

YOUR FREE READER'S COMPANION

The CST Rapid-Review Pack

*A companion to The CST Surgical Technologist Certification Study Guide · by
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Thanks for picking up the study guide. This companion is built for the last two weeks before your CST exam. It strips the whole blueprint down to the numbers, classifications, and one-line associations the NBSTSA tests over and over, plus an instrument quick-reference you can quiz yourself on like flashcards. Read it, cover it, and drill it. If a value here disagrees with your instructor or a facility policy, follow local policy in the OR but memorize the standard values below for the exam.

*Nobody fails the CST because they cannot memorize. They fail because the volume is enormous and they never boiled it down. This pack is the boil-down: the sterilization numbers, the instrument names, the classifications, and the safety facts that show up again and again. Quiz yourself on it out loud, cover the answers, and by test day it will be automatic. You have done the studying. This is how you lock it in. —
Nadine*

High-Yield Cram Facts

Steam Sterilization Parameters (memorize these)

Cycle	Temperature	Min. Exposure	Notes
Gravity, wrapped	250 degrees F (121 C)	30 minutes	Air displaced by gravity; longer cycle
Gravity, wrapped	270 degrees F (132 C)	15 minutes	Higher-temp gravity
Prevacuum, wrapped	270 degrees F (132 C)	4 minutes	Vacuum removes air first; faster
Prevacuum, wrapped	275 degrees F (135 C)	3 minutes	Higher-temp prevacuum
IUSS prevacuum, nonporous	270 degrees F (132 C)	3 minutes	Formerly "flash"
IUSS prevacuum, mixed/porous	270 degrees F (132 C)	4 minutes	Longer for lumens/porous
IUSS gravity, nonporous	270 degrees F (132 C)	3 minutes	Traditional flash value

- Prevacuum sterilizers need a daily Bowie-Dick test to confirm complete air removal.
- Wet packs are contaminated (strike-through). Sterility is EVENT related, not time related.
- IUSS is for emergencies only, not implants (except documented emergency with a BI), and cannot maintain sterility over time.

Sterilization Monitoring

- Chemical indicators change color when a condition is met. Class 1 = process (autoclave tape). Class 5 = integrating. Class 6 = emulating. A CI does NOT prove sterility.
- Biological indicators are the ONLY monitor that proves sterility (spore kill). Steam and hydrogen peroxide use *Geobacillus stearothermophilus*; EO and dry heat use *Bacillus atrophaeus*.

Spaulding Classification

Category	Contact	Minimum Reprocessing	Examples
Critical	Sterile tissue/vascular/sterile cavity	Sterilization	Surgical instruments, implants, needles
Semicritical	Mucous membranes / nonintact skin	High-level disinfection (sterilize if possible)	Flexible endoscopes, laryngoscope blades
Noncritical	Intact skin only	Low/intermediate disinfection	BP cuffs, stethoscopes, OR table

Surgical Wound Classification (CDC)

Class	Name	Description
I	Clean	No tract entered; closed primarily (1-5% infection)

II	Clean-Contaminated	Tract entered, controlled, no unusual contamination (3-11%)
III	Contaminated	Fresh accidental wound, major break in technique, gross GI spill (10-17%)
IV	Dirty-Infected	Old wound, existing infection or perforated viscus (over 27%)

Wound Healing Phases and Intention

- Hemostasis (immediate): vasoconstriction and clot.
- Inflammatory (day 1 to 4-5): redness/heat/swelling; little tensile strength.
- Proliferative (day 4 to 14-21): fibroblasts lay collagen; granulation; gains strength.
- Maturation (day 21 to 1 year+): collagen remodels; scar reaches about 80% of original strength.
- First intention = primary union (edges approximated). Second = granulation (left open). Third = delayed primary closure.

Common Suture Fast Facts

Suture	Absorbable?	Filament	Typical Use
Plain gut	Absorbable (natural)	Mono	Rapid; superficial vessels, subcutaneous
Chromic gut	Absorbable (natural)	Mono	Longer hold; mucosa, subcutaneous
Vicryl (polyglactin 910)	Absorbable (synthetic)	Braided	Subcutaneous, muscle, GI; strength ~2-3 wk
Monocryl (poliglecaprone)	Absorbable (synthetic)	Mono	Subcuticular skin closure
PDS (polydioxanone)	Absorbable (synthetic)	Mono	Fascia, slow-healing; strength ~4-6 mo
Silk	Nonabsorbable (natural)	Braided	Ligating, drains; great handling
Prolene (polypropylene)	Nonabsorbable (synthetic)	Mono	Vascular, cardiac; inert
Nylon	Nonabsorbable (synthetic)	Mono	Skin closure; low reactivity
Stainless steel	Nonabsorbable (metal)	Mono/twisted	Sternum, orthopedic; highest tensile strength

- USP sizing: more zeros = smaller. Large to small: 5, 4, 3, 2, 1, 0, 2-0, 3-0 ... down to 11-0 (micro).
- Needle points: taper (soft tissue, bowel, vessel), cutting (skin/tough), reverse cutting (resists pull-through), blunt (friable tissue such as liver).

