Cases (1CE)
	The Team: Building a Surgical Team for Complex Endovascular and Hybrid Procedures (1CE)
1:00 PM-1:50 PM	Adult Pectus Excavatum and Treatment Options (1CE)
	Updates on Treating Cerebrovascular Complications (1CE)
2:00 PM-2:50 PM	Updates on Surgical Treatments of Shoulder Injuries (1CE)
	Evolving Landscape of Healthcare - Redefining the Role of Healthcare Providers (1CE)
5:00 PM-6:30 PM	Closing Night Reception

CHICAGO

AST SURGICAL TECHNOLOGY CONFERENCE

MAY 25-27, 2023



See You in Chicago

Marsha Lyles, CST, CSFA

STATE ASSEMBLY

As I begin to write this, I am immediately taken back to the very first AST national conference I attended – May of 1997 in Washington, DC. I was an E5 in the US Navy and my department decided that it would attend. When I got to the conference center, I was in awe. There were so many people there and I knew NONE of them. I admit it was a little overwhelming and very intimidating. This began my journey in AST. That conference was an eye-opener, to say the least.

I had never fathomed that attending my first AST national conference would lead me to being where I am now in both my career and in AST. I decided as a very young adult that I wanted to be in the OR – bellied up to the table being a direct part of each patient's journey. The Navy provided me with that unique opportunity and I have never looked back. But, like many of you, I thought that being a surgical technologist or a surgical assistant was just that – a job. I never thought that attending national conference could make my career and journey through AST more rewarding. I can tell you without any trepidation that attending that national conference was one of the most rewarding and inspiring events in my professional life. That 1997 conference began with the grandest of all opening ceremonies. It was focused on the military members, and we certainly felt recognized. All military members were asked to attend in uniform and to stand when the national president asked. The honor that I felt was second to none. This was AST recognizing the time and effort that each of us put into this profession. That was my first heartfelt "Thank you" for AST. I was quickly drawn to the close family that AST fosters. The attendees were so welcoming to each other, and the national Board of Directors and staff were exceptional. They were people just like me. Not just some faces in the AST Journal or on a website. They were practitioners, instructors, retired and active. They were us. They were what represented all of us. Until that conference, I never knew they were real. That was my epiphany. I knew that at that moment, I wanted to be a part of AST and I always wanted to be that mentor to first-time attendees. I learned so much at that national conference. The speakers were phenomenal, but the things that have stuck with me the last 26 years since that first conference are the friendships that I have made.

I have attended numerous AST national conferences through the years. And each year I see familiar faces from years past. I have made lifelong friends along the way. But the thing that I take home each year is the number of true mentors that I have found throughout. Throughout our careers in the OR, we will meet many people from all different walks of life and career paths. It is only at the AST national conference that we meet our peers on a national level. Where else can you go knowing that each person there

I had never fathomed that attending my first AST national conference would lead me to being where I am now in both my career and in AST.

has seen what we have seen? Witnessed the miracles that we have witnessed? And stood in the spot where we have stood?

The AST national conference is your gateway to the next step in your career. You need to make attending national conference a priority. You will leave with such an energized feeling, sending much of your focus into making your career what you initially set out for it to be. Attending national conference is not just about what it can do for you, it's also about what it can do for your place of employment and your state assembly. It is top priority for us to come home with fresh ideas and educational enhancements. But I have found that it is always "refreshing" to know that the problems you face in your OR, your state assembly or with your hospital are the same problems that everyone is facing. The staff shortages, the overabundance of travelers, too many calls, too little pay, no recognition, lack of enthusiastic students, unions, non-unions, long hours, unappreciative surgeons, inactive state assembly's, and no support from administration are all that anyone is talking about. I recall a conference a few years ago I attended with a coworker. It was their first time. They were in shock and relieved that the issues we were facing were the same exact issues that others on opposite ends of the country were facing. It is common hardships and perseverance that allow us to get through each day together. Meeting 1,500 other attendees with the same concerns helps us manage and overcome. Meeting these people will inevitably give others different ideas and goals to work towards. Knowing what helped in one hospital might work at mine or what has helped one state assembly may help mine. Sharing ups and downs on a national level is how we, AST, get better and stronger.

If you're joining in Chicago, I offer up these challenges to you.

First-Time Attendee

- Meet as many people as you can. Walk up to people. Look for name badges. Try to meet someone from each state. Meet the AST national board of directors, State Assembly Leadership Committee and AST Former Presidents.
- Network with as many people as you can.
- Be social. Ask people questions: how long have they been doing this, where are they from, how did they get started, what do they do now? Attend the opening and closing night events.

Seasoned Attendee

- See above.
- Be nice. You were once a first-time attendee. Don't let anyone sit alone.
- Look for those first-time attendee ribbons. Talk to them. Be the person you needed when you were wearing that ribbon.
- Lead by example.
- Don't be negative. There is enough of that everywhere else. Be positive about the experience you are having and the reasons that you keep coming back.
- Be a mentor!

Everyone

- I challenge you to make this the most memorable of all your AST national conferences. Take note of where you are now and where you want to be. Decide what you can and will do on a state and national level.
- And please, come say hello!

FOUNDATION *for* SURGICAL TECHNOLOGY

What is The Foundation for Surgical Technology?

The Foundation is a 501c3 organization comprised of representatives from the Association of Surgical Technologists (AST) and the National Board of Surgical Technology and Surgical Assisting (NBSTSA). This type of organization also means any donation you give to the Foundation is tax deductible.

Who does The Foundation support?

- The Foundation provides scholarships to the following:
- Students
- Educators
- Military personnel
- and CSTs who have helped others by serving on medical mission trips

When are the annual deadlines for the scholarships?

- Students scholarships - March 1
- Military scholarships - March 1
- Constellation (Eduscator) Awards - December 1
- Medical mission reimbursement - December 31

Learn more at www.ffst.org and give today!

SAVE THE DATE

National Surgical Technologists Week

September 17-23, 2023

AST
Association of Surgical Technologists


HUMAN
ORGAN
FOR TRANSPLANT

Organ Donation and OR Protocols

Michael Ghio, MD; Anil S. Paramesh, MD, FACS, MBA

Abstract: Organ donation and transplantation save lives and improve the quality of life in patients affected by irreversible organ failure. As medically and scientifically complex procedures with many ethical considerations, organ donation and transplantation are regulated federally and by individual healthcare systems. While transplantation takes place in specialized centers, organ donation may be performed at hospitals that are not transplant centers. It is therefore important that all operating room staff understand guidelines that direct recovery and transplantation of organs along with implications for patient care in both the donor and recipient operating rooms. Cardiac and brain death, living donation, organ transport, time-out, back tabling, and documentation are addressed in this review. Finally, advances in the areas of machine perfusion, laparoscopy, robotics, xenotransplantation, 3-D printing, paired kidney donation, and living organ donation are also considered.

The United Network for Organ Sharing (UNOS) and the Centers for Medicare and Medicaid Services, (CMS) along with other regulatory agencies, establish and publish rules, regulations, and guidelines for organ and tissue matching and transplantation. Individual hospitals also have policies for transplantation that are congruent with and facilitate execution of rules and regulations in their settings. The authors highlight essential fundamental information and practices that will assist nurses and surgical technologists working in both transplantation centers and in other acute care hospitals where organ procurement often takes place.

TRANSPLANT OR PROTOCOLS IN THE DONOR PATIENT

Organ and Tissue Donation in the United States

Organs that may be donated and transplanted include the heart, lungs, kidney, liver, pancreas, bowel (intestines), and more recently, the uterus. The corneas of the eye, heart valves, bones of the upper and lower extremities, fascia, saphenous veins, tendons and ligaments, and breast nipples/areola, among others, are tissues that may be transplanted. The current organ donation system is managed by the United Network for Organ Sharing (UNOS) under the United States Department of Health and Human Services. The system continues to

Figure 1. Geography of 11 regions for deceased donor organ recovery and allocation.

evolve with recent changes. The United States and Puerto Rico is divided into 11 regions for deceased donor organ recovery and allocation (*Figure 1*). Within each region, there were donor service areas, each of which was serviced by one of the 57 individual organ procurement organizations (OPO) in the United States.[1] Recently, a change was made so that organs to be donated are offered to compatible candidates, within 250 nautical miles of the donor/recovery hospital, who also meet criteria (distance, scoring) specific to the organ. However, if there are no candidates within 250 miles that match with and accept the organs, they are subsequently offered to candidates beyond those 250 miles. Because of this new change, many organs now cross state lines.

In the case of deceased donors, current regulations mandate that OPOs receive referrals for every patient with a Glascow Coma Scale (neurological score) < 5 (out of 15), for possible organ donation. OPO staff review patient information and approach family members about the possibility of organ donation. Oftentimes, the wishes of the deceased person may be known beforehand, either via registration on their driver's license or through a state registry. To prepare for organ donation, the OPO coordinator will manage the patient and order the necessary tests to confirm brain death and suitability of organs. The testing includes blood type and human leukocyte antigen (HLA) genetic typing, testing for infections, and imaging.

For the liver, lungs, heart, and intestines, there are point systems that allocate organs to the sickest patient. The kidneys and pancreas are distributed by a scoring system that factors in the genetic match and the total wait time of the recipient. Hearts and lungs must be transplanted quickly, so distance from the donor hospital is a primary consideration.[1] Once compatible recipients are identified and the parameters for the specific organ entered, a computer algorithm determines the order in which recipients will be offered the donated organ.[1] Oftentimes, organ centers will bring in backup patients in case the intended recipient is not eligible for the organ whether based on matching or admission testing.

Several other tissues are also recovered from deceased donors, including the eyes/corneas, heart valves, fascia, saphenous veins, tendons and ligaments, bones, skin, and nipple/areola complex. Eyes/corneas can be used to restore sight; heart valves are instrumental in valve replacement surgeries; fascia has multiple uses such as in bladder suspension surgeries and dura replacement during craniotomies; saphenous veins are used in cardiovascular/coronary bypass surgeries; tendon and ligaments help with joint reconstructive surgeries; bones are used in spinal, limb salvage cases and to correct birth defects, skin is used for facial reconstruction and surgical repair, and nipple/areola complex tissue is used in breast reconstruction. So even if your hospital is not a transplant center, it is highly likely some of these tissues have been used in your OR. Organ and tissue donation affects almost all surgical hospitals across the country.

