



Accredited Education with CST Certification is an Appropriate Minimum Standard for Surgical Technology and Patient Safety

History has proven that the appropriate level of education for surgical technologists is a college-based or technical-school-based education that includes skills lab, and clinical rotations to be prepared for the high-tech, fast-paced, high-stakes, high-pressure, and diverse world that is the operating room. Accredited surgical technology programs incorporate the time it takes to learn surgical technology, and safe practice principles to protect patients, themselves, and surgical team members. Surgical technology programs accredited by [CAAHEP](#) and [ABHES](#) are supported by the profession and surgical professional associations. Graduation from an accredited program and certification are required by law in many states.



The American College of Surgeons Supports Accredited Programs and the CST

The American College of Surgeons strongly supports surgical technology education and training, supports the accreditation of surgical technology educational programs, and supports certification by examination for graduates of accredited surgical technology educational programs. The "[American College of Surgeons Statement on Surgical Technology Training and Certification](#)" was adopted in 2005 (and updated in 2016) by the American College of Surgeons' Board of Regents, and approved by the Association of Surgical Technologists, American Society of Anesthesiologists, American Association of Surgical Physician Assistants, American Association of Nurse Anesthesiology, and American Society of PeriAnesthesia Nurses.

The Council on Surgical and Perioperative Safety Supports the CST

The Council on Surgical and Perioperative Safety (CSPS), in their statement [CSPS Surgical Team Member Role Partner Organizations and Credentials](#), recognizes surgical team members and specific credentials for an optimal safe surgery team. Only the CST is recognized for surgical technologists. The statement reads, "All team members are educated in accredited programs, appropriately credentialed by state license, national certification, and/or board certification. In addition, the safe surgery team members participate in continuing education to help ensure the highest possible level of patient safety." CSPS members are the American Association of Nurse Anesthesiology, American Association of Surgical Physician Assistants, American College of Surgeons, American Society of Anesthesiologists, American Society of PeriAnesthesia Nurses, Association of periOperative Registered Nurses, and Association of Surgical Technologists.

The Association of periOperative Registered Nurses (AORN) Job Description Required Accredited Education and the CST

The Association of periOperative Registered Nurses is a leader in operating room standards. Their job description for surgical technologists requires accredited education and the CST.

Employers Drive the Structure of Surgical Technology Education: Education, Skills Lab, and Clinical

Increasing the education standards has been driven by healthcare facilities that realize surgical technologists have too much to learn and that sufficient education cannot be accomplished through on-the-job training. The structure of accredited programs – which includes didactic education, simulation lab, and clinical training – ensures surgical technologists enter practice as a competent, safe surgical technologist. Didactic education prepares students for the skills lab. Didactic education and skills lab provides the foundation for clinical rotation. Didactic education, skills lab, and clinical rotation prepares students for certification. Once certified, the Certified Surgical Technologist has demonstrated they have the knowledge and skills to perform effectively and safely in the operating room.

Surgical Technology Is a Profession Requiring Education, Decision-Making Skills, and Maturity

Surgical technology education and training, and decision-making skills of the Certified Surgical Technologist is comparable to those of nurses and physician assistants. Surgical technology is a good fit for people who are ready to invest the time necessary to attain the skills. The surgeon, anesthesiologist, and RN are highly-educated professionals who expect a high level of performance. They also expect the surgical technologist to have the maturity for independent decision-making and to work as a team member who is able to handle the stresses of the operating room.

50 Years of Didactic Education, Skills Lab, and Clinical Rotation

On-the-job training for surgical technologists was phased out starting in the 1950s, with programmatic accreditation beginning in 1972. By the turn of the century, there were 257 accredited programs, and 332 accredited programs in 2001. As of May 2023, there are over 400 accredited programs.

On-the-Job Training for Surgical Technologists is a Failed Experiment

With the workforce shortage, a few facilities (nationwide) are experimenting with on-the-job training. Most on-the-job training programs fail. A recent on-the-job training program in Massachusetts trained 13 LPNs. Only *two* LPNs from that program ended up working as surgical technologists. The financial cost was much more than traditional surgical technology education. Short-cutting education does not work because of the complexity of the surgical technologist's role. On-the-job training does not provide the trainee with detailed knowledge of surgical anatomy, pathology, microbiology, pharmacology, instrumentation, and surgical technology. On-the-job training does not provide the trainee the practice or the anticipatory skills necessary to safely perform the role and duties of the position.

Education, Skills Lab, and Clinical Rotation Create Competent and Safe Entry-Level CSTs

Accredited surgical technology programs incorporate the time it takes to learn surgical technology. Competent, patient-centered practice as a surgical technologist demands a broad area of knowledge and skills development.

