COUNTY OF VENTURA HEALTH CARE AGENCY	EMERGENCY MEDICAL SERVICES POLICIES AND PROCEDURES
Policy Title: Cardiac Arrest Management (CAM) and Post Arrest (ROSC) Resuscitation	Policy Number 733
APPROVED: Administration: Steven L. Carroll, Paramedic	Date: June 1, 2026
APPROVED: Medical Director: Daniel Shepherd, MD	Date: June 1, 2026
Origination Date: April 30, 2016 Date Revised: June 1, 2026 Date Last Reviewed: June 1, 2026	Effective Date: June 1, 2026

I. PURPOSE: To establish a standardized procedure for the treatment of patients in cardiac arrest, and for those who have a return of spontaneous circulation (ROSC) following treatment for cardiac arrest

II. AUTHORITY: California Health and Safety Code, Section 1797.220, and 1798.
California Code of Regulations, Title 22, Section 100170.

III. POLICY:

A. For all patients in cardiac arrest and are greater than 48 hours old, CAM protocol will be followed. Patients less than 48 hours old will follow VC EMS Neonatal Resuscitation Policy # 705.16. For patients who are 18-years-old and older, who achieve ROSC following a cardiac arrest that is non-traumatic in nature, post arrest (ROSC) protocol outlined in Section V of this policy will be followed.

IV. PROCEDURE

A. Arrest

Ventura County EMS

Cardiac Arrest Management (CAM) Protocol

For patients who are in cardiac arrest and greater than 48 hours old ①

*******PRIORITIES DURING CARDIAC ARREST RESUSCITATION*******

1. **High Quality Continuous Chest Compressions with minimal interruptions**
2. **Low-volume interposed ventilations**
3. **Early defibrillation**
4. **Switch Compressors every 2 Minutes**

↓

Rescuer 1

- Verify Cardiac Arrest (<10 seconds)
  - Shake and Shout
  - Open airway with "Shark Hook" maneuver (If trauma, modified jaw thrust)
    - **Pulse check helpful for heroin OD or cervical spine injury**
  - **If suspected FBAO:** **BLS:** Inspect Airway; **ALS:** Laryngoscopy
- **If not breathing:**
  - Move patient to place that will allow optimal CPR
  - Immediately Start High Quality Continuous Compressions Over Shirt②

↓

Rescuer 2

- Turn on metronome (112/minute)
- Remove clothing over chest.
- Apply AED or Cardiac Monitor/Defibrillator pads③

↓

Basic Life Support (AED)	Advanced Life Support (Manual Defib)
• Turn on AED • Apply Pads • Clear patient then press Analyze	• Turn on Cardiac Monitor • Apply Pads • Pre-charge monitor④

↓

"Shock Advised"	"No Shock Advised"	VF/VT	Non-Shockable rhythm
If AED allows , resume chest compressions during charge Clear patient and press "Shock"		Clear patient and deliver immediate shock	Disarm defibrillator charge

↓

RESUME CHEST COMPRESSIONS IMMEDIATELY!

↓

Rescuer 3

- Insert OPA/NPA
- Assist ventilation with BVM along with 15L/min high flow O2
- Ensure proper seal with BVM mask to the patient with "2 Thumbs Up" technique
- Attach waveform capnography sensor, if equipped

↓

Rescuer 2

- Deliver 1 brief low-volume ventilation on the recoil phase of every 10th compression (Ventilation delivered with ONE HAND on bag to ensure low volume)

↓

Rescuer 4 (ALS)

- Attach waveform capnography sensor to BVM if not already completed by BLS
- Establish IV/IO Access
- Advanced Airway PRN
- Follow VC EMS Policy 705.07 (Asystole/PEA) or 705.08 (VF/VT)

↓

Rescuer 5 (ALS)

- Assist Rescuer 4 with IV/IO, medications
- Gather patient information/medications
- Communicate with family members

- Pre-Charge monitor④
- Perform rhythm check every 2 min (< 3 seconds)
- Perform pulse check if EtCO2 > 20 AND organized rhythm >40

↓

VF/VT	Non-Shockable rhythm
Clear patient and deliver immediate shock	Disarm defibrillator charge

↓

RESUME CHEST COMPRESSIONS IMMEDIATELY!