Donation after Brain Death (DBD)

Organ donation in the United States primarily occurs following brain death (DBD) – these are cases in which the patient has been declared brain dead, but the heart is still beating. This scenario is optimal as the organs continue to be perfused until surgically removed. The chest and abdomen are opened to expose the thoracic and abdominal contents (*Figure 2*) for dissection. Cannulas may be placed in the aorta and the vena cava to flush out the blood once the circulation is stopped.

Once the dissection is complete, the aorta is clamped and the vena cava is opened to flush out the blood with preservative solution. During this time, the ventilator machines are turned off, and the anesthesia team may leave the room. Typically, the thoracic organs are removed before the abdominal organs.

After removing the organs, the surgical team then closes the incisions, and the staff helps prepare the body for the morgue or to another site where the tissues may be

removed. When the case is not deemed to be a coroner's case, all catheters (such as central venous lines) and other tubes are removed. Otherwise, if it is a coroner's case, there will be specific instructions provided by the OPO team. It is important that these expectations are clearly communicated ahead of time.

Donation after Cardiac Death (DCD)

To help meet the demand for organ donation, there are a small but increasing number of organ donations after cardiac death (DCD) being made (approximately 10%)[2]. Donation after cardiac death happens when patients have catastrophic injuries with no long-term survival and require life support systems to maintain their bodies physiologically, but they are not brain dead. In these cases, the family of the patients can elect to turn off life support, to allow the patient to pass on. Organ donation can occur after this event. Overall, the protocols surrounding DCD vary immensely.[3] There are OPO protocols, but also hospital-specific donor protocols. It is important for perioperative staff involved in organ donation to be familiar with their hospital's DCD protocol.

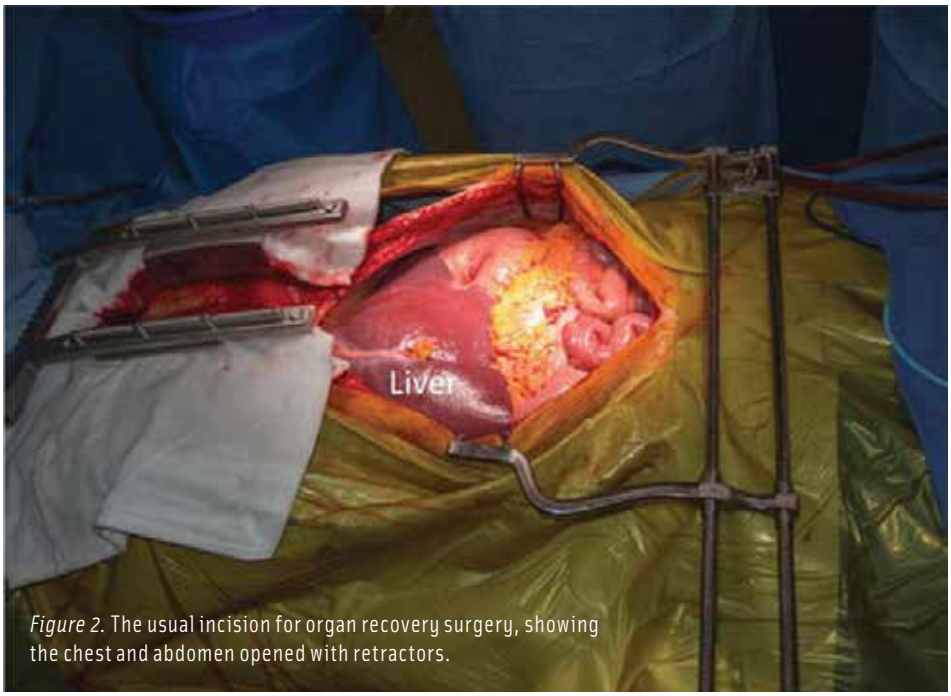


Figure 2. The usual incision for organ recovery surgery, showing the chest and abdomen opened with retractors.

In DCD cases the donor is extubated, and life support is stopped, sometimes with the family bedside. The donor typically progresses to asystole in 1-2 hours, and then an additional 2-5 minutes is allowed to ensure no return of the heartbeat. After this, the family leaves, and procurement teams enter to recover the organs. It is important to know that the OPO team cannot be involved in the withdrawal-of-care process and must be outside the OR. Instead, it is performed by a hospital physician such as a critical care physician or anesthesiologist, and a hospital nurse who will document asystole. Once the patient is declared dead, the organ recovery team comes in to remove the organs expeditiously.

Given all of this, it is understandable why hospital protocols often vary. In some circumstances, extubation may occur in the intensive care unit, the post-anesthesia care unit, or the OR. A large heparin bolus is typically given at the start of the procedure or at asystole. Some facilities allow femoral vein or artery catheters to be placed at the start of the procedure so that once asystole is confirmed, preservative can be flushed quickly. Patients can receive additional medications to make their passage more peaceful, like care withdrawal in the ICU. Of note, it is illegal to give the patient medications to hasten asystole. Should the patient not progress to asystole in the agreed upon period, the recovery is aborted, and the patient is brought back to the intensive care unit and allowed to pass on there. This is because the organs will be damaged by the prolonged period where there is compromised blood flow.

While DCD does increase the total available organ supply, these organs have overall higher rates of dysfunction, and such organs are used judiciously by transplant centers[4,5] There is also uncontrolled DCD procurement, which relates to situations of cardiac arrest in the hospital, emergency department, or ambulance and resuscitation is not successful.[6] However, should the family member be interested in organ donation, one can resume cardiopulmonary resuscitation to allow for some perfusion to the organs and give time for the OPO Team to arrive.

A newer phenomenon is the use of extracorporeal membrane oxygenation (ECMO) in DCD patients to allow for

some blood flow to the abdominal organs even though the heart has stopped beating. Overall, organ survival is higher in these organ recipients, estimated to be about 40% higher than their average survival in several studies looking at liver transplantation.[7] The evidence continues to evolve and suggest an expanding role for ECMO when indicated.

Living donor organs are essential and offer a huge supplemental supply of organs to patients around the world. Living organ transplants accounted for more than 6,500 organ transplants in 2021 ...

Setting Up a Deceased Donor OR

The donor OR typically must be prepared for simultaneous removal of several major organs from the donor. The OPO team will work with the OR staff to coordinate the room and instruments for the case prior to the OR. Hospitals assign a nurse and surgical technologist to scrub in or help circulate in the room, but oftentimes, the OPO may also have a surgical technologist scrubbed in to assist in the procedure as well. The OPO may additionally have staff that help in transporting the patient and will be in the OR to help coordinate all the teams.

A variety of tools and instruments are needed to surgically remove organs from the donor. Most of the instruments needed would be normally used in a major laparotomy tray. Many of the organs to be retrieved use similar instruments, and the OPO often provides a checklist of items needed. This may seem daunting, but in most cases, the OPO will bring the retractors, staplers, cannulas, preservative fluid, and boxes. Typically, a large chest and abdominal retractor will be used. When setting up a chest donation, perioperative staff should ensure a sternal saw is available. For all organ donations, ice slush is needed to pack the organs. Very rarely is additional equipment such as fluoroscopy required.

The total time in the OR to retrieve the organs is typically a few hours but can vary. Multiple teams may come to procure various organs, oftentimes simultaneously, but delays may occur secondary to weather, transport or teams, or other conditions. Organ retrieval is a crucial test in teamwork and pleasantry given that multiple teams from multiple hospitals/institutions often descend on one OR at the same time. Given the 250-mile radius guideline, teams may be driving or flying from significant distances and are anxious to utilize time most efficiently.

Deceased Donor OR Time Out

The time out procedure during a deceased donor organ recovery may be different from the usual surgical time out. During the deceased donor OR time out, the donor's UNOS number, blood type and the organs that are to be procured are confirmed. Those new to organ retrieval may be surprised to learn that the surgeon removing the organs does not know the name of the patient so confirming the UNOS number and other information is especially critical.

In addition to verifying the above information, OPO teams may have a moment of silence or message of respect at the start of the organ retrieval procedure where everyone recognizes that the donor and family have consented to donate organs to save the lives of several others. The donor families may have a written eulogy that may be read out prior to procedure as well. Some examples include:

"We would like to take a moment and reflect on why we are here today. May we take a moment now in silence to honor (patient's name) because of whom many lives will be saved. Thank you all for participating in providing others with the gift of life."

This reflection can be particularly helpful for the OR staff uncomfortable with these procedures. The purpose of being in the OR is not to save the donor's life, but instead save the numerous lives of many patients who will receive these essential organs. This show of respect affirms that and may help staff feel comfortable turning off life-saving equipment.

Living Donor OR

Living donor organs are essential and offer a huge supplemental supply of organs to patients around the world. Living organ transplants accounted for more than 6,500 organ transplants in 2021, and is mostly done for kidneys,

and less commonly for liver, pancreas, lungs, and intestine transplants.[8]

Although the importance of living donor transplantation has been advanced in recent years, there is and must be overriding concern for the donor. The donor and recipients UNOS ID and blood type must be confirmed before anesthesia is induced. Laterality is also important when applicable.

At times, the living donor procedure will occur simultaneously with the recipient's procedure, so it is important to have an open line of communication between the two OR rooms. Especially important, is that neither team goes beyond a "point of no return" without first notifying the OR team in the other room. For example, if the recipient cannot undergo the transplantation because of an intraoperative finding such as abnormal anatomy or incidental discovery of a tumor, the donor team must be notified before the kidney is removed. If the donor is found to have an intraoperative issue such as abnormal anatomy, tumor, anesthesia complication, or inadvertent, iatrogenic injury, the recipient surgery must be delayed.

Transport of the Donated Organ

Retrieved organs are carefully packed for transport following retrieval from either a deceased or living donor. The organs are required to have a minimum of three packagings. The bag containing the organ and the second container must contain preservative solution. The triple packaged organ is then placed in an ice box for transport if travelling.[9] The UNOS ID and blood type must be documented on the packaging and the outside ice box. It is important to note that the organ is in a sterile plastic wrapping while the outer box is not sterile and can be handled by the circulating nurse.

TRANSPLANT OR PROTOCOLS IN THE RECIPIENT PATIENT

Back Table Preparation

Once an organ is received, the organ requires preparation through cleaning or removal of excessive tissue on the back table. The organ or tissue is brought into the OR in a sterile container and is then carefully removed, inspected, and prepared on this back table.

