# NURSING SERVICE GUIDELINES
# GENERAL

**Guideline:** **Code Surgery C**

**Policy Number Superseded:** 3364-110-09-23

**Responsibility:** Nursing Administration

**Purpose of Guidelines:** To provide clinical guidance for the response and management of Code Surgery C activations for adult post-cardiac surgery patients experiencing cardiac arrest or critical clinical deterioration, incorporating CSU-ALS-informed principles. Activation criteria and process are addressed in the Code Surgery C Activation Policy. Detailed resuscitation principles and resternotomy guidance are provided in Appendix A and Appendix B.

**Effective Date: 7 2026**

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**Initial Effective Date: 7/2026**

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## (A) Policy Statement

Code Surgery C is a specialized emergency activation process used to rapidly mobilize the cardiothoracic surgery response team for qualifying adult patients within thirty (30) days of cardiac surgery requiring median sternotomy who experience cardiac arrest or significant postoperative clinical deterioration requiring emergent cardiothoracic surgical evaluation.

For qualifying patients, Code Surgery C shall be activated in place of a standard Code Blue to facilitate rapid multidisciplinary response and expedite transfer to the Operating Room when indicated.

## (B) Purpose of Policy

The purpose of Code Surgery C is to provide a standardized process for activation of the cardiothoracic surgery response team during critical postoperative events.

This policy outlines the activation process, communication pathway, and responsibilities for initiating Code Surgery C.

Detailed clinical management, emergency resternotomy procedures, and team member responsibilities are addressed in the **Code Surgery C Nursing Services Guideline**.

## (C) Procedure

1. **Initiation of Code Surgery C**

a. Any personnel caring for a qualifying patient who identifies cardiac arrest or significant postoperative clinical deterioration may initiate Code Surgery C.

b. The individual initiating Code Surgery C shall remain with the patient and summon additional assistance by available means.

c. Code Surgery C is initiated by calling the hospital operator by dialing **77** (desk phone) or **383-7700** (Ascom) and requesting activation of Code Surgery C.

d. The caller shall provide the patient's location in words, not initials.

*Example: "Activate Code Surgery C for Surgical ICU Room 2218."*

e. The hospital operator shall activate the Code Surgery C response team as outlined in Section 5 of this policy.

2. **Activation Criteria**

a. **Patient Non-Code**

Activate this pathway for qualifying patients demonstrating concerning postoperative clinical deterioration that does not currently require immediate overhead emergency activation, including but not limited to:

- Increasing vasoactive medication requirements
- Escalating chest tube output
- New or worsening pacing dependence
- New unstable arrhythmias without cardiac arrest
- Acute hemodynamic changes responsive to intervention
- Concern for evolving cardiac tamponade without cardiovascular collapse
- Significant clinical deterioration requiring urgent surgical evaluation

The bedside nurse shall immediately notify the physician(s) responsible for the patient's care.

The physician and care team shall evaluate the patient and determine whether Code Surgery C activation is indicated.

If Code Surgery C is indicated, the bedside staff shall activate the response by contacting the hospital operator as described in Section 1.

If Code Surgery C is not indicated, patient care shall continue through standard clinical management while maintaining close communication among the multidisciplinary team.

b. **Patient Code**

Activate Code Surgery C immediately for qualifying patients experiencing cardiac arrest or critical postoperative deterioration suggesting an imminent life-threatening complication, including but not limited to:

- Cardiac arrest (any rhythm)
- Pulseless ventricular tachycardia
- Ventricular fibrillation
- Severe hemodynamic instability with concern for imminent cardiac arrest
- Refractory severe bradycardia
- Asystole
- Suspected cardiac tamponade with hemodynamic collapse
- Massive postoperative hemorrhage with cardiovascular instability
- Rapid clinical deterioration unresponsive to bedside interventions
- Clinical concern for emergent resternotomy

The bedside staff shall immediately activate Code Surgery C by contacting the hospital operator.

Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS), when indicated, shall be initiated by the first qualified personnel at the bedside while awaiting arrival of the Code Surgery C team.

Clinical management shall continue in accordance with the **Code Surgery C Nursing Services Guideline**.

