

# Cardiac Surgery Certification (CSC) Test Plan

Applies to exams taken on or after January 31, 2022.

## I. PROCEDURES (11%)

### A. Cardiovascular

1. Coronary artery bypass surgery (CABG) with cardiopulmonary bypass
2. Coronary artery bypass surgery (CABG) without cardiopulmonary bypass
3. Cox maze and modified maze procedure
4. Minimally invasive cardiac surgery
5. Pericardial window
6. Repair of non-congenital heart defects (e.g., left-ventricular aneurysm, VSD post MI)
7. Surgical valve repair or replacement
8. Transcatheter valve replacement (e.g., TAVR)

### B. Thoracic

1. Endovascular repair of the aorta
2. Open repair of thoracic aortic aneurysm or dissection

## II. COMPLICATIONS (33%)

### A. Cardiovascular

1. Cardiogenic shock
2. Hypotension and hypertension
3. Hypovolemia and hypervolemia
4. Bleeding
5. Myocardial infarction
6. Myocardial stunning
7. Open chest from the operating room
8. Pericarditis
9. Dysrhythmias
10. Right heart failure
11. Cardiac tamponade
12. Vascular complications (e.g., compartment syndrome, retroperitoneal bleeding)

### B. Respiratory

1. Acute respiratory failure
2. Acute respiratory distress syndrome (ARDS)
3. Transfusion related acute lung injury (TRALI)
4. Transfusion associated circulatory overload (TACO)

5. Pleural space abnormalities (e.g., pneumothorax)
6. Air-leak syndromes (e.g., pneumopericardium, pneumomediastinum)
7. Aspiration
8. Atelectasis
9. Pleural effusion
10. Prolonged mechanical ventilation
11. Pulmonary hypertension

### C. Endocrine

1. Hyperglycemia and hypoglycemia

### D. Hematology / Immunology

1. Protamine reactions
2. Coagulopathies
3. Anemia
4. Heparin-induced thrombocytopenia (HIT)

### E. Neurology

1. Postoperative impaired cognition
2. Cerebrovascular accident (stroke)
3. Lower limb deficits (e.g., spinal cord ischemia, paralysis)
4. Delirium

### F. Gastrointestinal

1. Ischemic bowel

### G. Renal

1. Acute kidney injury
2. Electrolyte imbalances

### H. Multisystem

1. Multisystem organ dysfunction syndrome (MODS)
2. Chronic pain
3. Acute pain
4. Acid-base imbalances
5. Malignant hyperthermia

### I. Behavioral / Psychosocial

1. Preexisting behavioral health disorder (e.g., anxiety, PTSD)
2. Substance use and withdrawal

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## III. THERAPEUTIC INTERVENTIONS (43%)

### A. Cardiovascular

1. Fluid volume management specific to cardiac surgery
2. Defibrillation and cardioversion
3. Emergent re sternotomy
4. Cardiac surgery advanced life support (CALs)
5. Temporary pacing
6. Intra-aortic balloon pump
7. Short-term ventricular assist devices (VADs)
8. Extracorporeal membrane oxygenation (ECMO)
9. Pericardial and mediastinal drain

### B. Pharmacology

1. Platelet inhibitors
2. Thrombolytics
3. Anticoagulants
4. Vasoactive agents
5. Antidysrhythmics
6. Inotropes
7. Diuretics
8. Beta-blockers
9. Statins
10. Pharmacologic agents for controlling bleeding (e.g., desmopressin acetate, factor VII, antifibrinolytics)
11. Pulmonary vasodilators
12. Sedation
13. Neuromuscular blockade

### C. Respiratory

1. Pleural chest tubes and drains
2. Invasive and non-invasive mechanical ventilation
3. Oxygen therapy delivery devices
4. Post-extubation care

### D. Endocrine

1. Glycemic control

### E. Hematology and Immunology

1. Blood and blood products

### F. Neurology

1. Lumbar drain
2. Pain management

### G. Renal

1. Renal replacement therapy (e.g., hemodialysis, CRRT)

### H. Standards of Care

1. Deep vein thrombosis (DVT) prophylaxis
2. Early mobility protocols
3. Gastrointestinal (GI) prophylaxis
4. Surgical site protocols
5. Recovery from anesthesia
6. Rewarming from hypothermia
7. Pneumonia prevention

## IV. MONITORING AND DIAGNOSTICS (13%)

### A. Cardiovascular

1. Hemodynamic monitoring
2. Echocardiography
3. Electrocardiography (ECG)
4. Laboratory testing

### B. Respiratory

1. Arterial blood gas (ABG)
2. Mixed venous gas
3. Pulse oximetry
4. Capnography
5. Radiography

### C. Neurology

1. Bispectral index monitoring (BIS)
2. Cerebral oximetry monitoring
3. Train-of-four (TOF)

*Order of content does not necessarily reflect importance.*