To avoid cross contamination, it is important that donor instruments and items on the back table remain separate from other items in the room, especially from the recipient table. This is because if there is an intraoperative issue with the recipient, the donor organ is not contaminated by the recipient and can be used by someone else. With the current organ shortage, it is essential that nothing is wasted.

Working on the back table and in an ice basin, the surgeon cleans off excess tissue from the organ, oftentimes reconstructs vessels, and then flushes the vessels and organ with preservative solution. This preparation needs to be performed in a timely manner as this period is part of the cold ischemic time, meaning the function of the organ is decreasing the longer it remains without blood flow.

While working at the back table and transferring the organ, staff may note additional vessels in the organ packaging. Extra vessels are often removed during organ retrieval and packed in sterile containers with the organ in case needed for reconstruction. For example, in pancreas and liver transplantation, a donor iliac or carotid vessel is sent also for possible complex vascular reconstruction. While not always used in the transplant, the vessels are labeled and refrigerated. These vessels are technically usable for multiple days after retrieval and can also be used in another transplantation if the donor and recipient blood types are compatible. Thus, it is important to make sure the vessels are not accidentally discarded.

Setting up the Transplant OR

As discussed in the previous section, the back table and the main, recipient table of instruments must be kept separate from one another. It is important to understand that the room will change temperatures throughout the procedure, starting cold and becoming warmer. This is intentional as the organ initially needs to be kept cold while on ice/not receiving blood flow and then once implanted, must be warmed to ensure perfusion. Related to this, one of the first things the surgical technologist needs to do when setting up the OR is to start the ice machine. There is no such thing as too much ice as it is crucial to keep the organ cold and smothered in ice while the surgeons are preparing the recipient cavity for implantation. The instrument sets are complex and require careful studying, particularly the retractors and the numerous pieces that often accompany them.

Transplant OR Time-out

The transplant OR timeout is like the typical OR time-out in many ways, as team members are introduced and the patient, planned procedure, laterality, anesthesia concerns,

Figure 3. Example of a type of machine perfusion pump for a kidney.

and preoperative antibiotics are confirmed. The transplant OR time-out has several additional unique requirements. There must be confirmation of the UNOS identification number and donor and recipient blood types. There also is discussion regarding anti-rejection medications that can be administered at various times depending on the transplant plan.

The site of surgery in organ transplantation is oftentimes less clear as compared to other surgeries. This is because only some transplants are orthotopic, meaning the organ is placed in the native organ's location. Orthotopic surgeries include the liver and the heart. There are also heterotopic transplants in which the organs are placed in a different location than the native organ which is left in place. Examples of heterotopic transplants include kidneys and pancreas grafts. Even in the case of heterotopic grafts, their implantation is not necessarily on the same side as the native organ. This means that a right donor kidney can go in the left or right retroperitoneum, not just the right. Organ placement depends on the donor and recipient's anatomy which can make implantation on a particular side unfeasible. Variables include vasculature size or calcifications, or insufficient space to rest the organ without kinking of the vessels. Thus, while during the time-out there may be a plan to implant into a certain side, it may change. Operative staff must remain aware of issues along with the corresponding intraoperative decisions made by the transplant surgeon.

Appropriate Intraoperative Documentation

Guidelines regarding intraoperative documentation can vary between hospital systems, but there are overarching rules and regulations that must be observed. Details and plans for transplantation must be confirmed before the surgery starts. Requirements include verification of the recipient's name, organ type, blood type, and UNOS donor identification number. Typically, the RN circulator and the surgeon are involved in the verification process with a transplant coordinator. The exact time of the telephone conversation with the transplant coordinator must be documented on the form and that it occurred before the start of the organ implantation. With regards to the donor procedure, the RN must document the cross-clamp time, which is defined as the time the blood flow stopped in the organ.

Another crucial component of the transplant procedure

involves documentation of the ischemic times. The cross-clamp time is the time the blood flow stops in the donor surgery. The out-of-ice time is defined as the time the organ is taken out of the cold storage for the vascular anastomosis implantation. The reperfusion time is the time that clamps are removed, and blood is allowed to flow into the organ. Using these three values, one can calculate the cold ischemic time, which is defined as the time from cross-clamp of the organ's blood flow during the donation procedure to the out-of-ice time which reflects the length of time the organ spent in the cold storage. The warm ischemic time which is calculated from the out-of-ice time to reperfusion which is reflective of the time between when the organ was removed from cold storage and the vascular anastomoses were performed to allow blood flow back into the organ.

On average, warm ischemic times are usually less than one hour while cold ischemic times vary based on the distance and timing of the donor surgery. Organs such as the heart and lungs tolerate only short cold ischemic times, whereas organs like the kidney can tolerate much longer times (sometimes up to 24 hours or more).

NEWER ADVANCES IN TRANSPLANTATION

Machine Perfusion

Placing organs on machine pumps allows organs to tolerate storage longer and can help resuscitate organs as well (*Figure 3*). In various trials, there has been short term advantage to using MP in DCD or other marginal organs when related to kidney transplants.[10] Newer pumps using warm perfusion with blood are currently being used for liver procurements as well. These pumps may be brought into the OR and the organs placed in them once they are removed from the donor's body.

Minimally Invasive Organ Donation & Transplantation

Overall, laparoscopic kidney donation has become the standard of care as it is less invasive, resulting in less pain and improved recovery time.[11] The majority of donor nephrectomy patients are discharged by post-operative day one. But minimally invasive surgery is now being trialed in multiple organs. There are recent trials to now do donor and recipient surgeries laparoscopically or robotically.[11,12,13,14] The overall majority of the data suggests the anastomosis takes longer as compared to open but may have long-term outcomes equivalent to open transplant.

Kidney Paired Donation Transplantations

While living donation is encouraged, about 25% of the willing donors are not compatible with their intended recipient.[15] One of the newer ways to overcome this problem is to "swap" donors between incompatible pairs so that more living donations can exist.[16,17] These can occur with a hospital/regional sharing network, and there are national exchange programs currently in the country. This requires significant logistical pre-planning. Typically, the donor procurement procedures are performed simultaneously with the two ORs coordinating on the phone. This is done so that the paired donation does not fall apart if one donor decides to cancel at the last second.

Maintaining confidentiality between the donor and recipient pairs is important, as the pairs may not know which donor is donating to which recipient. Oftentimes, this information is revealed to the pairs after the procedures are completed.

> The site of surgery in organ transplantation is oftentimes less clear as compared to other surgeries. This is because only some transplants are orthotopic.

Living Donor Transplantations

While living donation is typically associated with kidney transplantation, one can also donate other organs such as livers. A very elaborate and expensive system of organ allocation does not exist in many parts of the world, and it may be cost prohibitive to keep deceased donors on life support or fly organs around the country. There are also cultural biases that one must consider. Some cultures do not consider brain death as true death and donation cannot occur.

Living liver donation has progressed from a child being

In addition to verifying the above information, OPO teams may have a moment of silence or message of respect at the start of the organ retrieval procedure where everyone recognizes that the donor and family have consented to donate organs to save the lives of several others.

able to receive a portion of the left lobe (~25% volume) of a parent's liver to a much more complex procedure where over 60% volume (such as right lobe) can be donated to another. Living donor hepatectomies are now being performed laparoscopically/robotically as well.[18]

In addition to living liver and kidney donation, living donor lung[19,20], pancreas[21], and intestine transplantations[22] are becoming more common. Donor safety again is the most important priority and if there is a risk of injury, the donation must be stopped.

Xenotransplants & 3-D Printing

There has been recent news of successful initial attempts of using pigs' organs in humans. With genetic manipulation, animal organs are now modified to remove some of the immunological barriers of animal tissue going into a human. There are trials currently ongoing to look at the feasibility and outcomes of such transplants. However, there is some controversy in this, as some patients are precluded from receiving these organs based on their cultural preference or ethnicity.

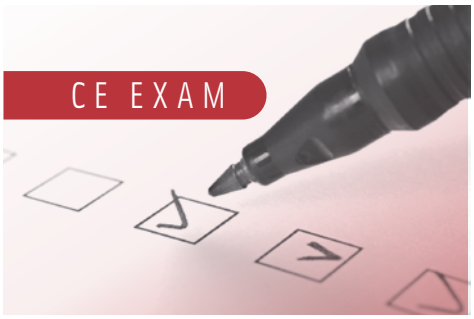
Another innovation has been 3-D printing and other synthetic mechanisms to make tissue and organs. It has been shown that stem cells could be used to create kidney, heart, or liver cells. But creating 3-dimensional organs that functions has been a limitation. Now, 3-D printers using "bio-ink" of gelatin and stem cells are being used to create organs and tissues with some initial success. Currently, 3-D printing has been used to create cartilage and skin for reconstructive surgeries. Efforts are underway to create solid organs and recently in 2019, Tel Aviv University printed a heart that showed some function.[23]

These newer innovations demonstrate an exciting era for transplantation, as the medical arena looks to overcome a worldwide shortage of organs and tissues for transplant. The goal should be that no one should die waiting for an organ that never came.