3. **Guidelines During Code Surgery C**

a. Patient care shall continue while awaiting arrival of the Code Surgery C response team.

b. The physician assuming responsibility for the patient shall coordinate ongoing medical management.

c. The cardiothoracic surgery team shall determine the need for emergent transfer to the Operating Room.

d. Detailed clinical management, emergency resternotomy procedures, and team member responsibilities are addressed in the **Code Surgery C Nursing Services Guideline**.

4. **Composition of the Code Surgery C Response Team**

The Code Surgery C response team is composed of trained personnel, which includes, but is not limited to:

- Cardiothoracic Surgeon and/or designated covering provider
- Providers credentialed to perform resternotomy

- Surgical ICU Intensivist and team
- CT Surgery Advanced Practice Provider (APP)
- Cardiovascular Operating Room (CVOR) staff
- ICU Lead Registered Nurse
- Anesthesia personnel
- Pharmacy personnel
- Perfusion personnel
- House Supervisor
- Additional nursing, respiratory therapy, procedural, or support personnel as clinically indicated

5. **Operator Activation**

   a. Upon notification, the hospital operator shall activate the Code Surgery C group pager.

   b. The operator shall announce overhead and send the following text page:

      *"Code Surgery C. Unit ____, room ____, Main Hospital."*

   c. On weekends, off-shifts, and holidays, the operator shall verify that all responding personnel have acknowledged receipt of the page and are responding.

6. **Transfer of the Patient**

   a. The cardiothoracic surgery team shall determine whether the patient requires emergent transfer to the Operating Room.

   b. The physician directing the Code Surgery C event shall remain responsible for medical management during patient transport.

7. **Documentation**

   a. Documentation of the Code Surgery C event shall be completed in the patient's electronic medical record in accordance with hospital documentation standards.

   b. Additional documentation requirements related to emergency resternotomy or operative intervention shall be completed as outlined in the **Code Surgery C Nursing Services Guideline**.

8. **Review of Code Surgery C Events**

   a. Code Surgery C activations shall be reviewed by the appropriate multidisciplinary committee to evaluate response times, adherence to policy, opportunities for process improvement, and patient outcomes.

b. Debriefing following Code Surgery C events is encouraged whenever feasible to identify opportunities for improvement and reinforce best practices.

## Definitions

### Code Surgery C

A specialized emergency overhead activation for adult patients within 30 days of cardiac surgery requiring median sternotomy who are experiencing cardiac arrest or critical clinical deterioration suggestive of a life-threatening postoperative complication.

### Critical Clinical Deterioration

Rapid hemodynamic, respiratory, or electrical instability with concern for progression to cardiac arrest or other life-threatening postoperative complication requiring immediate multidisciplinary evaluation and intervention.

### CSU-ALS

Cardiac Surgical Unit Advanced Life Support: a specialized resuscitation framework designed for management of recent post-cardiac surgery patients recognizing the unique physiology, reversible causes, and procedural interventions associated with cardiac surgical arrest and peri-arrest events.

### Recent Post-Cardiac Surgery Patient

Adult patients within 30 days of cardiac surgery requiring median sternotomy.

### Emergency Resternotomy

Emergent reopening of a prior median sternotomy incision for management of life-threatening postoperative cardiac surgical complications.

### CSU-ALS Certified Team Member

A member of the Code Surgery C response team who has completed institutional CSU-ALS training and demonstrates competency in CSU-ALS-informed resuscitative principles for management of recent post-cardiac surgery patients.

## Roles and Responsibilities

The Code Surgery C response team is composed of CSU-ALS certified team members. Roles and responsibilities for key team members are outlined below.

### Operator

- Upon notification, activates the Code Surgery C group pager and sends the standardized text page identifying patient room, bed, and institution.
- Announces Code Surgery C overhead.

- On weekends, off-shifts, and holidays, verifies that all responding personnel have acknowledged receipt of the page and are responding.