Additional Information:

① Patients less than 48 hours old will follow VC EMS Neonatal resuscitation Policy 705.16

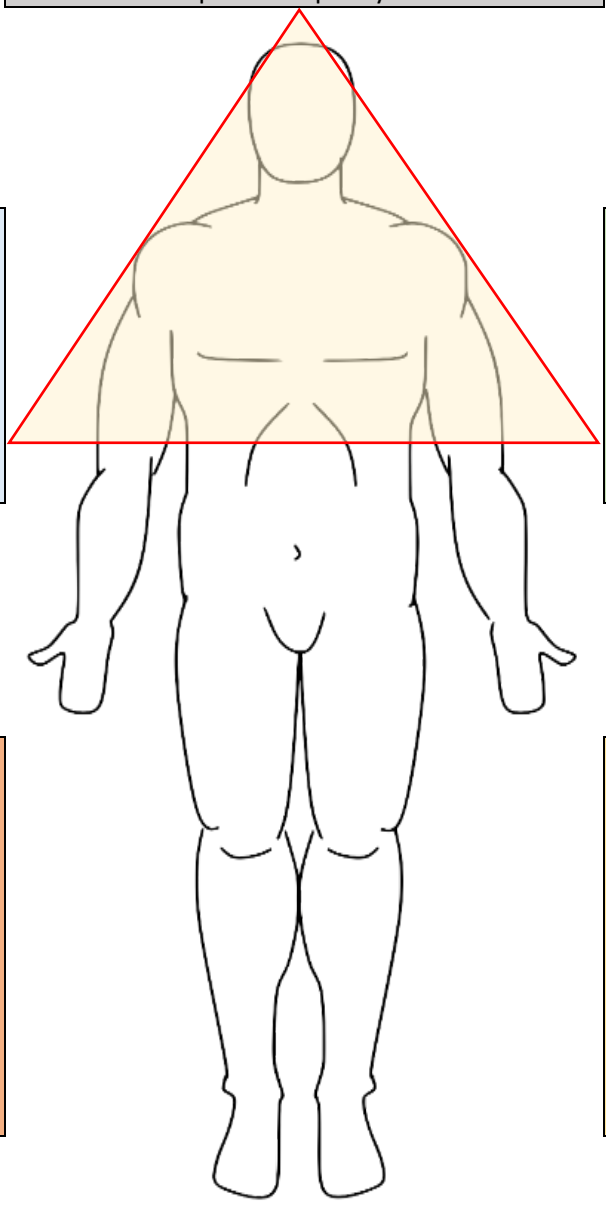
② Chest Compressions:
- Rate: 112/min
- Depth: 2-2.4 inches for an adult
  - 1/3 the anterior-posterior chest dimension for a child or infant
- Full chest recoil after each compression

③ LIFEPAK 12/15 must be in paddles mode to capture compression data

④ Energy level per manufacturer or provider medical director
(If 1 or more AED shocks were delivered, ALS defibrillation at next sequential Joules setting)

Triangle of Life
Cardiac Arrest

Rescuer 3
- Assemble BVM/ETCO2
- 2 hand thumb up mask seal
- Coach compression quality



Rescuer 1
- Shake and Shout
- Move to floor
- Shark hook airway
- Begin compressions

Rescuer 2
- Activate metronome
- Cut shirt
- Apply defib pads
- Deliver Ventilations
- Switch with rescuer 1 each rhythm check

Rescuer 4
Team Lead
- Rhythm Checks/Defib
- EtCO2 Monitoring
- IV/IO
- ALS Medications
- Advanced Airway PRN