REFERENCES

1. How Organ Allocation Works. Organ Procurement and Transplantation Network. Health Resources and Services Administration. https://optn.transplant.hrsa.gov/patients/about-transplantation/how-organ-allocation-works/. Accessed August 1, 2022.
2. Sun Q, Huang Z, Zhou H, et al. New factors predicting delayed graft function: A multi-center cohort study of kidney donation after brain death followed by Circulatory Death. Kidney and Blood Pressure Research. 2018;43(3):893-903. doi:10.1159/000490337.
3. Reich DJ, Mulligan DC, Abt PL, et al. ASTS Standards on Organ Transplantation Committee. ASTS recommended practice guidelines for controlled donation after cardiac death organ procurement and transplantation. Am J Transplant. 2009;9(9):2004-2011.
4. D'Alessandro AM, Hoffman RM, Knechtle SJ, et al. Liver transplantation from controlled non-heart-beating donors. Surgery. 2000;128(4):579-588.
5. Brook NR, Waller JR, Nicholson ML. Nonheart-beating kidney donation: current practice and future developments. Kidney Int. 2003;63(4):1516-1529.
6. Roberts KJ, Bramhall S, Mayer D, Muiesan P. Uncontrolled organ donation following prehospital cardiac arrest: a potential solution to the shortage of organ donors in the United Kingdom? Transpl Int. 2011;24(5):477-481.
7. Hogen R, Sedra AH, Motamed A, Emamaullee J. The evolving role of ECMO in liver transplantation. Current Opinion in Organ Transplantation. 2021;26(3):333-338. doi:10.1097/mot.0000000000000874
8. OPTN Data and Reports. UNOS. https://unos.org/data/. Accessed August 1, 2022.
9. Michel SG, LaMuraglia Ii GM, Madariaga ML, Anderson LM. Innovative cold storage of donor organs using the Paragonix Sherpa Pak ™ devices. *Heart Lung Vessel*. 2015;7(3):246-255.
10. Tingle SJ, Figueiredo RS, Moir JA, Goodfellow M, Talbot D, Wilson CH. Machine perfusion preservation versus static cold storage for deceased donor kidney transplantation. *Cochrane Database Syst Rev*. 2019;3(3):CD011671. Published 2019 Mar 15. doi:10.1002/14651858.CD011671.pub2
11. Timsit MO, Kleinclauss F, Mamzer Bruneel MF, Thuret R. Le donneur vivant de rein [Living kidney donation]. *Prog Urol*. 2016;26(15):940-963. doi:10.1016/j.purol.2016.09.054
12. Brunotte M, Rademacher S, Weber J, et al. Robotic assisted nephrectomy for living kidney donation (RANLD) with use of multiple locking clips or ligatures for renal vascular closure. *Ann Transl Med*. 2020;8(6):305. doi:10.21037/atm.2020.02.97
13. Pein U, Girndt M, Markau S, et al. Minimally invasive robotic versus conventional open living donor kidney transplantation. *World J Urol*. 2020;38(3):795-802. doi:10.1007/s00345-019-02814-7
14. Giacomoni A, Di Sandro S, Lauterio A, et al. Robotic nephrectomy for living donation: surgical technique and literature systematic review. *Am J Surg*. 2016;211(6):1135-1142. doi:10.1016/j.amjsurg.2015.08.019
15. Paramesh AS, Killackey MT, Zhang R, Alper B, Slakey DP, Florman SS. Living donor kidney transplantation: medical, legal, and ethical considerations. *South Med J*. 2007;100(12):1208-1213. doi:10.1097/SMJ.0b013e31815a9a98

16. Braun HJ, Torres AM, Louie F, et al. Expanding living donor liver transplantation: Report of first US living donor liver transplant chain. *Am J Transplant*. 2021;21(4):1633-1636. doi:10.1111/ajt.16396
17. Osbun N, Thomas AG, Ronin M, et al. The benefit to waitlist patients in a national paired kidney exchange program: Exploring characteristics of chain end living donor transplants. *Am J Transplant*. 2022;22(1):113-121. doi:10.1111/ajt.16749
18. Gao Y, Wu W, Liu C, Liu T, Xiao H. Comparison of laparoscopic and open living donor hepatectomy: A meta-analysis. *Medicine (Baltimore)*. 2021;100(32):e26708. doi:10.1097/MD.0000000000026708
19. Date H. Update on living-donor lobar lung transplantation. *Curr Opin Organ Transplant*. 2011;16(5):453-457. doi:10.1097/MOT.0b013e32834a9997
20. Sugimoto S, Date H, Miyoshi K, et al. Long-term outcomes of living-donor lobar lung transplantation. *J Thorac Cardiovasc Surg*. 2022;164(2):440-448. doi:10.1016/j.jtcvs.2021.08.090
21. Sutherland DE, Radosevich D, Gruessner R, Gruessner A, Kandaswamy R. Pushing the envelope: living donor pancreas transplantation. *Curr Opin Organ Transplant*. 2012;17(1):106-115. doi:10.1097/MOT.0b013e32834ee6e5
22. Tzvetanov IG, Tulla KA, D'Amico G, Benedetti E. Living Donor Intestinal Transplantation. *Gastroenterol Clin North Am*. 2018;47(2):369-380. doi:10.1016/j.gtc.2018.01.008
23. Asulin M, Michael I, Shapira A, Dvir T. One-Step 3D Printing of Heart Patches with Built-In Electronics for Performance Regulation. *Adv Sci (Weinh)*. 2021;8(9):2004205. Published 2021 Mar 2. doi:10.1002/advs.202004205



Earn CE Credits at Home

You will be awarded continuing education (CE) credits toward your recertification after reading the designated article and completing the test with a score of 70% or better. If you do not pass the test, it will be returned along with your payment.

Send the original answer sheet from the journal and make a copy for your records. If possible use a credit card (debit or credit) for payment. It is a faster option for processing of credits and offers more flexibility for correct payment. When submitting multiple tests, you do not need to submit a separate check for each journal test. You may submit multiple journal tests with one check or money order.

Members this test is also available online at ***www.ast.org.*** No stamps or checks and it posts to your record automatically!

Members: $6 per credit
(per credit not per test)

Nonmembers: $10 per credit
(per credit not per test plus the $400 nonmember fee per submission)

After your credits are processed, AST will send you a letter acknowledging the number of credits that were accepted. Members can also check your CE credit status online with your login information at ***www.ast.org.***

3 WAYS TO SUBMIT YOUR CE CREDITS

Mail to: AST, Member Services, 6 West Dry Creek Circle Ste 200, Littleton, CO 80120-8031

Fax CE credits to: 303-694-9169

E-mail scanned CE credits in PDF format to: ***memserv@ast.org***

For questions please contact Member Services - ***memserv@ast.org*** or 800-637-7433, option 3. Business hours: Mon-Fri, 8:00a.m. - 4:30 p.m., MT

Organ Donation and OR Protocols

#473 MAY 2023 2.5 CE CREDITS $15

1. Which organ is distributed by a point system?
a. Liver
b. Heart
c. Kidneys
d. Lungs

2. Organs that are donated are now offered to compatible candidates, within _ nautical miles of the donor/recovery hospital, who also meet criteria (distance, scoring) specific to the organ.
a. 100
b. 150
c. 200
d. 250

3. True or false: Organ donation in the United States primarily occurs following DCD.
a. True
b. False

4. In DCD cases, the donor typically progresses to asystole in 1-2 hours, and then an additional ____ is allowed to ensure no return of the heartbeat.
a. 1-3 minutes
b. 2-5 minutes
c. 4-7 minutes
d. More than 10 minutes

5. In DBD cases, what has been determined?
a. The patient has been declared brain dead, but the heart is still beating.
b. The patient has been declared cardiac death, but not brain dead.
c. The patient remains on life support.
d. None of the above.

6. Retrieved organs are carefully packed for transport following retrieval from either a deceased or living donor, which the organs are required to have a minimum of __ packagings.
a. 1
b. 2
c. 3
d. 4

7. Out-of-ice time is defined as:
a. The time the blood flow stops in the donor surgery.
b. The time the organ is taken out of the cold storage for the vascular anastomosis.
c. The time that clamps are removed.
d. The time that blood is allowed to flow into the organ.

8. For kidney paired living donations, about ___ of the willing donors are not compatible with their intended recipient.
a. 15%
b. 25%
c. 35%
d. 45%

9. Examples of heterotopic transplants include:
a. Kidneys
b. Lungs
c. Liver
d. All of the above

10. Ischemic times play a significant role in organ donation. Which of the following organs can tolerate only short cold ischemic times?
a. Heart
b. Lungs
c. Kidneys
d. Both a and b

ORGAN DONATION AND OR PROTOCOLS #473 MAY 2023 2.5 CE CREDITS $15

AST Member No. _____

☐ My address has changed. The address below is the new address.

Name _____

Address _____

City _____ State _____ Zip _____

Telephone _____

☐ Check enclosed ☐ Check Number _____

	a	b	c	d
1	☐	☐	☐	☐
2	☐	☐	☐	☐
3	☐	☐		
4	☐	☐	☐	☐
5	☐	☐	☐	☐
6	☐	☐	☐	☐
7	☐	☐	☐	☐
8	☐	☐	☐	☐
9	☐	☐	☐	☐
10	☐	☐	☐	☐

NOW HIRING

SURGICAL TECHNOLOGISTS AT SIGHTPATH MEDICAL

COME JOIN OUR TEAM

Great company culture • Opportunities for career growth

Bonus opportunity for all employees • 401(k) plan\Medical

Benefits including medical, dental, vision, health savings account, short term disability, long term disability

SIGHTPATH MEDICAL

POSITIONS OPEN NATION-WIDE!

www.sightpathmedical.com

Fluorescence May Assist with Prevention of Bacterial Burden in Surgical Site Wounds

OF INTEREST IN THE MEDICAL ARENA

The incidence of complications at the surgical site have increased regardless of better intraoperative procedures, surgical techniques and wound care dressings. Emergence of a surgical site infection (SSI) may increase hospital stays and morbidity and delay wound healing. To decrease the occurrence of SSI, it is important to determine the number of bacteria present at or near the wound. Reliable and consistent measures for detecting complications due to bacteria such as SSIs are not prevalent and universally applicable. However, research is showing that fluorescence (FL) imaging can detect the number of bacteria present at an incision site allowing physicians to determine if the levels are high enough to cause SSI and intervene quickly.

The fluorescence imaging assessment and guidance (FLAAG) clinical trial (clinical trials #NCT03540004) was a study looking at 350 patient wounds and determining the diagnostic accuracy of FL imaging to detect bacteria in chronic wounds. The objective of the study was to examine whether fluorescence imaging of bacterial loads was more sensitive and not less specific than clinical signs and symptoms (CSS) assessments alone and how this might affect treatment planning. This is a post hoc analysis of 58 of the 60 SSIs researched in the FLAAG trial. This analysis investigated the incidence of high bacterial load in surgical wounds, applicability of FL imaging to determine the presence of bacteria in surgical wounds, and the effect of expertise in interpretation on sensitivity of fluorescence imaging identifying bacteria in surgical wounds.