**Primary Nurse**

- Identifies cardiac arrest or significant postoperative clinical deterioration and initiates Code Surgery C as outlined in the Code Surgery C Activation Policy.
- Remains with the patient and summons additional assistance by available means until the response team arrives.
- Collects and communicates pertinent patient information to the responding team.
- Administers treatment as prescribed and assists with CSU-ALS-informed interventions within scope of practice.
- Documents activation and events of the Code Surgery C event in the electronic medical record.
- Facilitates transfer of the patient to the operating room or higher level of care as needed.
- Notifies the family of changes in patient status.

**Cardiothoracic Surgeon / Designated Covering Provider**

- Provides immediate evaluation and management guidance for qualifying patients.
- Determines the need for emergency resternotomy and other surgical interventions based on clinical assessment.
- Coordinates ongoing medical management and directs the Code Surgery C event.
- Remains responsible for medical management during patient transport to the Operating Room.

**Providers Credentialed to Perform Resternotomy**

- Perform emergency chest reopening only when appropriately credentialed and privileged to do so.
- Coordinate with the cardiothoracic surgeon whenever clinically feasible prior to proceeding.

**Surgical ICU Intensivist and Team**

- Responds to Code Surgery C activations and assists with ongoing critical care management.
- Supports CSU-ALS-informed resuscitative interventions in coordination with the CT Surgery team.

**CT Surgery Advanced Practice Provider (APP)**

- Responds to Code Surgery C activations and assists the cardiothoracic surgeon with evaluation and management.

**Cardiovascular Operating Room (CVOR) Staff**

- Responds to Code Surgery C activations and prepares the Operating Room for potential emergent transfer.

**Surgical Intensive Care Unit (SICU) Lead Registered Nurse**

- Responds to all Code Surgery C activations involving qualifying patients.
- When activation occurs outside the SICU, ensures transport of the emergency resternotomy tray and associated procedural equipment to the Code Surgery C location.
- Confirms defibrillation pads are placed promptly on all unstable qualifying patients.
- Confirms temporary pacing wires and pacing generator are accessible at bedside when clinically appropriate.
- Assists with coordination of specialized postoperative cardiac surgical resuscitation resources as needed.

**Anesthesia Personnel**

- Responds to Code Surgery C activations as available.
- Assists with airway management, reintubation, sedation, and procedural support as clinically indicated.

**Perfusion Personnel**

- Responds to Code Surgery C activation notifications in accordance with institutional response expectations.
- Maintains readiness for emergent cardiopulmonary bypass support when clinically indicated.

**House Supervisor**

- Provides expertise in patient flow and facilitates proper bed placement based on acuity and assessed needs.
- Assists in notifying family of change in patient status.
- Assists with coordination of institutional resources and staffing support during Code Surgery C events.

**Additional Personnel**

- Additional nursing, respiratory therapy, procedural, or support personnel respond as clinically indicated to support the Code Surgery C event.

**Emergency Resternotomy Authorization**

Emergency resternotomy shall only be performed by appropriately credentialed providers acting within institutional scope of practice and privileging requirements.

Emergency resternotomy decisions should occur in direct consultation with the cardiothoracic surgeon whenever clinically feasible. In emergent circumstances, appropriately credentialed and privileged providers may proceed in accordance with institutional scope of practice, clinical judgment, and patient condition.

Authorized providers performing emergency resternotomy may include:

- Cardiothoracic Surgery attending physicians
- Trauma attending physicians credentialed and privileged for the procedure

**Activation of Code Surgery C does not independently authorize chest reopening by personnel outside approved credentialing and privileging structures.**

**<u>Procedure</u>:**

Gather equipment:

(1) Emergency resternotomy tray (5-piece set: scalpel, wire cutters, wire puller, sternal retractor, sterile suction/Yankauer)

(2) Defibrillator with external defibrillation pads

(3) Internal defibrillation paddles

(4) Temporary epicardial pacing equipment and pacing generator

(5) Airway management equipment

(6) Suction equipment

(7) Rapid transfusion capability and blood product access

**(A)** Assess rhythm immediately upon identifying deterioration:

(1) If ECG shows **VF, pulseless VT, or asystole**: call arrest immediately.

(2) If rhythm appears to have a cardiac output: check all pressure tracings (arterial line, $ETCO_2$). If waveforms are pulseless, call arrest immediately.