Patient Positions and Nerve Risk

Position	Common Use	Nerve/Injury Risk
Supine	General, abdominal, vascular	Ulnar; brachial plexus if arm abducted over 90 degrees
Trendelenburg	Lower abdomen/pelvis	Shoulder braces can injure brachial plexus; respiratory compromise
Lithotomy	GYN, GU, rectal	Peroneal (lateral knee), femoral, hip; raise/lower legs together

Prone/jackknife	Spine, rectal	Eyes, breasts, genitalia pressure; abdominal/chest compression
Lateral (kidney)	Kidney, thoracic, hip	Peroneal (down leg), axillary roll protects brachial plexus

Hemostatic Agents

Agent	Type	Key Point
Gelfoam (gelatin)	Passive matrix	Absorbs many times its weight; often soaked in thrombin
Surgicel (oxidized cellulose)	Passive/active	Low pH; do NOT combine with thrombin (inactivates it)
Avitene (collagen)	Passive	Triggers platelet aggregation
Thrombin (topical)	Active	Fibrinogen to fibrin; NEVER injected intravascularly
Bone wax	Mechanical	Tamponades bleeding bone (sternum, cranium); nonabsorbable
Epinephrine	Pharmacologic	Vasoconstrictor; reduces bleeding

Local Anesthetic Maximum Doses

Agent	Max WITHOUT epi	Max WITH epi
Lidocaine	4.5 mg/kg (~300 mg)	7 mg/kg (~500 mg)
Bupivacaine	2.5 mg/kg (~175 mg)	3 mg/kg (~225 mg)
Mepivacaine	5-6 mg/kg (~400 mg)	7 mg/kg (~550 mg)

- Avoid epinephrine in end-artery areas: fingers, toes, nose, ears, penis.
- Bupivacaine is the most cardiotoxic; watch for LAST (perioral numbness, tinnitus, seizures, then collapse); treat with IV lipid emulsion.

Malignant Hyperthermia (know it cold)

- Triggers: ALL volatile inhalation agents and succinylcholine.
- Earliest, most sensitive sign: a rapid, unexplained rise in end-tidal CO₂. Temperature rise is a LATE sign.
- Antidote: dantrolene sodium, 2.5 mg/kg IV, repeat up to about 10 mg/kg.
- Actions: stop triggers, call for the MH cart, hyperventilate with 100% oxygen, give dantrolene, cool the patient, treat acidosis/arrhythmias/hyperkalemia.

The Medication "Rights" and Field Labeling

Right patient, drug, dose, route, time, documentation, and right to refuse. Every drug on the sterile field is labeled (name, strength, amount, expiration); circulator and scrub verify out loud when it is passed.

Sterile Field and Aseptic Rules

- Only sterile touches sterile; if in doubt, it is contaminated.

- Gowns are sterile in front from chest to field level, sleeves 2 inches above the elbow to the cuff. Back, below field level, and axilla are NOT sterile.
- The 1 inch (2.5 cm) drape border is nonsterile. Tables are sterile at table level only.
- Keep hands at or above waist and in view. Never reach over a sterile field. Moisture (strike-through) contaminates.

Surgical Instrument Quick-Reference (Flashcards)

Cover the right column, name the use, then check yourself. Learn the family first (cutting, clamping, grasping, retracting, suction, accessory, bone), then the individual name.

Instrument	Category	Use / Specialty
#3 handle + #10/#11/#15 blade	Cutting	#11 stab, #15 fine, #10 general skin
#4 handle + #20/#21/#22 blade	Cutting	Larger/deep incisions
Mayo scissors (straight)	Cutting	Cut suture and heavy tissue
Mayo scissors (curved)	Cutting	Cut heavy tissue and fascia
Metzenbaum ("Metz")	Cutting/dissecting	Delicate dissection of fine tissue
Iris scissors	Cutting	Fine ophthalmic/plastic work
Potts-Smith	Cutting	Angled vascular scissors
Mosquito (Halsted)	Clamping	Fine hemostat, small vessels
Crile hemostat	Clamping	Medium vessels; fully serrated jaws
Kelly hemostat	Clamping	Larger; jaws serrated distally only
Pean (Rochester-Pean)	Clamping	Large vessels/tissue
Right-angle (Mixer)	Clamping	Clamp/dissect around vessels and ducts
Tonsil (Schnidt)	Clamping	Deep clamp, passing ties in a cavity
Allis	Grasping	Grasps tissue to be removed; interlocking teeth
Babcock	Grasping	Atraumatic; bowel, ureter, fallopian tube
Kocher/Ochsner	Grasping/clamping	Heavy toothed; dense tissue, fascia
Adson forceps	Grasping	Fine thumb forceps; skin closure
DeBakey forceps	Grasping	Atraumatic vascular thumb forceps
Army-Navy retractor	Retracting	Handheld, shallow, superficial
Richardson retractor	Retracting	Handheld deep, right-angle blade; abdominal
Deaver retractor	Retracting	Handheld deep curved; liver, deep cavities
Weitlaner retractor	Retracting	Self-retaining, rake-toothed; ortho/neuro
Gelpi retractor	Retracting	Self-retaining, single sharp point; deep narrow
Balfour retractor	Retracting	Self-retaining abdominal wall + bladder blade
Bookwalter retractor	Retracting	Table-mounted ring system; deep abdominal
Yankauer suction	Suction	Rigid oral/pharyngeal, open field
Poole suction	Suction	Perforated guard; abdominal cavity, large volumes