The FLAAG trial included subjects from multiple centers across the United States with minimal exclusion criteria. For complete details regarding the study design, please see the 2021 Le et al. article in Advanced Wound Care. Clinicians inspected the surgical wound for clinical signs and symptoms following the International Wound Infection Institute (IWII) Wound Infection Checklist. Before the study beginning, the clinicians were given four hours of in-person and online training on fluorescence imaging device use, image interpretation, good clinical practice and procedures for the trial. The trial required a minimum of two images (standard and fluorescence) to determine if bacteria was present. If the FL image contained red or cyan coloring, it indicated bacteria was present. Punch biopsies in a location of the wound where FL imaging indicated bacteria were performed to collect tissue samples for microbiological analysis to measure bacterial load and the type of bacteria present. To determine the impact of experience reading the fluorescence images, an "expert reader" study was completed. The expert readers had more than six months experience with FL imaging outside of the trial. Statistical analyses were performed to determine sensitivity, specificity and accuracy in detecting bacterial loads in the surgical wounds.

The clinicians began with an assessment of clinical signs and symptoms. Only three of the 58 wounds were positive

... research is showing that fluorescence (FL) imaging can detect the number of bacteria present at an incision site allowing physicians to determine if the levels are high enough to cause SSI and intervene quickly.

for CSS according to the IWII Wound Infection Checklist. They then proceeded with fluorescence imaging of the wound. The clinicians identified high bacterial loads in 18 of the 58 wounds whereas the experts detected high loads in 45 of the 58 wounds. Microbiological analyses of the 58 surgical wounds indicated that 75.9% had bacterial loads greater than 104 CFU/g, and 46.6% (27/58) had bacterial loads greater than 106 CFU/g. The three cases positive for CSS had bacterial loads greater than 107 CFU/g.

The results of the study indicated that sensitivity increased from 6.8% with CSS to 38.6% with clinician-determined fluorescence imaging to 77.3% with expert-determined FL imaging. Accuracy improved from 29.3% with CSS to 51.7% with clinician-detected FL imaging to 75.9% with expert-detected FL imaging. Specificity was not statistically significant across the three groups, 100% with CSS, 92.9% with clinician-identified FL imaging and 71.94% with expert-identified FL imaging. Based on these results, the authors recommend that fluorescence imaging be utilized to detect bacterial load in surgical wound assessment and management.

https://onlinelibrary.wiley.com/doi/10.1111/iwj.13737

Water Quality and Reprocessing Can Reduce Patient Harm, Long-Term Costs

There are different requirements for water to be considered safe for drinking versus cleaning, disinfecting and sterilizing medical tools. The quality of water varies considerably across locations. Drinking water may contain additives such as chlorine and naturally occurring minerals which can lead to a layer of lime or scale on surfaces. Public water may also contain contaminants including bacteria and heavy metals.

It is imperative that water is treated appropriately at the hospital to remove these contaminants to ensure proper reprocessing and decrease time and workload. This is important to reduce harm to patients, provide better cleaning and sterilization outcomes, and reduce costs.

The effect on costs may be significant if the water quality is poor. Studies show that the cost per instrument to reprocess ranges from 34 to 77 cents. The cost to reprocess individually wrapped instruments is even higher (81 to 84 cents per instrument). When a tray contains 100 instruments and several instrument trays are processed each day, the cost adds up quickly.

The article discusses the possible consequences associated with poor water quality. These include lime and scale build-up, increased pathogen load, longer reprocessing times, exposure to bacteria, etc.

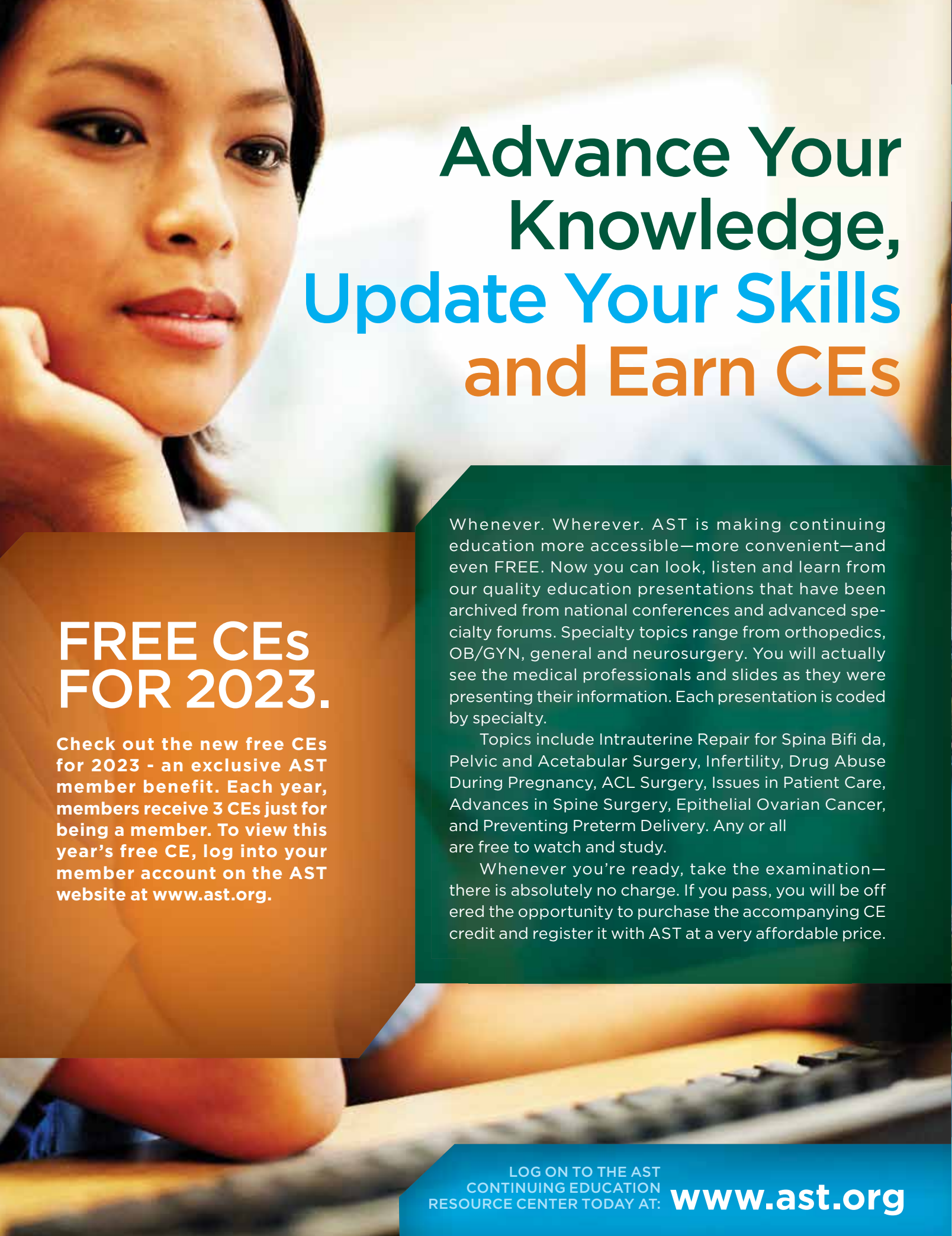
The Joint Commission issued a new water management standard (EC.02.05.02. Eps1-4) on January 1, 2022 to protect immunocompromised patients from waterborne pathogen-related illnesses. The previous standard states that the process must include a risk assessment, water management plan, testing protocols and acceptable ranges to minimize pathogenic biological agents within cooling towers, domestic hot- and cold-water systems and other aerosolizing water systems. The new standard requires that an individual or team be responsible for the oversight and implementation of the water management program, including but not limited to, development, management and maintenance activities. The program must include a basic diagram that maps water supply sources, treatment systems, processing steps, control measures and end-use points. The standard specifies an annual review of the water management program as well as when changes occur.

Ideally the team is comprised of individuals from multiple departments such as administrators, infection preventionists, risk management and sterile processing. It is recommended the following seven steps for a successful management plan that complies with the Joint Commission standards and reduces risk to patients.

1. Create a team.
2. Map the water system.
3. Identify risks.
4. Develop strategies to mitigate the risks.
5. Monitor and respond.
6. Review periodically.
7. Document and keep accurate records.

A well organized and implemented water management program is necessary to comply with the Joint Commission standards as well as to decrease risk to patients and minimize costs and negative effects on the organization.

https://www.generalsurgerynews.com/In-the-News/Article/01-23/How-Attention-to-Water-Quality-and-Reprocessing-Can-Reduce-Patient-Harm-Long-Term-Costs/69071?sub=BB92AB95B0C798459ABDF-888438CEF158B761C75852481554EDFC390E8877C&enl=true&dgid=&utm_source=enl&utm_content=2&utm_campaign=20230307&pos=2&utm_medium=title



Advance Your Knowledge, Update Your Skills and Earn CEs

FREE CEs FOR 2023.

Check out the new free CEs for 2023 - an exclusive AST member benefit. Each year, members receive 3 CEs just for being a member. To view this year's free CE, log into your member account on the AST website at www.ast.org.

Whenever. Wherever. AST is making continuing education more accessible—more convenient—and even FREE. Now you can look, listen and learn from our quality education presentations that have been archived from national conferences and advanced specialty forums. Specialty topics range from orthopedics, OB/GYN, general and neurosurgery. You will actually see the medical professionals and slides as they were presenting their information. Each presentation is coded by specialty.

Topics include Intrauterine Repair for Spina Bifi da, Pelvic and Acetabular Surgery, Infertility, Drug Abuse During Pregnancy, ACL Surgery, Issues in Patient Care, Advances in Spine Surgery, Epithelial Ovarian Cancer, and Preventing Preterm Delivery. Any or all are free to watch and study.

Whenever you're ready, take the examination—there is absolutely no charge. If you pass, you will be off ered the opportunity to purchase the accompanying CE credit and register it with AST at a very affordable price.

LOG ON TO THE AST CONTINUING EDUCATION RESOURCE CENTER TODAY AT: **www.ast.org**

AST EDUCATORS CONFERENCE

Save The Date!