(3) Feeling for a pulse should only be used if there is significant doubt about the diagnosis.

**(B)** Perform the following immediately for all arrests:

(1) Increase oxygen to 100%. Disconnect from ventilator and bag patient.

(2) Turn off PEEP.

(3) Confirm ET tube position. Look and listen for equal bilateral chest movement and confirm $ETCO_2$.

(4) Exclude tension pneumothorax and large hemothorax.

*Note: Tension pneumothorax should be managed with immediate needle decompression or chest tube — it does not independently require emergency resternotomy.*

(5) If IABP is in place, set to pressure trigger mode. If there is a significant period without massage, change to internal mode at 100 bpm.

(6) Stop all infusions (potential toxins). Sedatives may continue. Identify one clean line for medications.

(7) **Do NOT give epinephrine** unless directed by a senior clinician. If ordered, use a reduced dose of 100–300 mcg only.

**(C) Ventricular Fibrillation (VF) or Pulseless VT:** Assist the defibrillation role as follows:

(1) External cardiac massage may be delayed up to one minute to deliver the first shock.

(2) Deliver up to **3 sequential (stacked) shocks** without intervening CPR.

(3) If shocks are unsuccessful: begin CPR, targeting systolic BP **≥60 mmHg** on the arterial line, at a rate of 100–120 bpm.

(4) After 3 failed shocks: prepare **300 mg IV Amiodarone** as directed.

(5) Continue CPR with single shock every 2 minutes as a bridge to emergency resternotomy.

**(D) Asystole or Severe Bradycardia:** Assist the pacing role as follows:

(1) External cardiac massage may be delayed up to one minute to initiate or troubleshoot epicardial pacing.

(2) Connect epicardial pacing wires. Initiate pacing at rate 80–100 bpm with maximal atrial and ventricular output.

(3) If no epicardial wires are present: begin CPR immediately. Transcutaneous pacing may be considered.

(4) Atropine is **not recommended**.

(5) If pacing is unsuccessful: begin CPR as a bridge to emergency resternotomy.

**(E) Pulseless Electrical Activity (PEA):** Begin external cardiac massage immediately.

(1) If patient is being epicardially paced and converts to PEA: briefly turn off pacemaker to exclude underlying VF.

(2) If PEA does not resolve: continue CPR and prepare for emergency resternotomy.

*Note: Rapid evaluation of reversible postoperative causes should occur simultaneously — suspected tamponade, intrathoracic hemorrhage, or pacing lead dislodgement are common causes in this population.*

**(F)** The ICU Coordinator RN manages the environment during the arrest:

(1) Prepare for resternotomy as soon as arrest is called — do not wait to be asked.

(2) Ensure the 5-piece resternotomy set is open and at bedside.

(3) Call for expert assistance and report status to the Team Leader continuously.

(4) Hand off sterile supplies to the sterile field.

(5) Manage equipment: carts, lighting, suction, point-of-care labs, blood products, OR equipment.

(6) Remove clutter and control traffic flow in the room.

**(G)** Prepare for emergency resternotomy if resuscitation efforts are unsuccessful:

(1) Two providers don gown and gloves — hat, mask, and pre-gloving handwash are not required in an emergency.

(2) Continue external cardiac massage until ready to drape. Remove dressings and leads before draping.

(3) Apply sterile drape covering the entire bed in less than 10 seconds.

(4) Pass the non-sterile end of internal defibrillator paddles to the defibrillation role. Internal defibrillation charge: **20 joules**. Internal defibrillation paddles shall only be utilized by appropriately credentialed providers.

*Note: A goal of emergency chest reopening within 5 minutes should be considered in situations involving suspected tamponade or severe postoperative hemorrhage. Resternotomy decisions are made by the CT Surgery team. See Appendix B for detailed resternotomy guidance.*

**Situations that may prompt emergency resternotomy include:**

- Suspected cardiac tamponade
- Severe postoperative intrathoracic hemorrhage
- Suspected pacing wire dislodgement in pacing-dependent patients
- Refractory instability or arrest despite initial resuscitative interventions

**(H) Bedside stabilization and transport considerations:**

(1) Qualifying patients experiencing severe instability or cardiac arrest should undergo initial stabilization at bedside due to the potential risks associated with transport.