Annie R., CST, went to an accredited surgical technology program to become a Certified Surgical Technologist because she realized her on-the-job training at an eye center was insufficient and she was taught techniques incorrectly. Annie is now the volunteer Government and Public Affairs Chair for her state chapter of AST because she believes accredited education and certification is necessary for patient safety.

During didactic education, surgical technologists learn:

- medical terminology
 - anatomy
 - physiology
 - microbiology
 - the physical environment
 - chemical hazards
 - surgical wound management
 - infection control
 - hemostasis
 - patient care concepts
 - disinfection & sterilization
 - electrical, radiation, & laser safety
 - fire prevention
 - legal responsibilities
 - professional standards of conduct
 - infection control
 - disaster preparedness
 - stress management
 - OSHA standards & appropriate PPE
 - bloodborne pathogen prevention
 - surgical medications
 - equipment, instrumentation, & supplies (for all specialties!)
- Surgical Procedures & Techniques for:
- general surgery
 - OB-GYN
 - orthopedics
 - urology
 - cardiothoracic
 - ENT/oral and maxillofacial surgery
 - plastic and reconstructive
 - vascular
 - ophthalmic
 - spine
 - neurosurgery
 - endoscopic
 - interventional radiology
 - laser-assisted surgery
 - robotic-assisted surgery

Some of these topics are an entire college course such as medical terminology, and equipment, instrumentation, and supplies.

Critical thinking and multitasking skills are also learned by the student. The escalating rate of new technologies in the operating room requires surgical technologists to apply critical thinking and multitasking skills.

Skills Lab in Accredited Programs

Didactic education prepares the student for the skills lab, also called the mock operating room. Programs invest significant resources into skills labs to create a mock operating room, often relying on state funding, grants, and donations by local healthcare facilities. In the skills lab, students complete 225 hours of practice away from the hectic, fast-paced, high-pressure operating room environment and, most importantly, away from the patient. *Skills labs provide a safe learning environment without putting patients and surgical team members at risk. Students gain the skills to anticipate the needs of the surgeon and the speed needed to assist during unanticipated situations such as rapid bleeding or trauma procedures. They learn sharps safety, including how to handle scalpels and needles without causing a sharps injury to themselves or others, and appropriately assemble power equipment like neurosurgery drills.* Skills labs prevents errors during real surgeries and helps lower the risk of acquiring a bloodborne infection like HIV and hepatitis C.

Clinical Rotations in Accredited Programs

Didactic education and skills lab provides the foundation for clinical rotations. During diverse clinical rotations the student learns surgical team interactions, safety habits, and an immense amount of information about each surgical specialty. **Every surgical specialty has unique, critical safety issues and unique equipment, instruments, supplies, and processes.**

Specialties like ENT have important patient considerations, such as cancer specimens and preventing surgical fires, such as when a laser is used. Even though surgery fires are rare, they happen, and the consequences to the patient are devastating (Day et al., 2018).

High-Level Performance Begins Day One

Surgical technologists need to be ready for the intense and demanding environment of the OR before they're on their own in a spine, trauma, robotic, or cancer, case. In an operating room, it is often the circumstance that there is *no one* available to provide assistance or input during the procedure. Everyone's busy on their own case and it is assumed the Certified Surgical Technologist knows the procedure. There are many healthcare facilities with no small cases on a given day. A hospital with 10 operating rooms may have 10 complex cases running simultaneously.

A high level of performance is needed from day one for patient safety, surgical outcomes, the CST's own safety, and the safety of their colleagues.

Competent performers contribute to the entire team's morale, *staff retention*, surgeon satisfaction, patient safety, and better surgical outcomes for the patient.

Workforce Solution=Apprenticeships Paired with Accredited Surgical Technology Programs

Apprenticeships can be used as the clinical experience in the accredited program. Healthcare facilities in Alabama, Colorado, Florida, Indiana, Massachusetts, Minnesota, Nevada, Louisiana, and Utah have collaborated with CAAHEP- and ABHES-accredited surgical technology programs to create apprenticeships and build the workforce for educated and skilled professionals. When apprenticeships are done collaboratively with accredited programs they meet and exceed the requirements of a federal Registered Apprenticeship.

AST Urges Healthcare Facilities Support Accredited Education for Surgical Technology

AST urges healthcare facilities to enhance the surgical technology workforce by offering ample clinical placements to accredited programs, working with accredited surgical technology programs to develop apprenticeships, helping local, accredited educational programs fill cohorts, supporting the development of new accredited surgical technology programs, directing any available foundation funding to surgical technology scholarships accredited programs, and working collaboratively with the community to seek federal, state, and private funding for accredited surgical technology programs and students enrolled in accredited surgical technology programs.

References

1. Day, A., Rivera, E., Farlow, J. Gourin, C, & Nussenbaum, B. (2018). Surgical fires in otolaryngology: A systematic and narrative review. *Otolaryngology-Head and Neck Surgery*, 158(4), 598-616.
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