

## Section Three

### (CST) Examination

#### **SURGICAL TECHNOLOGIST CERTIFYING EXAMINATION CONTENT OUTLINE**

The CST examination is constructed based on the content outline, using questions from the surgical technologist item bank. The percentage assigned to each area of the content outline determines how many questions from that area appear on the examination. No two examinations are exactly alike even though the percentage of questions from each area are the same. The questions and test forms are reviewed by the eight member CST Examination Review Committee (CST-ERC).

The content of the examination is based on tasks performed by CST's nationwide. A Job Analysis survey was conducted to identify the specific tasks related to the frequency, and importance of surgical technologists nationwide. The results of the Job Analysis were used to develop the content outline for the examination. The content outline is evaluated on a prescribed schedule to assure that the overall examination content reflects current surgical technology practice.

The CST examination consists of 200 questions, of which 175 are scored. The 25 pretest items (unscored) are randomly distributed throughout the examination for the purpose of analysis and statistical evaluation. The passing score is the minimum number of questions that must be answered correctly. Candidates must correctly answer 119 questions to pass the CST examination. Score reports are provided to all candidates who take the examination.

The CST examination is based on the Examination Content Outline developed from the 2008 Job Analysis.

#### **I. PERI-OPERATIVE CARE (60%)**

##### **A. Pre-Operative Preparation (17%)**

1. Read surgeon's preference card.
2. Verify availability of surgery equipment (e.g., reserve equipment for surgery).
3. Prepare and maintain operating room environment according to surgical procedure (e.g., temperature, lights, suction, and furniture).
4. Review chart (identify and check laboratory results are within normal limits, physician orders, operative consent, allergies, and history and physical).
5. Obtain and apply additional equipment (e.g., pneumatic tourniquet, sequential compression devices, thermoregulatory devices).
6. Don personal protective equipment.
7. Obtain instruments, supplies, and equipment and verify readiness for surgery.
8. Check package integrity of sterile supplies.
9. Open sterile supplies while maintaining aseptic technique.
10. Perform surgical hand scrub, gowning, and gloving.

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11. Assemble, inspect, and set up sterile instruments and supplies for surgical procedures.
12. Gown and glove sterile team members.
13. Verify identity of patient and operative site (time out).
14. Drape the patient.
15. Obtain, assemble, and test positioning equipment.
16. Transfer patient to operating room table.
17. Apply patient safety measures (e.g., safety strap, elbow protectors, gel pads).
18. Apply patient monitoring devices.
19. Position the patient.
20. Prepare skin for surgery (e.g., hair removal, surgical preparation).
21. Consider the needs of special patient populations (e.g., pediatric, geriatric, immune compromised).

### **B. Intra-Operative Procedures (37%)**

1. Provide intra-operative assistance under the direction of the surgeon.
2. Count instrument pre- and intra-operatively with circulator.
3. Identify instruments by:
  - a) function
  - b) application
  - c) classification
4. Count sponges and sharps pre- and intra-operatively with circulator.
5. Anticipate the steps of surgical procedures.
6. Differentiate among the various methods and applications of hemostasis (e.g., mechanical, thermal, chemical).
7. Specify methods of operative exposure.
8. Place and secure retractors.
9. Verify with surgeon the correct type and/or size of implantable devices.
10. Pass instruments and supplies during surgery.
11. Irrigate, suction, and sponge operative site.
12. Monitor and maintain aseptic technique throughout the procedure.
13. Assemble, test and operate specialty equipment during surgery.
14. Utilize the following specialty equipment:
  - a) argon beam coagulators
  - b) computer navigation systems
  - c) thermal ablation
  - d) robotic technology
  - e) laser technology
  - f) ultrasound technology (e.g., harmonic scalpel, phacoemulsification)
  - g) endoscopic technology
15. Verify and label medications and solutions at the sterile field.
16. Mix medications and solutions at the sterile field.
17. Calculate and report the amount of medications and solutions used.
18. Monitor and maintain adequate supplies and solutions.
19. Prepare drains, catheters, and tubing for insertion.
20. Verify, prepare, and label specimen(s).
21. Observe patient's intra-operative status (e.g., monitor color of blood, onset of blood loss, monitor position of patient during procedure).
22. Apply thermal surgical techniques and safety precautions as directed by the surgeon (e.g., cryo-surgery, laser surgery, ESU).
23. Prepare suture materials.
24. Cut suture material as directed.

25. Identify appropriate usage of sutures/needles and stapling devices.
26. Provide assistance with internal stapling devices.
27. Provide assistance with stapling skin tissue.
28. Perform appropriate actions during an emergency.
29. Initiate preventative and/or corrective actions in potentially hazardous situations.
30. Perform video recording and/or still photography or procedures (e.g., endoscopic).
31. Connect and activate drains to suction apparatus.
32. Prepare and apply sterile dressing.
33. Assist in the placement of wound drainage systems.
34. Apply casts, splints, braces, and similar devices.