(2) Preparation for emergency resternotomy should occur simultaneously with ongoing resuscitative interventions when clinically indicated.

(3) Transport to the operating room may occur following bedside stabilization and based on CT Surgery recommendation and patient condition.

**(I)** Document the following in EPIC following Code Surgery C:

(1) Time of Code Surgery C activation.

(2) Time of CT Surgery team notification.

(3) Arrival times of responding personnel.

(4) Rhythm(s) identified and interventions performed (shocks, pacing, CPR, resternotomy).

(5) Medications administered and doses.

(6) Airway interventions.

(7) Time to emergency resternotomy when performed.

(8) Patient outcome and disposition.

**Documentation and Quality Review**

Documentation of the Code Surgery C event shall be completed in the patient's electronic medical record in accordance with hospital documentation standards. Documentation should include, when applicable:

- Time of Code Surgery C activation
- Time of CT Surgery team notification
- Arrival times of responding personnel
- Rhythm assessment and pacing interventions
- Defibrillation and medication administration
- Time to emergency resternotomy when performed
- Airway interventions
- Procedural interventions and escalation of care
- Patient outcome and disposition

Code Surgery C activations shall be reviewed by the appropriate multidisciplinary committee to evaluate response times, adherence to policy, opportunities for process improvement, and patient outcomes. Representatives may include:

- CT Surgery
- SICU leadership and personnel
- Code Committee
- CSU-ALS educators/trainers
- Rapid Response leadership
- Additional involved departments as appropriate

Debriefing following Code Surgery C events is encouraged whenever feasible to identify opportunities for improvement and reinforce best practices.

**Education and Competency**

Personnel participating in the management of qualifying patients are required to maintain competency in CSU-ALS-informed resuscitative principles through approved institutional education, simulation, and training activities.

UTMC supports development of a multidisciplinary CSU-ALS-trained responder group to assist in management of Code Surgery C events across applicable patient care areas.

CSU-ALS-certified personnel may participate in Code Surgery C responses when clinically appropriate and operationally feasible based on patient care responsibilities, unit staffing, and institutional needs.

**References**

- Advanced Cardiac Life Support (ACLS) Guidelines
- CSU-ALS Educational Materials and Institutional Training Resources — www.csu-als.org
- Code Surgery C Activation Policy
- UTMC Code Blue Procedure
- Institutional Credentialing and Privileging Policies
- Institutional Emergency Response and Escalation Policies

See **Appendix A** (CSU-ALS Resuscitation Principles) and **Appendix B** (Emergency Resternotomy Guidance) following this guideline for additional clinical reference.

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3364-110-09-03 Code Surgery C

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# Appendix A — CSU-ALS Resuscitation Principles

## Overview

CSU-ALS-informed management of qualifying post-cardiac surgery patients emphasizes rapid rhythm-directed and cause-directed intervention, recognizing the unique physiology and potentially reversible causes associated with recent cardiac surgery. Management priorities include:

- Immediate rhythm assessment
- Rapid identification of reversible postoperative complications
- Early pacing assessment and intervention
- Early defibrillation when clinically indicated
- Simultaneous preparation for emergency resternotomy
- Rapid mobilization of multidisciplinary responders and procedural resources

Management of qualifying patients may differ from conventional ACLS sequencing based on patient presentation, pacing status, hemodynamic assessment, procedural considerations, and clinical judgment of the responding team.

## Ventricular Fibrillation / Pulseless VT (VF/pVT)

- Immediate rhythm recognition and defibrillation should occur promptly.
- Up to 3 stacked defibrillation attempts may be delivered without intervening CPR.
- Brief delay of external cardiac massage may be considered during immediate defibrillation.
- Amiodarone 300 mg IV may be considered after 3 failed shocks.
- Routine epinephrine is not recommended unless directed by the cardiothoracic surgeon or senior clinician. If used, reduce dose to 100–300 mcg.
- Simultaneous preparation for emergency resternotomy should occur.

