Contemporary technology has revolutionized the transformative power of surgery. Before the industrial revolution, modern science and the acceptance of sterile technique, surgeries were relatively unskilled and haphazard. There were few ways to prevent bleeding, pain and infection. Today, the surgical team performs complicated procedures with equally complex techniques—organ transplants, triple bypass heart surgeries, and total hip replacements. The availability of anesthesia and hygienic operating rooms along with the proliferation of medications and technologically-advanced equipment has driven the increase in the complexity, variety and quantity of surgeries. Thanks to modern methods, Gabrielle Giffords, a US Congresswoman, recently survived a gunshot wound to the head and people survive traumatic accidents every day.

Successful surgeries require a team effort. To protect patients, hospitals must find ways to counter the hazards that inevitably attend protracted and invasive surgeries. Hiring educated and competent surgical technologists is one way health care facilities enhance surgical safety, prevent surgical site infections and achieve successful outcomes.

Surgical technologists use their expertise in asepsis and equipment to prepare the operating room. During procedures, the surgical technologist stands next to the surgeon and the patient, helping the surgeon with equipment throughout the surgery, expediting surgical procedures by swiftly passing and skillfully using appropriate surgical instruments, and monitoring surgical instruments and supplies to ensure no foreign objects are retained. Surgical technologists are specifically trained and responsible for maintaining the integrity of the sterile field.

“Every day in operating rooms throughout Virginia thousands of surgeries are being performed. Surgical procedures are complicated, and require extensive use of highly technical equipment. The proper education and training of all team members is vital to the successful outcome of all surgical patients. Surgical technologists are a critical part of this team to ensure the safe delivery of surgical care to our patients.”

Dr. Troy Glembot, Director, Winchester Medical Center Bariatric Program
HISTORY OF THE PROFESSION

World War I and World War II catapulted the profession of surgical technology. During the wars, aseptic technique improved, and the military hospital system expanded to allow multiple patients to undergo surgery simultaneously. Extreme war casualties placed surgeons and nurses in high demand. However, female nurses were banned from the battlefield and combat ships, causing a shortage of 'scrub nurses' in the field. In response, the Army and Navy started using "medics" and “corpsmen” to assist with operations. These new military professionals became known as operating room technicians, later changed to surgical technologists.

Concurrently, and in response to a dearth of medical personnel, an accelerated nursing program exclusively focused on operating room technology was set up on the home front. It provided clinical training that allowed nurses to assist in surgery.

After the Korean War, the supply of these professionals available to civilian hospitals skyrocketed. A shortage of operating room nurses led hospitals to recruit ex-medics and ex-corpsmen. Back then, the ex-military men served in the circulator role in the operating room while the surgical technologists’ role was a performed by a licensed nurse. Due to various market forces in the 1960’s, the roles reversed. Today, Medicare requires the circulator to be a licensed nurse, yet surgical technologists remain largely unregulated.

Over time, the importance of surgical technology has expanded in tandem with the sophistication of surgery. Today thousands of different surgical instruments are used. A single surgery may require more than 600 instruments. With the seemingly infinite types of surgical equipment in use—lasers, robots, neurosurgery devices, retractors, scissors, clamps and fluids — having a competent, educated surgical technologist on the team is vital.

Virginia health facilities employ approximately 1,700 surgical technologists and accredited surgical technology programs in Virginia produce more than 200 graduates each year. According to the US Bureau of Labor Statistics, employment of surgical technologists is expected to grow 25 percent between 2008 and 2018.
THE ROLE OF THE SURGICAL TECHNOLOGIST

Prior to surgery, the surgical technologist:
- Prepares the sterile field using sterile technique, setting up surgical instruments, sterile drapes and sterile solutions;
- Assembles surgical equipment and checks it to ensure it is working properly;
- Prepares patients for surgery by washing, shaving and disinfecting incision sites;
- Participates in positioning and draping patients; and
- Observes patients’ vital signs, checks charts and helps the surgical team put on sterile gowns and gloves.

Skillful pre-surgery technique protects patients from life-threatening surgical site infections, malfunctioning equipment and unneeded delays during the procedure.

During surgery, the surgical technologist stands next to the surgeon at the operating table, who relies on the surgical technologist every moment of the surgery. The surgical technologist:
- Swiftly passes instruments, fluids and supplies to the surgeon; and
- Operates lasers, robots, sterilizers, lights, suction apparatus, and diagnostic equipment.

The surgical technologist must be able to anticipate the needs of the surgeon because every moment a patient is in surgery the risks related to anesthesia and bleeding increase. The surgical technologist is trained to handle and minimize exposure to hazardous materials, communicable diseases and bloodborne pathogens. The integrity of the sterile field is the surgical technologist’s highest priority.

After surgery, the surgical technologist performs a count of sponges and supplies with another member of the surgical team to assure no sponges or instruments remain inside the patient, which can cause serious infections, disability, and, in rare cases, death. The surgical technologist is the only member of the surgical team in the sterile field, near the patient, responsible for counting objects to prevent a foreign object from being retained after surgery.

Did You Know?
- Large-cavity cases use an average of 300 instruments per surgery. Longer surgeries may use more than 600 instruments.
- The surgical technologist is the only surgical team member in a place to see retained foreign objects and responsible for counting objects.
- An Annals of Surgery report found that the majority of discrepancies in instrument counts happened when surgical technologists or nurses misplaced items in the operating room.
WHY CERTIFIED SURGICAL TECHNOLOGISTS MATTER
Certified Surgical Technologists Protect Patients

Surgical patients under anesthesia cannot make decisions or act on their own behalf and must instead rely on the members of the surgical team. Allowing under-trained or inappropriately trained health care professionals to be used in operating rooms, puts the patients at risk of physical harm and possibly even loss of life. Potential harm from errors of an unskilled, unregulated surgical technologist includes:

- retained foreign objects;
- surgical site infection;
- exposure to bloodborne pathogens;
- excessive and sometimes avoidable blood loss;
- injection of wrong medication or fluid;
- wrong site surgery;
- allergic reactions;
- damage to major organs;
- loss of function of any limb or organ;
- exposure to fire;
- brain or spinal damage; or
- loss of life.

The Centers for Disease Control and Prevention estimates that 5%–10% of hospitalized patients develop health care-acquired infections.\(^1\) Approximately 1.7 million patients develop health care-acquired infections each year. Of these infections, 290,000 were surgical site infections.\(^1\) Surgical site infections resulted in an estimated 13,088 deaths nationally per year.\(^1\) Each year, approximately 100,000 patients die from preventable medical errors. Over half of preventable medical errors occur in the operating room.

Overall, health care-acquired infections drive health care costs, incurring an estimated $28 to $33 billion in excess healthcare costs each year.\(^2\) The cost per surgical site infection is an estimated $25,546. The surgical technologist is the professional in the operating room charged with the responsibility of maintaining the integrity of the sterile field and preventing surgical site infections. The sterile field refers to surfaces that sterile objects, such as surgical instruments, may contact. The sterile field includes the area immediately around a patient that has been prepared for a surgical procedure. Protecting the sterile field involves carrying out specific procedures using sterile technique.

The education and training of a Certified Surgical Technologist can only logically serve to arrest and abate these alarming statistics, reduce health care costs, protect patients and save lives.