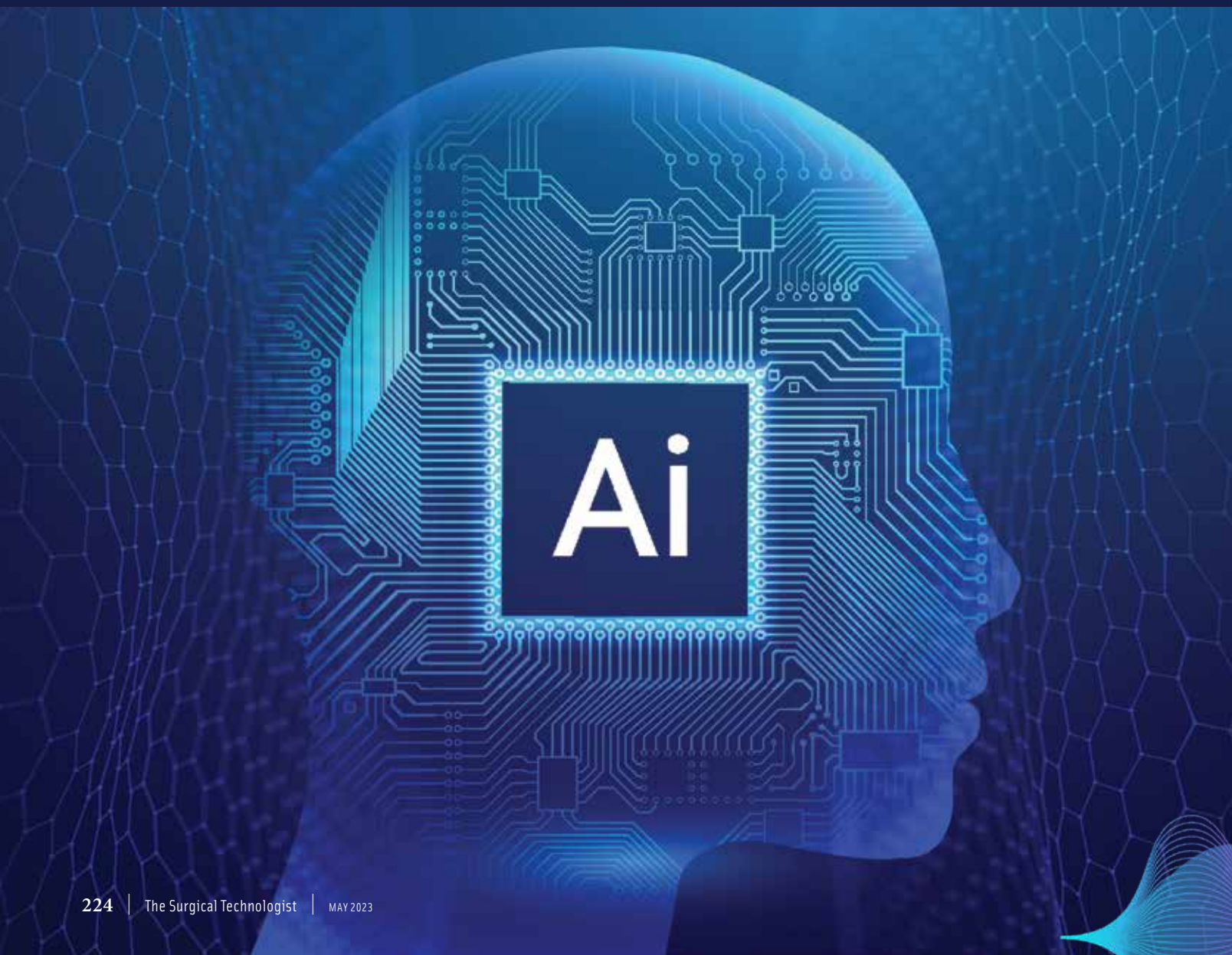
Orlando –
February 16-17, 2024,
with the
Leadership Symposium
February 15

Registration opening fall 2023.
Stay tuned for more information!

AST
Association of Surgical Technologists

Using AI Technology to Augment Surgical Technology Curriculum

Douglas J. Hughes, CST, CSFA, CRCST, EdD



Artificial intelligence (AI) has become an increasingly popular tool in education, offering innovative approaches to curriculum development and assessment. In the field of healthcare education, this technology has the potential to revolutionize the way that educators design and deliver their courses. By leveraging AI-powered tools, educators can create higher quality curriculum and assessments in less time, leading to better learning outcomes for students. This article provides an overview of the ways in which AI is transforming healthcare education, including its potential for curriculum development and assessment. Applications of AI in education, its benefits and challenges will be explored, as well as the current state of AI-powered tools in curriculum development and assessment. Case studies and examples of AI implementation in healthcare education will be assessed, including surgical training and medical education. Finally, future directions for AI in healthcare education will be discussed and recommendations will be offered for educators looking to integrate AI into their teaching practice.

Curriculum Development

Curriculum development in healthcare education programs can be a complex and time-consuming process. Educators must ensure that their curricula meet the requirements of accrediting bodies, cover all necessary content, and are engaging and effective for students. However, developing high-quality curriculum can be challenging due to the lack of resources, time constraints, and the need to keep up with advances in healthcare technology and practices. Additionally, traditional methods of curriculum development, such as manual review and editing, can be tedious and time-consuming, leading to errors and inconsistencies. This is where AI tools like ChatGPT can be particularly useful. ChatGPT can assist educators in reviewing and editing curriculum, ensuring that key concepts are covered, and generating high-quality course descriptions and program goals (Goel, 2019). With AI-powered tools, curriculum development can become more efficient, allowing educators to spend more time on other important aspects of their teaching practice (Holmes & Wieman, 2016). Additionally, AI can help ensure consistency in curriculum across different courses and programs, leading to better learning outcomes for students (Shah & Al-Hamadi, 2019).

Artifcial Intelligence

There are numerous examples of AI technology being used in healthcare education, from surgical training to medical education.

Artificial intelligence (AI) is a field of computer science that involves developing machines that can perform tasks that typically require human intelligence, such as learning, problem-solving, and decision-making. AI technology can be used in educational settings in a variety of ways, from assisting with grading and assessment to facilitating personalized learning experiences. For example, AI-powered chatbots and virtual assistants can provide students with instant feedback and support, while machine learning algorithms can analyze student performance data to generate personalized recommendations for further study (Shah & Al-Hamadi, 2019). Two of the newest and emerging technologies are ChatGPT and the new Microsoft Bing. At the time of this article, the new Microsoft Bing AI chat is available for limited use from Microsoft (Owen, 2023). ChatGPT is offered to the public through Open AI. Although a free access version is available, users can unlock additional functionality with a subscription (OpenAI, 2023).

Advantages of AI in Curriculum Development

AI can also be used for curriculum development, helping educators to create high-quality courses and assessments that meet the needs of their students. AI-powered tools, such as ChatGPT, can assist with reviewing and editing curriculum, ensuring that key terms and concepts are covered, and generating high-quality course descriptions and program goals (Goel, 2019). This can save educators significant time and effort, allowing them to focus on other important aspects of their teaching practice.

Generally speaking, one of the key advantages of AI in education is its potential to facilitate personalized learning experiences. Adaptive learning systems that use AI can adapt to each student's individual learning needs, allowing them to learn at their own pace and in their own way (Holmes & Wieman, 2016). This can be particularly beneficial in healthcare education, where students may have different back-

grounds and learning styles. By providing personalized learning experiences, educators can better support students in their learning and help them to achieve their educational goals. But, more practically speaking, educators can hit the ground running with AI in their day-to-day work with tools like ChatGPT.

Using ChatGPT to assist with program goals and outcomes development has also helped to ensure that learning outcomes are measurable and achievable. ChatGPT can help educators to identify specific learning outcomes that can be objectively measured and evaluated, which is essential for ensuring that students are able to demonstrate their knowledge and skills (Kibona, 2018). By leveraging AI technology in curriculum development, educators can create clear and measurable learning outcomes, which in turn can help students to better understand what they need to achieve and how their progress will be evaluated. In my own work, I have used AI technologies to both review current course curriculum and develop comprehensive curriculum for new courses. As an example, here is a lecture course description, student learning outcomes (SLOs), and

Chat Prompt	ChatGPT Response
Write a college catalog course description for a lecture course in surgical technology that aligns with the program's goals (goals were previously shared with ChatGPT). Primary topics for the course of lecture instruction include surgical technologist job description, surgical conscience, aseptic technique, ethical responsibilities in the operating room, and teamwork.	This course in surgical technology provides an introduction to the field and covers essential topics such as the job description of surgical technologists, surgical conscience, aseptic technique, ethical responsibilities in the operating room, and teamwork. Students will gain a fundamental understanding of the role of surgical technologists in the operating room and the importance of professional conduct and collaboration in ensuring patient safety.
Write 6 SLOs for this lecture course.	1. Explain the surgical technologist's job description, including roles and responsibilities within the operating room. 2. Define surgical conscience and describe its importance in maintaining a sterile environment. 3. Discuss aseptic technique and its role in preventing infections during surgical procedures. 4. Analyze ethical responsibilities in the operating room and how to apply ethical principles in surgical practice. 5. Evaluate the importance of teamwork in the operating room and its effect on patient outcomes. 6. Compare and contrast different types of surgical procedures and their unique challenges for the surgical team.
Write an assignment for the first SLO.	SLO 1: Describe the job responsibilities of a surgical technologist. Assignment: For this assignment, you will write a one-page essay describing the job responsibilities of a surgical technologist. You should research and include information about the types of procedures a surgical technologist may assist with, the equipment and instruments they may use, and the roles and responsibilities they have in the operating room. Additionally, you should discuss the importance of professionalism, communication, and teamwork in the surgical technology field. Your essay should be well-written, organized, and demonstrate a clear understanding of the job responsibilities of a surgical technologist.
Write standards for this assignment.	Standards for the assignment could include: 1. Correct use of terminology: Students must use accurate and appropriate terminology related to surgical technology to effectively communicate their ideas and concepts. 2. Clarity and coherence: The assignment must be well-organized, clearly written, and easy to follow, with a logical flow of ideas. 3. Proper citation and referencing: Any sources used in the completion of the assignment must be properly cited and referenced, following APA guidelines. 4. Use of reliable sources: Students should use reliable and credible sources to support their arguments and ideas, such as peer-reviewed journal articles, textbooks, or reputable websites. 5. Timely submission: The assignment must be submitted by the specified deadline, with any necessary revisions or corrections completed in a timely manner.
Provide a rubric for this assignment.	See table on page 227.