## Severe Bradycardia / Asystole

- Immediate pacing assessment should occur.
- Temporary epicardial pacing should be attempted promptly when pacing wires are present.
- External transcutaneous pacing may be considered when pacing wire malfunction or dislodgement is suspected.
- Brief delay of external cardiac massage may be considered during immediate pacing assessment and intervention.
- Simultaneous preparation for emergency resternotomy should occur.

## Pulseless Electrical Activity (PEA)

- External cardiac massage should be initiated promptly.
- Rapid evaluation of reversible postoperative causes should occur immediately.
- Emergency resternotomy preparation should occur simultaneously.

Potential reversible causes include:

- Cardiac tamponade
- Severe intrathoracic hemorrhage
- Pacing failure or lead dislodgement
- Tension pneumothorax

**Pacing and Defibrillation Considerations**

- Defibrillation pads should be placed promptly on all unstable qualifying patients.
- Temporary pacing wires and pacing generators should remain readily accessible at bedside when clinically appropriate.
- External pacing capability should remain immediately available.
- Internal defibrillation may be performed following chest reopening when clinically indicated.
- Internal defibrillation paddles shall only be utilized by appropriately credentialed providers.

**Operational Principles**

Management of qualifying patients should emphasize:

- Rapid multidisciplinary coordination
- Parallel task performance
- Immediate procedural readiness
- Early identification of reversible causes
- Minimization of low-flow time
- Clear role assignment and communication
- Early CT Surgery involvement

## Appendix B — Emergency Resternotomy Guidance

### Overview

Emergency resternotomy is a time-sensitive procedural intervention that may be required in qualifying post-cardiac surgery patients experiencing cardiac arrest or severe hemodynamic instability due to suspected reversible postoperative surgical complications. Management should emphasize rapid recognition of reversible causes, early CT Surgery involvement, multidisciplinary coordination, and immediate procedural readiness.

A goal of emergency chest reopening within **5 minutes** should be considered in situations involving suspected tamponade or severe postoperative hemorrhage.

### Potential Indications for Emergency Resternotomy

Emergency resternotomy may be considered in qualifying patients experiencing cardiac arrest or severe instability associated with suspected reversible postoperative surgical complications, including but not limited to:

- Suspected cardiac tamponade
- Severe postoperative intrathoracic hemorrhage
- Suspected pacing wire dislodgement in pacing-dependent patients
- Refractory arrest or instability despite initial resuscitative interventions

### Situations Not Typically Requiring Emergency Resternotomy

Certain reversible causes of instability or arrest may require alternative interventions. Examples may include:

- Tension pneumothorax — requires immediate needle decompression or chest tube
- Isolated respiratory failure without evidence of postoperative surgical complication
- Non-surgical reversible causes identified during resuscitative assessment

*Clinical judgment and CT Surgery consultation should guide all management decisions.*

### Procedural Authorization and Credentialing

- Emergency resternotomy shall only be performed by appropriately credentialed and privileged providers acting within institutional scope of practice.
- Emergency resternotomy decisions should occur in direct consultation with the CT Surgery team whenever clinically feasible.
- Authorized providers: CT Surgery attending physicians; Trauma attending physicians credentialed and privileged for the procedure.

- Activation of Code Surgery C does not independently authorize chest reopening by personnel outside approved credentialing and privileging structures.

**Bedside Stabilization and Transport Considerations**

- Qualifying patients experiencing severe instability or cardiac arrest should generally undergo initial stabilization at bedside due to the potential risks associated with transport.
- Preparation for emergency resternotomy should occur simultaneously with ongoing resuscitative interventions when clinically indicated.
- Transport to the operating room may occur following bedside stabilization and based on CT Surgery recommendation and patient condition.

**Procedural Readiness**

The following resources should remain immediately accessible or rapidly deployable for qualifying patients:

- Emergency resternotomy tray (5-piece set)
- Defibrillator and external defibrillation pads
- Internal defibrillation paddles
- Temporary pacing equipment and pacing generator
- Airway management equipment
- Suction equipment
- Rapid transfusion capability and blood product access