Frazier suction	Suction	Fine right-angle with thumb port; neuro, ENT
Mayo-Hegar needle holder	Accessory	Holds curved needle; general suturing
Castroviejo needle holder	Accessory	Spring/lock fine holder; ophthalmic, vascular
Backhaus towel clip	Accessory	Sharp clip to secure drapes
Foerster sponge forceps	Accessory	Holds sponge for prep ("sponge stick")
Kerrison/Leksell rongeur	Bone	Bites and removes bone; spine, ortho
Osteotome and mallet	Bone	Cuts/shapes bone (osteotome bevel both sides)
Freer elevator	Bone	Lifts periosteum; nasal, spine
Gigli saw	Bone	Flexible wire saw for bone
Bulldog / Satinsky clamp	Clamping	Atraumatic vessel occlusion
Hemoclip applier	Clamping	Applies ligating clips to vessels
Yasargil clip/applier	Clamping	Aneurysm clip in neurosurgery
GIA / linear cutting stapler	Accessory	Staples AND divides bowel/tissue
TA stapler	Accessory	Line of staples without cutting

Rapid-Fire Recall Quiz

Read the question, say the answer out loud, then uncover it. Do the whole set the night before and again the morning of.

Question	Answer
Prevacuum wrapped sterilization time/temp?	4 minutes at 270 degrees F
Gravity wrapped sterilization time/temp?	30 minutes at 250 degrees F
Daily test for a prevacuum sterilizer?	Bowie-Dick test
Only monitor that proves sterility?	Biological indicator (spore kill)
BI organism for steam?	Geobacillus stearothermophilus
BI organism for EO/dry heat?	Bacillus atrophaeus
Spaulding: enters sterile tissue?	Critical, needs sterilization
Spaulding: contacts mucous membranes?	Semicritical, high-level disinfection
Wound Class I?	Clean, no tract entered
Wound Class III?	Contaminated (fresh accidental / major break)
First intention healing?	Primary union, edges approximated
Second intention healing?	Granulation, wound left open
Final scar strength?	About 80% of original
Which USP suture is smaller, 2-0 or 5-0?	5-0 (more zeros = smaller)
Taper needle is for?	Soft tissue (bowel, vessel)
Cutting needle is for?	Skin and tough tissue
Do NOT combine Surgicel with?	Thrombin (low pH inactivates it)
Bone wax is used to?	Tamponade bleeding bone (sternum, cranium)
Lidocaine max with epinephrine?	7 mg/kg (about 500 mg)
Most cardiotoxic local anesthetic?	Bupivacaine
MH earliest sign?	Rapid rise in end-tidal CO ₂
MH antidote and dose?	Dantrolene 2.5 mg/kg IV
MH trigger agents?	Volatile inhalation agents and succinylcholine
Sterile area of the gown?	Front chest to field level; sleeves to 2 in above elbow
Drape border considered nonsterile?	The 1 inch border
Metzenbaum scissors are for?	Delicate tissue dissection
Mayo scissors are for?	Cutting suture and heavy tissue

Allis vs Babcock?	Allis = tissue to remove (teeth); Babcock = atraumatic tubular
Yankauer vs Frazier suction?	Yankauer = open field; Frazier = fine neuro/ENT
Self-retaining deep narrow retractor?	Gelpi
Table-mounted abdominal retractor system?	Bookwalter
GIA stapler does what?	Staples and divides at once
Kocher/Ochsner clamp is?	Heavy toothed clamp for dense tissue
The medication "rights" include?	Patient, drug, dose, route, time, documentation, refuse
Sterility is related to?	Events, not time

That is the whole pack. Drill the sterilization numbers and the instrument names until they are automatic, then trust yourself. You have done the work. Walk in and pass. — Nadine