SLO 1 Assignment Rubric				
Criteria	**Unsatisfactory**	**Developing**	**Proficient**	**Exemplary**
Identification of key elements	The identification of key elements is missing or incomplete, and/or demonstrates a lack of understanding of the concepts	The identification of key elements is partially complete, but demonstrates some confusion or errors in understanding the concepts	The identification of key elements is complete and accurate, demonstrating a solid understanding of the concepts	The identification of key elements is complete and accurate, and demonstrates a deep understanding of the concepts
Integration of concepts	The integration of concepts is missing or incomplete, and/or demonstrates a lack of understanding of the relationships between the key elements	The integration of concepts is partially complete, but demonstrates some confusion or errors in understanding the relationships between the key elements	The integration of concepts is complete and accurate, demonstrating a solid understanding of the relationships between the key elements	The integration of concepts is complete and accurate, and demonstrates a deep understanding of the relationships between the key elements
Critical thinking	Demonstrates little to no critical thinking skills, and/or relies heavily on personal opinion or unsupported claims	Demonstrates some critical thinking skills, but may rely on personal opinion or lack support for claims	Demonstrates strong critical thinking skills, using evidence to support claims and engaging with opposing views	Demonstrates exceptional critical thinking skills, using advanced reasoning to support claims and offering original insights
Clarity and organization	Writing is difficult to follow and disorganized, with many grammatical or spelling errors	Writing is generally clear, but may contain some grammatical or spelling errors or lack coherence	Writing is clear, well-organized, and demonstrates good grammar and spelling	Writing is clear, well-organized, and demonstrates excellent grammar and spelling
Total Points	0-5	6-8	9-11	12-15

a sample assignment written using ChatGPT after conversing with the AI regarding the program's goals and general topics for the course. Note that this content was generated with minimal interaction with ChatGPT over the course of 2 minutes total. With more interaction, the quality of responses increases (although these are very well done, in my opinion).

Moreover, AI-powered assessment tools can be used to evaluate student performance and provide personalized feedback. These tools can be used to grade exams and assignments, as well as to provide real-time feedback to students (Jha, Kumar, & Tiwari, 2020). For example, AI-powered chatbots and virtual assistants can provide students with instant feedback and support, while machine learning algorithms can analyze student performance data to generate personalized recommendations for further study (Shah & Al-Hamadi, 2019). This can help students to better understand their strengths and weaknesses, and to improve their performance over time.

Case Studies and Examples of AI Implementation in Healthcare Education

There are numerous examples of AI technology being used in healthcare education, from surgical training to medical education. One notable example is the use of AI-powered simulators for surgical training. Surgical simulators that use AI technology can provide realistic and interactive training experiences for surgical students, allowing them to practice surgical procedures in a safe and controlled environment (Bawa, 2019). These simulators can also provide real-time feedback on student performance, helping students to identify areas where they need to improve and providing opportunities for practice and improvement.

Another example of AI implementation in healthcare education is the use of chatbots and virtual assistants to support medical students in their studies. AI-powered chatbots can provide students with instant feedback on their work, as well as personalized recommendations for further study (Shah & Al-Hamadi, 2019). This can be particularly beneficial for medical students, who may have a large volume of material to cover and limited time to study. In surgical technology education, AI technologies like ChatGPT are powerful tools that may be used to facilitate research, review student work, provide feedback on assignments, and help with writing. However, programs implementing such strategies should carefully review policies and procedures for student conduct as plagiarism is a real concern.

AI technology can also be used to support clinical decision-making in healthcare education. Machine learning algorithms can be used to analyze patient data and identify patterns and trends that can be used to make more informed clinical decisions (Jha, Kumar, & Tiwari, 2020). This can help medical students to develop their diagnostic skills and to better understand the relationship between patient data and clinical decision-making.

Future Directions for AI in Healthcare Education

As AI technology continues to evolve, it is likely that it will become an increasingly important tool in healthcare education. There are numerous directions in which AI could be developed to support healthcare education, including:

- Further development of AI-powered simulators for surgical training, including the integration of haptic feedback and other advanced technologies.
- Development of AI-powered tools that can assist with clinical decision-making, including predictive analytics and personalized treatment recommendations.
- Development of AI-powered virtual reality and augmented reality tools that can provide realistic and immersive learning experiences for medical and healthcare students.
- Continued development of AI-powered chatbots and virtual assistants that can provide personalized feedback and support to students.

However, there are also important ethical and practical considerations to be addressed as AI technology continues to be developed and implemented in healthcare education. These considerations include:

- Ensuring that AI-powered tools are accurate, reliable, and free from bias or other errors that could negatively impact patient outcomes.
- Ensuring that AI-powered tools are used ethically and responsibly, with appropriate oversight and regulation to ensure that they are used for their intended purposes.
- Ensuring that healthcare professionals receive appropriate training and education on the use of AI technology, including how to interpret and use AI-generated data and recommendations.

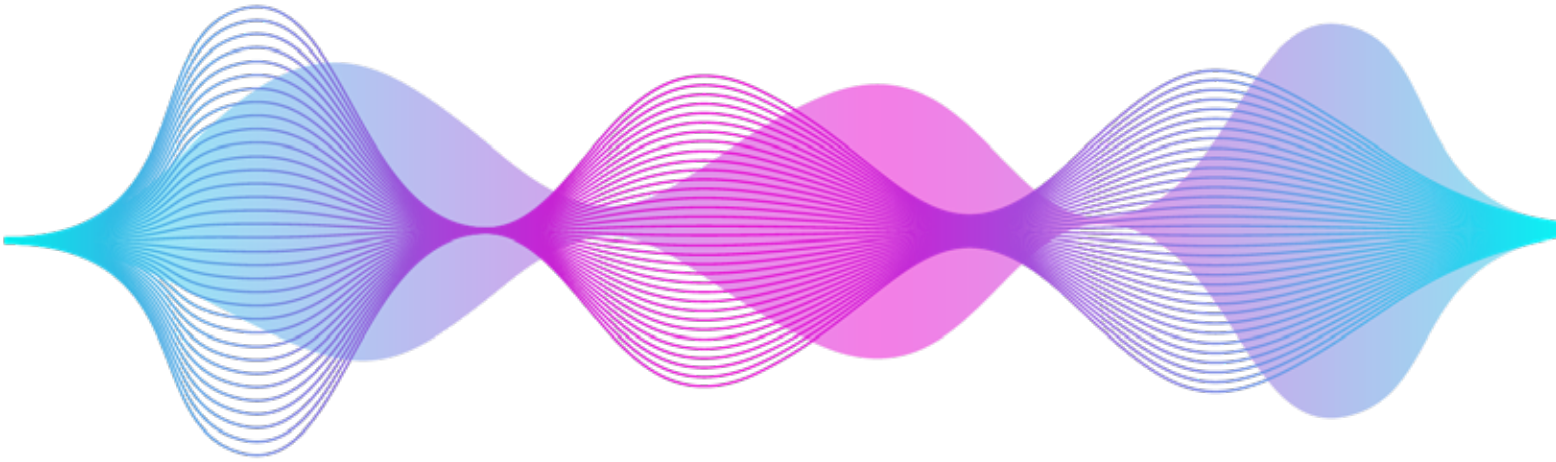
Conclusion

AI technology has the potential to revolutionize surgical technology education by improving the quality of curriculum materials, assessments, and student learning outcomes while personalizing learning, enhancing student engagement, and improving retention. However, it is important for educators to consider the limitations of AI technology, such as the need for human oversight and the potential for errors or bias in the technology.

By following the recommendations provided in this article, surgical technology educators can effectively incorporate AI technology into their curriculum and assessments and provide their students with high-quality educational experiences that are tailored to their needs and goals. As AI technology continues to evolve and improve, it is likely that it will become an increasingly important tool for surgical technology educators and other healthcare educators alike. As educators, it is our responsibility to stay up-to-date on the latest developments and trends in educational technology and to continue exploring new ways to improve teaching and learning. By embracing AI technology and other innovative tools and approaches, we can help to ensure that our students are prepared for the challenges and opportunities of the rapidly evolving healthcare landscape.

References

1. Bawa, R. (2019). Use of artificial intelligence in healthcare. *Journal of Health and Medical Informatics,* 10(2), 1-7.
2. Goel, A. (2019). Role of artificial intelligence in education. *Journal of Education and Practice,* 10(1), 1-7.
3. Holmes, N. G., & Wieman, C. (2016). Physics education: Finding a path that works. *Nature, 530,* 253-258. doi:10.1038/530253a
4. Jha, S., Kumar, A., & Tiwari, A. (2020). Artificial intelligence in medical education. *Journal of Medical Education and Curricular Development*, 7, 1-7. doi:10.1177/2382120520924488
5. Kibona, L. (2018). The role of artificial intelligence in education. *Journal of Education and Practice,* 9(17), 1-7.
6. OpenAI. (2023). GPT-3. Retrieved from https://openai.com/gpt-3/
7. Owen, J. (2023). Microsoft Bing AI Chat. Microsoft. Retrieved from https://www.microsoft.com/en-us/bing/bing-chat/
8. Shah, S., & Al-Hamadi, A. (2019). The use of artificial intelligence in healthcare education: Current trends and future directions. *International Journal of Medical Education,* 10, 215-221. doi:10.5116/ijme.5da4.1da4



Interested in serving on a medical mission?
Check out our Medical Missions page with details and resources,
and start planning your pathway to assist those in need.

Visit www.ast.org - About Us - Medical Missions

AST
Association of Surgical Technologists

YOUR NEW JOB IS IN SIGHT

AST's Career Center can help you:

- Find and apply to hundreds of jobs for surgical technologists, surgical assistants and surgical technology educators
- Post your resume and create a profile so recruiters can find you quickly
- Save your search criteria and sign up to be notified when new jobs are posted
- Watch instructional videos on resume writing, networking, behavioral interviewing and more
- Read "10 Tips for Salary Negotiations" and other helpful articles to better your career

http://careercenter.ast.org/jobseekers/

UPCOMING PROGRAMS

AST MEMBERS: Keep your member profile updated to ensure that you receive the latest news and events from your state. As an AST member you can update your profile by using your login information at ***www.ast.org.*** You may also live chat at ***www.ast.org*** or contact Member Services at ***memserv@ast.org*** or call 1-800-637-7433. AST business hours are Monday-Friday, 8 am - 4:30 pm, MST.