### **C. Post-Operative Procedures (6%)**

1. Evaluate patient immediately post-operative and report findings (e.g., bleeding at surgical site, hematoma).
2. Transfer patient from operating table to stretcher.
3. Remove drapes from patient.
4. Perform room clean up after surgery.
5. Dispose of contaminated waste and drapes after surgery in compliance with Standard Precautions.
6. Dispose of contaminated sharps after surgery in compliance with Standard Precautions.
7. Return unused supplies and equipment in designated location.
8. Prepare instruments for decontamination and sterilization.

## **II. ADDITIONAL DUTIES (11%)**

### **A. Administrative and Personnel (3%)**

1. Revise surgeon's preference card as necessary.
2. Utilize computer technology for:
  - a) surgeon's preference cards
  - b) interdepartmental communication
  - c) continuing education
  - d) research
3. Follow disaster plan protocol.
4. Recognize safety and environmental hazards (e.g., fire, chemical spill, laser smoke).
5. Follow proper cost containment processes.
6. Apply ethical and legal practices related to surgical patient care.
7. Use interpersonal skills (e.g., listening, diplomacy, responsiveness) and group dynamics.
8. Understand the importance of cultural diversity.
9. Serve as preceptor to perioperative personnel.

### **B. Equipment Sterilization and Maintenance (9%)**

1. Operate sterilizing devices according to manuf. recommendations.
2. Troubleshoot equipment malfunctions.
3. Decontaminate and clean instruments and equipment.
4. Inspect, test, and assemble instruments and equipment.
5. Package and sterilize instruments and equipment.
6. Perform quality assurance functions (e.g., biological monitoring of sterilization methods).
7. Maintain equipment records and logs (e.g., Steris, Attest, laser log, steam sterilizers).

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#### III. BASIC SCIENCE (29%)

##### A. Anatomy and Physiology (17%)

1. Use appropriate medical terminology and abbreviations.
2. Demonstrate knowledge of the following anatomical systems as they relate to the surgical procedure:
  - a) cardiovascular
  - b) digestive
  - c) endocrine
  - d) integumentary
  - e) lymphatic
  - f) muscular
  - g) nervous
  - h) peripheral vascular
  - i) reproductive
  - j) respiratory
  - k) sensory
  - l) skeletal
  - m) urinary
3. Demonstrate knowledge of human physiology as it relates to the surgical procedure for the following systems:
  - a) cardiovascular
  - b) digestive
  - c) endocrine
  - d) integumentary
  - e) lymphatic
  - f) muscular
  - g) nervous
  - h) peripheral vascular
  - i) reproductive
  - j) respiratory
  - k) sensory
  - l) skeletal
  - m) urinary
4. Identify the following surgical pathologies:
  - a) abnormal anatomy
  - b) disease processes
  - c) fractures
  - d) malignancies

##### B. Microbiology (6%)

1. Apply the following principles of surgical microbiology to operative practice:
  - a) classification and pathogenesis of microorganisms
  - b) factors influencing wound healing (e.g., condition of patient, wound type)
  - c) infection control procedures (e.g., aseptic technique)
  - d) principles of tissue handling (e.g., Halsted principles, tissue manipulation methods, traction/counter traction)
  - e) stages of, and factors influencing wound healing
  - f) surgical wound classification
2. Identify and address factors that can influence an infectious process.

##### C. Surgical Pharmacology (6%)

1. Apply the following principles of surgical pharmacology to operative practice:
  - a) anesthesia related agents and medications
  - b) blood and fluid replacement
  - c) complications from drug interactions (e.g., malignant hyperthermia)
  - d) methods of anesthesia administration (e.g., general, local, block)
  - e) types, uses, action, and interactions of drugs and solution (e.g., hemostatic agents, antibiotics, IV solutions)
  - f) weights, measures, and conversions

#### CST EXAMINATION RECOMMENDED REFERENCES

The most current editions of the books listed below are used for reference by the NBSTSA and the CST-ERC.

##### REFERENCE

Alexander's Care of the Patient in Surgery  
Berry and Kohn's Operating Room Technique  
Human Physiology  
Instrumentation for the Operating Room  
Medical Terminology Systems: A Body Systems Approach  
Microbiology for the Health Sciences  
Physician's Desk Reference  
Principles of Human Anatomy  
Surgical Instruments-A Pocket Guide  
Surgical Technology Principles and Practice  
Taber's Cyclopedic Medical Dictionary  
The Human Body in Health and Disease  
Surgical Technology for the Surgical Technologist  
Standards Recommended Practices and Guidelines  
The Merck Manual  
Grays Anatomy: The Anatomical Basis of Clinical Practice  
Law & Ethics for Medical Careers  
Pharmacology for the Surgical Technologist  
Microbiology for the Surgical Technologist  
Memmler and Wood The Human Body in Health and Disease  
American Heart Association-Cardiopulmonary Resuscitation  
American Heart Association Health Care Provider CPR text

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