POLICY: 554.11
TITLE: Cardiac Arrest – Non-Traumatic

EFFECTIVE: 07/01/2024
REVIEW: 07/2027
SUPERCEDES:

APPROVAL SIGNATURES ON FILE IN EMS OFFICE

CARDIAC ARREST – NON-TRAUMATIC

I. AUTHORITY
Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9

II PURPOSE
To serve as a patient treatment standard for EMRs, EMTs, and Paramedics within their scope of practice.

III. PROTOCOL

Provider Key: F = First Responder/EMR E = EMT O = EMT Local Optional SOP
P = Paramedic D = Base Hospital Physician Order Required

	F	E	O	P	D
ASSESSMENT	X	X	X	X	
HP-CPR: including AED. When available and appropriate, use mechanical compression device or switch CPR providers every 2 minutes. Avoid interruption.	X	X	X	X	
BLS AIRWAY: okay if airway patent. Support ventilations with appropriate airway adjuncts. Ventilate with 100% oxygen.	X	X	X	X	
OXYGEN: ventilate with 100% oxygen.	X	X	X	X	
ECG MONITOR: lead placement may be delegated. Treat as indicated.				X	
PULSE OXIMETRY: apply and monitor.		X	X	X	
ADVANCED AIRWAY: consider SGA.			X	X	
CAPNOGRAPHY: apply and monitor.				X	
VASCULAR ACCESS: IV/IO, rate as indicated.				X	
EPINEPHRINE: 1 mg (10 mL) 1:10,000 (0.1 mg/mL) IV/IO push. Repeat every 3 – 5 minutes.				X	
VENTRICULAR FIBRILLATION - PULSELESS VENTRICULAR TACHYCARDIA					
DEFIBRILLATE: 200 J (Biphasic) (AED only for F and EMT). Reanalyze rhythm every 2 minutes.	X	X	X	X	
AMIODARONE: 300 mg IV/IO over 1–2 minutes, followed by 20 mL NS. Repeat once in 5 minutes at 150 mg IV/IO followed by 20 mL NS.				X	
LIDOCAINE: **Consider if V-fib/V-Tach refractory to amiodarone**. 1.5 mg/kg IV/IO push. Repeat at 0.75 mg/kg every 5-10 minutes, up to a maximum of 3 mg/kg total.				X	
MAGNESIUM SULFATE: For Torsade de Pointes 2 gm, diluted with NS to a volume of 10 mL over 5 minutes IV/IO.				X	

	F	E	O	P	D
PULSELESS ELECTRICAL ACTIVITY/ASYSTOLE CONSIDER					
SODIUM BICARBONATE: 1 mEq/kg IV/IO for known or suspected hyperkalemia (renal patients) or tricyclic antidepressant overdose.				X	
CALCIUM CHLORIDE: 1000 mg (10 mL of 10% sol.) IV/IO for known or suspected hyperkalemia (renal patients). **Note: Use with caution in patients on digoxin.**				X	
CONSIDER					
TEST FOR GLUCOSE		X	X	X	
D10: infuse 100 mL IV/IO if blood glucose < 70 mg/dL. Recheck blood glucose 10-minutes post infusion. If blood glucose < 70 mg/dL infuse remaining 150mL.				X	
GLUCAGON: If no IV/IO, give 1 mg IM if blood glucose < 70 mg/dL or suspicion of beta blocker or calcium channel blocker overdose. Recheck blood glucose 10 minutes post injection. If blood glucose remains < 70 mg/dL, repeat 1 mg IM.					
NALOXONE: one spray pre-packaged IN (typically 2 – 4 mg) for respiratory depression. If opioid overdose is suspected, repeat every 2 – 3 minutes in alternating nostrils, to a total of 12 mg. Consider alternate cause of obtundation/respiratory depression if ineffective.		X	X	X	
NALOXONE: 0.4 – 2 mg IV/IO/IM (if opioid use is suspected).				X	
IF NO ROSC					
****TERMINATION of RESUSCITATION:** 1: If EMS did not witness cardiac arrest and 2. No shockable rhythm and 3. No ROSC after 20 minutes of BLS and/or ALS resuscitation	X	X	X	X	

IF ROSC	F	E	O	P	D
***12 LEAD ECG**				X	
ADVANCED AIRWAY: if ROSC achieved and no SGA in place, consider ETI.				X	
PULSE OXIMTRY: target pulse oximetry to ≥ 92-98%.				X	
CAPNOGRAPHY: ventilation should start at 10/minute and titrate target ETCO2 of 35 – 45 mmHg.				X	
ANTIARRYTHMIC: if Amiodarone or Lidocaine used to achieve ROSC, consider amiodarone or lidocaine drip for persistent dysrhythmia. • **AMIODARONE**: 1 mg/minute • **LIDOCAINE**: 1 – 4 mg/minute				X	
PUSH DOSE EPINEPHRINE: for hypotension – titrate to SBP ≥ 90 • Mix 1 mL of Epi 1:10,000 (0.1mg/mL) with 9 mL of NS = concentration of 1:100,000 (0.01 mg/mL) • Label syringe "epinephrine 10 mcg/mL" • 0.5 – 1 mL (5 – 10 mcg) IVP every 1 – 5 minutes If SBP does not stabilize ≥ 90 after two doses, consider epinephrine drip. Refer to 554.88 RX GUIDELINES.				X	

****Refer to Policy #570.20, DETERMINATION OF DEATH IN THE PREHOSPITAL SETTING**
Reference: 10/17/2022 EMS Termination Of Resuscitation And Pronouncement of Death - StatPearls - NCBI Bookshelf (nih.gov) https://www.ncbi.nlm.nih.gov/books/NBK541113/

***If 12 Lead ECG interprets an S-T Elevation Myocardial Infarction (STEMI), refer to Policy 530.00 STEMI TRIAGE AND DESTINATION.**

CONSIDER CAUSES
• Hypovolemia - volume infusion, 2 liters followed by 250 mL boluses as indicated.

• Cardiac tamponade - volume infusion, 2 liters followed by 250 mL boluses as indicated.
• Hypoxia - provide ventilation. Check for reversible cause of hypoventilation.
• Tension pneumothorax - refer to 554.23 TENSION PNEUMOTHORAX..
• Hypothermia - refer to 554.62 HYPOTHERMIA.
• Drug Overdose - refer to 554.51 POISONING.