ARIZONA STATE ASSEMBLY

Program Type: Workshop
Date: September 23, 2023
Title: Hands on Orthopedic Workshop
Location: Banner University, 1111 E McDowell Road, Phoenix, AZ 85006
Contact: Maureen Murphy, 22309 S 227th Way, Queen Creek, AZ 85142, 602-316-7251, azsa.assembly@gmail.com
CE Credits: 4

COLORADO/WYOMING STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 16, 2023
Title: Annual Business Meeting & Workshop
Location: Denver
Contact: Antoinette Trujillo, 8230 Watchmen Road, Fountain, CO 80817, 719-733-7076, information@coloradoast.com; antlee81@gmail.com
CE Credits: 5

Program Type: Webinar Workshop (Webinar approved for members only of the Colorado/Wyoming State Assembly)
Date: November 4, 2023
Title: Fall Workshop
Contact: Antoinette Trujillo, 8230 Watchmen Road, Fountain, CO 80817, 719-733-7076, information@coloradoast.com; antlee81@gmail.com
CE Credits: 3

GEORGIA STATE ASSEMBLY

Program Type: Workshop
Date: September 9, 2023
Title: Surgery Southern Style
Location: Albany Technical College, 1704 S Slappey Blvd, Albany, GA 31701
Contact: Erin Baggett, PO Box 216, Lawrenceville, GA 30046, 678-226-6943, gasawebmaster@gmail.com
CE Credits: 8

LOUISIANA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 23, 2023
Title: Surgical Technology Fall Workshop and State Business Meeting
Location: Woman's Hospital, 100 Woman's Way, Baton Rouge, LA 70817
Contact: Eboni Saurage, PO Box 60445, Lafayette, LA 70596, 225-800-6831, sauragee@mybrcc.edu
CE Credits: 6

MONTANA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: September 9, 2023
Title: Annual Business Meeting and Elections
Location: Kalispell Regional Medical Center, 310 Sunnyview Lane, Kalispell, MT 59901
Contact: Marsha Lyles, 310 Sunnyview Lane, Kalispell, MT 59901, 406-670-8376, mnmcst@yahoo.com
CE Credits: 6-7

NEBRASKA STATE ASSEMBLY

Program Type: Onsite & Webinar Workshop (Webinar approved for members only of the Nebraska State Assembly)
Date: August 5, 2023
Title: 2023 NESA Summer Workshop
Location: TBA
Contact: Nebraska State Assembly, PO Box 67034, Lincoln, NE 68506, nebraskastateassembly@gmail.com
CE Credits: 6

NEW MEXICO STATE ASSEMBLY

Program Type: Workshop
Date: September 23, 2023
Title: NM State Assembly Fall Workshop
Location: UNMH North Campus; Domenici Center Auditorium, 1001 Stanford Dr NE, Albuquerque, NM 87193
Contact: Ruth Borah, NM-AST, PO Box 66496, Albuquerque, NM 87193, 848-391-3661, ruth.kerrjusinski@gmail.com
CE Credits: 5

SOUTH CAROLINA STATE ASSEMBLY

Program Type: Annual Meeting/Elections
Date: October 28-29, 2023
Title: SCSA Fall Workshop
Location: Horry Georgetown Technical College, 950 Crabtree Lane, Myrtle Beach, SC 29577
Contact: Katrina Williams, PO Box 10001, Dillon, SC 29536, 843-615-7454, katrinawilliams89@yahoo.com
CE Credits: 12

VIRGINIA STATE ASSEMBLY

Program Type: Workshop
Date: October 7, 2023
Title: A Little Something about Pediatrics
Location: Children's Hospital of the Kings Daughters – Brickhouse Auditorium, 601 Children's Lane, Norfolk, VA 23507
Contact: Lisa Day, 540-422-9471, ldaycsfa@gmail.com
CE Credits: 6-7

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.

COLORADO/WYOMING
Denver
September 16, 2023
Annual Meeting
2023 BOD Elections
& 2024 Delegate Elections

LOUISIANA
Baton Rouge
September 23, 2023
Annual Meeting
2023 BOD Elections
& 2024 Delegate Elections

MONTANA
Kalispell
September 9, 2023
Annual Meeting
2022-2023 BOD Elections
& 2024 Delegate Elections

SOUTH CAROLINA
Myrtle Beach
October 28-29, 2023
Annual Meeting
2022-2023 BOD Elections
& 2024 Delegate 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 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.

Check us out on Pinterest!

AST Association of Surgical Technologists

Pinterest

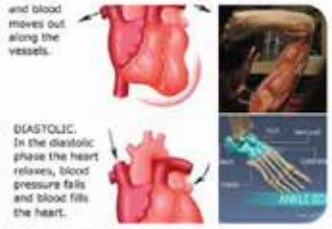
All Pins
522 Pins 1y

State Assembly...
3 Pins

National Surgical...
117 Pins

Surgical history
16 Pins

Atlanta 2020...



Surgical Technology...

Humor

Washington, DC 201...

www.pinterest.com/assnsurgtechs

77 Procedures
12 Surgical Specialties

Check out AST's Procedures PowerPoint Surgical Series

Teaching surgical procedures takes time and ingenuity. Images to illustrate the various steps in a procedure are difficult to find but are crucial to students' comprehension and retention. Enter AST's Surgical Procedures PowerPoint Series as it puts teaching procedures at your fingertips!

And in this time of remote learning, AST's Surgical Procedures PowerPoint Series is exactly the tool you need to teach your students. Not only do they present procedural steps, the series includes information such as patient presentation and pathophysiology, case preparation tips, and built-in tools to highlight and engage critical thinking skills.

AST's Procedure PowerPoint Series includes access to **77 procedures spanning 12 surgical specialties** included in the 6th edition of the *Core Curriculum for Surgical Technology.*

Specialties include:

- Cardiothoracic
- General
- Genitourinary
- Gynecological
- Miscellaneous
- Neurosurgery
- Ophthalmological
- Orthopedic
- Otorhinolaryngology
- Peripheral Vascular
- Plastic
- Trauma

The entire AST Procedures PowerPoint Series can be purchased for $1200/year in an annual subscription.

Get started!

AST is currently seeking speakers for our clinical webinar series, AST Educators Event and our national conferences. Have a good topic you'd like to see presented or know of a peer or surgeon who would make a good presenter?

Complete our speaker application and help us provide relevant and timely information to surg techs around the nation!

Visit ast.org - Educators - Events to get started.

SHARE THE VALUE OF AST

Recruit your friends and colleagues and earn free membership.

EARN TWO MONTHS FREE MEMBERSHIP FOR EVERY NEW MEMBER YOU SIGN UP TO JOIN AST

For each new member you recruit at the $80-membership level, you will receive a two-month extension on your membership!

HERE'S HOW:

> Recruit a valid new member at the one-year membership rate of $80.

> Make sure that each person you recruit provides AST with your name and AST member number when filling out their application.

> When AST receives the recruited member's application, we will extend your membership by two months for each person you recruit.

> Recruit two members at the $80-level and we'll extend your membership by four months! And so on, and so on, and so on!

Bonus membership months are not applicable to members who recruit themselves, students or retired/disabled members. No substitutions are permitted. Your membership must be current to receive bonus months. If a person's membership has lapsed for more than a year, they are considered a new member.

AST
Association of Surgical Technologists

For more information, call Member Services at 1.800.637.7433 or visit www.ast.org

CONTINUING EDUCATION

Choose any nine articles and we will be happy to send them out free of charge. Return the answer sheets provided with the appropriate processing fee—only $6 per credit (not per test) for members, $10 per credit (not per test) for nonmembers. AST automatically records the returned CE credits for AST members.

Parotidectomy with Facial Nerve Dissection 1 CE

Radiostereometric Analysis in Orthopaedic Surgery 1 CE

The Modern-Day Caesarean Section 1.5 CEs

The Economic Argument for Using Safety Scalpels 2 CEs

Emergency Department Visits and the Public Health 2 CEs

Staged Rapid Source Control Laparotomy in Emergency General Surgery 1 CE

Functional Endoscopic Sinus Surgery with Image-Guided Navigation 1 CE

PJACT: Treating Articular Cartilage Defects 1 CE

AST has even more continuing education opportunities available in print and online. We will be adding more continuing education credits on a continual basis, and the lists that are published in the Journal will be rotating on a quarterly basis so that we can provide more CE credits in a range of specialties.

Other articles, as well as archived conference and forum presentations, are easily accessible on the AST Web site, http://ceonline.ast.org. And there are three free CE opportunities for AST members to earn continuing education credits online—be sure to check them out.

To order please visit: **http://ceonline.ast.org/articles/index.htm**
or contact Member Services at **memserv@ast.org** or fax requests to 303-694-9169
or call Member Services at 800-637-7433.

Returned CE tests cost:
Members $6 per CE
Nonmembers $10 per CE, plus $400 Nonmember Fee

OPPORTUNITIES

Surgical Rib Fixation 1 CE

Butterfly Graft in Functional Rhinoplasty 1 CE

Micromotion at the Tibial Plateau in Total Knee Arthroplasty 1.5 CEs

Disc Battery Ingestion in Pediatric Patients

Partial Nephrectomy 2 CEs

Emotional Intelligence and the Surgical Technologist 2.5 CEs

Cervical Arthroplasty 1.5 CE

Treating Glioblastoma Multiforme 1 CE

ORDER FORM

❑ Member ❑ Nonmember

Membership No. _____

Name _____

Address _____

City _____ State _____ ZIP _____

Telephone _____

Test No.	Title (please print)	Test No.	Title (please print)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____		

JOIN AST

Now it pays even more to be a member of AST—especially for students.

Students - Your savings begin right away when you apply for the special student membership rate, $45 (a $35 savings). **Save $10** with the member discounted price of the examination study guide.

Enjoy the benefits of membership in the premier national professional organization for surgical technologists. Join online at *www.ast.org;* by phone at 800-637-7433; or by mail (fill in the application below).

Benefits include:

- ✔ scholarship opportunities
- ✔ access to the most up-to-date information about the profession
- ✔ insurance discounts
- ✔ education and employment opportunities
- ✔ access to resources that connects you to nearly 50,000 other surgical technology professionals
- ✔ student rate discounts

Application Form

6 West Dry Creek Circle, Suite 200, Littleton, CO 80120-8031

❑ Yes, I would like to save $10 and order the Certifying Exam Study Guide at $55 (plus shipping). Savings for current and joining AST members only.

❑ NONMEMBERS: Certifying Exam Study Guide $65 (plus shipping)

Name_____ Address_____

City _____ State_____ ZIP _____ E-mail _____

Phone _____ School _____ Graduation Date_____

I am paying by ❑ Check enclosed Pay by credit card by calling 800-637-7433 or paying online at www.ast.org