*May delegate or perform as appropriate

Rescuer 5
- Assist Rescuer 4
- Gather Information/Meds
- Communicate with Family

*May be delegated variety of tasks based on scope

B. Procedure – Post Arrest Resuscitation (ROSC)

*******PRIORITIES IN POST ARREST RESUSCITATION*******

1. **Immediate recognition and treatment of re-arrest**
2. **Preventing re-arrest through effective and continuous management of C – A – B**
3. **Thorough assessment and identification / treatment of correctable causes**
4. **Movement and transport decisions that prioritize ongoing patient care**

↓

Rescuer 1

- Palpate femoral pulse continuously for first 10 minutes prior to patient movement
- Immediately begin chest compressions if femoral pulse is lost or in question

↓

Rescuer 2

- Continue rescue breathing
- Deliver 1 ventilation every 6 seconds, no more than 10 breaths per minute
- Deliver ventilations with ONE HAND on bag to avoid hyperventilation

↓

Rescuer 3

- Ensure effective mask seal with continuous “2 thumbs up” technique
- Coach rescuer 2 as needed to assure delivery of ventilations and avoid hyperventilation
- For spontaneously breathing patients apply nasal $EtCO_2$ device, if available

↓

Rescuer 4
TEAM LEAD

- Communicate treatment priorities to team – ensure roles are clear and effective
- Setup cardiac monitor to recognize change in patient status – monitor must remain attached to patient and observed through all phases of incident

- Confirm monitor settings
  - VF alarm activated
  - Pads / paddles mode
  - SpO_2 waveform
  - $EtCO_2$ waveform

- Attach adhesive SpO_2 sensor to maintain a consistent and reliable waveform, if available
- Perform a thorough assessment: history, medications, circumstances, physical exam

May delegate interventions as appropriate

Rescuer 4
TEAM LEAD

ASSESSMENT

CIRCULATION

- Evaluate for palpable femoral pulse
- Evaluate MANUAL blood pressure
  - repeat every 5 minutes
  - manual for patient changes or SBP < 90 mmHg
- Monitor for falling $EtCO_2$ as sign of re-arrest
- Obtain and evaluate 12 lead only after assessment and interventions

AIRWAY-VENTILATION-OXYGENATION

- Confirm $EtCO_2$ waveform present with every
- ventilation; normal 35 – 45 mmHg
- Confirm presence of bilateral lung sounds
- Evaluate SpO_2; goal is 94% – 99%
- Consider likelihood of respiratory cause; E.g. choking

SUPPORT

CIRCULATION

- Obtain peripheral IV – preferred 18g, minimum 20g
- Initiate 1 L fluid bolus, use pressure bag for IO or rapid infusion via peripheral IV
- Epinephrine 10mcg/mL
  - 1mL (10mcg) every 2 minutes, slow IV/IO push
  - Titrate to SBP of greater than or equal to 90mm/Hg
- Circulation treatment goals
  - Peripheral pulses present
  - Systolic BP > 90 mmHg
  - Ongoing fluid therapy**
- Consider etiology to direct treatment where possible
  - Hypovolemia, sepsis, GI bleeding
  - MI, heart failure, idiopathic electrical anomaly
  - Hyperkalemia

AIRWAY-VENTILATION-OXYGENATION

- Place advanced airway as needed to
  - Improve ventilation or oxygenation
  - Protect against aspiration
  - Effectively ventilate while moving
- SpO_2 goal 94%-99% - titrate supplemental oxygen down if SpO_2 is 100%
- Ventilation treatment goals
  - $EtCO_2$ waveform present with each breath
  - Bilateral breath sounds
- Consider etiology to direct treatment where possible
  - Tension pneumothorax
  - Bronchoconstriction
  - Pulmonary embolus
  - Upper airway obstruction
  - Opiate overdose

Refer to VCEMS Policy 735 for additional information on preparing push dose solution
**Fluid therapy indicated unless outward indication of fluid overload or left sided heart failure

