



CARDIAC ARREST

Effective: January 1, 2023
Replaces: January 1, 2022

1. BLS Treatment

- 1.1. High quality uninterrupted CPR (700-S01)
- 1.2. Routine Medical Care – Adult (700-S04)
- 1.3. Confirm status of DNR / POLST / End of Life Option Act, if possible
 - 1.3.1. Do Not delay care and/or CPR while confirmation is being made (Policy 604)
- 1.4. **Supraglottic airway device** (LMA Supreme)
 - 1.4.1. If Supraglottic airway attempts fail:
 - 1.4.1.1. **Oropharyngeal airway (OPA)**
- 1.5. **BVM** – Ventilate once every six seconds (1:6), with supplemental oxygen
- 1.6. **Apply AED** and follow device instructions

2. ALS Treatment

- 2.1. If Traumatic cardiac arrest is suspected treat the patient under (700-A17)
- 2.2. **Endotracheal Tube (ETT) with Bougie**, at least one attempt (700-M01)
 - 2.2.1. If ETT attempt(s) fail:
 - 2.2.1.1. **Supraglottic airway device** (LMA Supreme)
 - 2.2.2. If both ETT and Supraglottic airway attempts fail:
 - 2.2.2.1. **Oropharyngeal airway (OPA)**
- 2.3. **EtCO₂** continuous numeric and waveform monitoring on every airway adjunct
- 2.4. **Vascular Access (IV) or (IO)**, TKO
 - 2.4.1. Consider a **250ml Fluid bolus**, repeat as needed
- 2.5. Place on cardiac monitor and treat accordingly
- 2.6. If Return of Spontaneous Circulation (ROSC) occurs after any intervention, obtain **12 Lead ECG** and transport to closest receiving STEMI center (Policy 602)

3. Ventricular Fibrillation and Pulseless Ventricular Tachycardia

- 3.1. **Defibrillation at manufacturer's suggested values (example: 100, 150, 200 joules)**
 - 3.1.1. Starting with lowest energy setting
 - 3.1.2. Each subsequent counter shock increasing in energy
- 3.2. **Epinephrine (1:10,000) 1mg IV / IO**, repeat every 3-5 minutes for the duration of the arrest
- 3.3. **Amiodarone 300mg IV / IO**
- 3.4. If after 5 minutes rhythm remains refractory:
 - 3.4.1. **Amiodarone 150mg IV / IO**, for a max cumulative dose of 450mg

4. Asystole

- 4.1. **Epinephrine (1:10,000) 1mg IV / IO**, repeat every 3-5 minutes for the duration of the arrest
- 4.2. Provider may consider termination of resuscitative efforts after a total of at least twenty (20) minutes of EMS provider resuscitation if:
 - 4.2.1. Arrest was not witnessed by the EMS provider



- 4.2.2. No return of spontaneous circulation (ROSC) prior to transport
- 4.2.3. No shock was delivered by AED or manual defibrillator

5. Pulseless Electrical Activity (PEA)

- 5.1. Identify and treat any reversible causes:
 - 5.1.1. **Hypovolemia:** consider a **500ml Fluid bolus**, repeat as needed (**700-A10**)
 - 5.1.2. **Hypoxia:** Ensure that the patient is adequately ventilated, utilizing an airway adjunct and bag valve mask with a supplemental oxygen supply
 - 5.1.2.1. Ensure proper chest rise and fall
 - 5.1.2.2. If there is question of endotracheal tube placement (esophageal intubation), provider should extubate the patient and return to a BLS airway
 - 5.1.3. **Hyperkalemia:** Peaked T-waves, with possible widening of the QRS complex
 - 5.1.3.1. Consider **Calcium Chloride 10mg/kg IV / IO**, max dose 1gm
 - 5.1.3.2. Consider **Sodium Bicarbonate 1mEq/kg IV/ IO**, max dose 50mEq
 - 5.1.4. **Hypothermia:** Consider rewarming measures (**700-A09**)
 - 5.1.4.1. Patients that are hypothermic can be unresponsive to pharmaceutical therapy and electrical therapy
 - 5.1.5. **Tension Pneumothorax:** Perform pleural decompression (**700-M02**)
- 5.2. **Epinephrine (1:10,000) 1mg IV / IO**, may repeat every 3-5 minutes for the duration of the arrest
- 5.3. Treat any rhythm changes according to correct treatment protocol.
 - 5.3.1. If the PEA changes to asystole, the provider may follow the criteria in section 4.2.

6. Hypothermic Cardiac Arrest

- 6.1. Assess pulse for 45 seconds
- 6.2. If no pulse is present, **Start CPR**
- 6.3. If defibrillation is indicated, limit to one (1) shock until patient is warm
- 6.4. If patient presents with dysrhythmias, treat as appropriate
- 6.5. If core temperature is less than 86°F, withhold IV medications until body temperature rises

7. Ventricular Assist Device (VAD) Cardiac Arrest

- 7.1. High quality uninterrupted CPR (**700-S01**) may be provided if:
 - 7.1.1. Patient is unresponsive, apneic and there is a device failure alarm with no rotor hum upon auscultation
 - 7.1.2. If there is presence of rotor hum with no failure alarm, continue with airway management (**700-M01**)
 - 7.1.3. **Mechanical CPR devices are contraindicated**
- 7.2. Defibrillation(s) by manual defibrillator or AED may only be delivered if the patient is unresponsive
- 7.3. All VAD patients in cardiac arrest will be transported to either Kaiser Santa Clara or Stanford Hospital
- 7.4. The only accepted determination of death in the field for a VAD patient is obvious death
- 7.5. Treat the cardiac arrest VAD patient with the guidelines found in the Ventricular Assist Device protocol (**700-S11**)
- 7.6. If further guidance is required during patient care, make **BASE CONTACT**



8. Pregnant Cardiac Arrest

- 8.1. Any pregnant patient beyond 20 weeks gestation (uterine fundus palpated at or above the umbilicus) in cardiac arrest, that does not meet field pronouncement of death criteria (**Policy 600**) shall be transported to:
 - 8.1.1. Either Stanford Hospital or Santa Clara Valley Medical Center (for potential resuscitative hysterotomy)

9. Drowning or Mechanical Asphyxiation

- 9.1. Any drowning or mechanical asphyxiation patient, in cardiac arrest, with suspected head or spinal injury shall be transported to a Trauma Center (**Policy 602**)
- 9.2. If head or spinal injury is not suspected, transport to the closest hospital (**Policy 602**)



10. Cardiac Arrest Treatment Flow Chart