↓

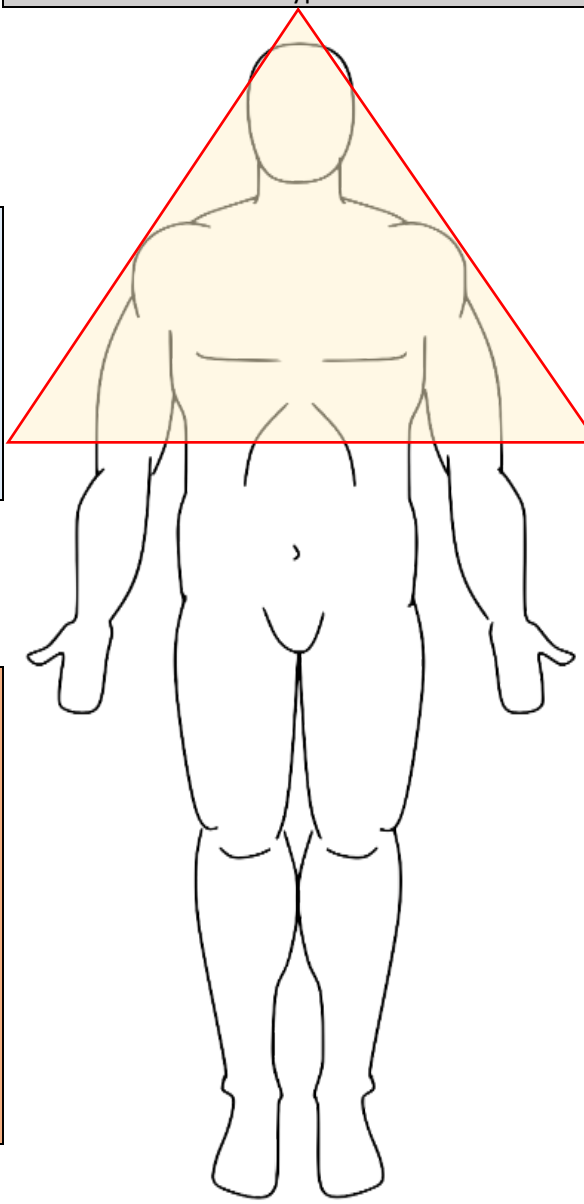
Rescuer 5

- Assist in overseeing triangle of life roles
- Assist rescuer 4 by preparing medications and equipment
- Obtain manual blood pressure
- Obtain 12-lead EKG once directed; assure monitor is returned to pads / paddles mode
- May be delegated a variety of tasks based on scope

Triangle of Life
Post Arrest Resuscitation

Rescuer 3
- Two hand, thumbs up, mask seal
- Coaches to ensure adequate Ventilation
- Coaches to avoid hyperventilation

Rescuer 1
- Palpates femoral pulse continuously for 10 minutes
- Immediately starts compressions if femoral pulse lost or in question
- PRIORITY position; does not take on additional tasks



Rescuer 2
- Provides 1 hand BVM ventilations
- 1 breath every 6 seconds
- Avoids hyperventilation
- PRIORITY position; does not take on additional tasks

Rescuer 4
Team Lead
- Visually monitors EtCO2, SpO2, & Paddles EKG
- Obtains/delegated peripheral IV
- Initiates NS bolus
- Provides ALS circulatory assessment and support
- Provides airway assessment and support
- Determines all ALS care-performs/delegates

Rescuer 5
- Directly assists team lead
- Takes manual blood pressure
- Assists in obtaining 12-lead
- Most mobile position

*May be delegated variety of tasks based on scope

POST ARREST RESUSCITATION CHECKLIST	
☑	**Initial Actions**
☐	Initiate 10 minute continuous femoral pulse check
☐	Continue rescue breathing as needed
☐	Paddles attached and EKG waveform visible
☐	VF alarm set, SpO_2 and $EtCO_2$ waveforms visible
	Circulation
☐	Obtain peripheral IV access (18 g preferred, 20 g minimum)
☐	Initiate NS fluid bolus
☐	Assess for peripheral pulses
☐	Obtain manual blood pressure
☐	Push dose epinephrine IN ADDITION TO fluids for systolic BP < 90 mmHg
	Airway / Ventilation
☐	Assess for responsiveness and spontaneous ventilations
☐	Assess $EtCO_2$, lung sounds, SpO_2
☐	Maintain BLS airway or place advanced airway as indicated
☐	Place advanced airway if needed to ventilate while moving patient
☐	Oxygenate to SpO_2 94% to 99%
☐	Oxygen flow rate titrated to prevent SpO_2 100%
	12 Lead EKG
☐	Obtain 12-lead EKG only after managing C-A-B and prior to movement
	Prior to Moving Patient, Confirm
☐	Patient has sustained ROSC approximately ≥ 10 minutes
☐	C-A-B have been effectively stabilized or appropriate efforts made
☐	Team has planned how to effectively ventilate during move
☐	Team is prepared to recognize re-arrest: • STOP MOVING • RESUME CAM ON SCENE

Post Arrest Resuscitation Transport
• Transport is indicated after a patient has sustained ROSC for approximately 10 minutes and effective efforts have been made to stabilize airway, breathing, and circulation • Continuous patient assessment and treatment must remain the priority during transport. • Recognizing hypotension, inadequate ventilation, or re-arrest, will have a large impact on patient outcome.

Re-Arrest Guidelines (Loss of ROSC)	

• Re-arrests require the same high-quality CAM and ALS care as the initial arrest:
  ○ Remain on scene
  ○ Ensure adequate workspace
  ○ Begin CAM Procedure
  ○ Defibrillate VF / VT ASAP
• Provide an additional 20 minutes of high-quality CAM prior to any further movement or initiating transport.
• If ROSC is obtained again, reassess, stabilize C – A – B as indicated, then continue with previous transport plan.
• If no ROSC, or multiple re-arrests, through 20 minutes from initial re-arrest consider underlying cause, circumstances, and presentation, then contact base for consultation.	

Prioritizing Care in Re-Arrest	
Re-Arrest On Scene	**Re-Arrest During Transport**
• If re-arrest occurs during movement to gurney or ambulance, resume CAM on scene outside of ambulance • If re-arrest occurs after loading but prior to leaving scene, unload patient from ambulance, resume CAM, and move to workable space	• Prioritize immediate and continuous chest compressions • Prioritize immediate and q 2 min defib for VF/VT • Reassess patient considering correctable causes and previous interventions • Confirm advanced airway effective and in place if air-Q or ETT was used
NOTE: Most re-arrests occur in the first 10 minutes after ROSC is achieved. Most delayed identification of re-arrest occurs during movement of the patient and during transport.	

NO ROSC - NO ROSC AFTER RE-ARREST - FREQUENT RE-ARREST		
Base Consultation		
• Base consultation is indicated when considering DOD vs continuing resuscitation. • Assessment findings, observations, and clinical circumstances should be clearly communicated during base hospital consultation. • Direct consultation with base hospital physician is recommended in cases where the clinical scenario may warrant prolonged resuscitation or "early" termination of resuscitation.		
Patient Factors	**Base Consult Takes Place**	**DOD**
• Asystole / PEA • Never defibrillated, no shockable rhythm observed	After 20 minutes of resuscitation efforts	Consider after 20 minutes; base consult
• VF / VT • Defibrillated at least once during arrest	After 40 minutes of resuscitation efforts without ROSC	Consider after 40 minutes; base consult
• Bystander witnessed collapse • EMS witnessed collapse or loss of pulse	After 40 minutes of resuscitation efforts without ROSC	Consider after 40 minutes; base consult
• Signs of survivability ○ EtCO2 > 30 ○ Spontaneous breathing attempts ○ Spontaneous movement ○ Frequent / persistent VF / VT	After 40 minutes of resuscitation efforts without ROSC	Consider DOD after 40 minutes; base consult Physician consult preferred
• Re-arrest without ROSC • Frequent re-arrest	After 20 minutes of re-arrest, or 20 minutes of intermittent ROSC	Consider after base consult Consider rhythm and signs of survivability