San Mateo County Emergency Medical Services

Cardiac Arrest - Asystole/PEA

For non-traumatic cardiac arrest in which any resuscitation is initiated, NOT dead on arrival

**History**
- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- End stage renal disease
- Suspected hypothermia
- Suspected overdose
  - Tricyclic
  - Digitalis
  - Beta blockers
  - Calcium channel blockers
- DNR, POLST, or Living Will

**Signs and Symptoms**
- Pulseless
- Apneic or agonal respirations
- No electrical activity on ECG
- No heart tones on auscultation

**Differential**
- Hypovolemia (e.g., trauma, AAA or other)
- Cardiac tamponade
- Hypothermia
- Drug overdose (e.g., tricyclic, digitalis, beta blockers, or calcium channel blockers)
- Myocardial infarction
- Hypoxia
- Tension pneumothorax
- Pulmonary embolus
- Acidosis
- Hyperkalemia

**AT ANY TIME**

Return of spontaneous circulation

Go to Post Resuscitation

**Cardiac Arrest - Non traumatic**

Begin continuous chest compressions
- Push hard (> 2 inches) and fast (110/min)
- Change compressors every 2 minutes
  (Limit changes/pulse checks to < 5 seconds)

**Shockable rhythm?**

- Yes
  - Notifier receiving facility.
  - Consider Base Hospital for medical direction
- No

**Establish IV/IO**

**Epinephrine (1:10,000)**

**Normal Saline Bolus 500ml**

**Maximum 2L**

Search for reversible causes and treat appropriately

Consider Chest Decompression Procedure for suspected tension pneumothorax

**Criteria for discontinuation?**

- Yes
  - Discontinue Resuscitation
  - Follow Operations 10 – Determination of Death
- No

**Reversible Causes**

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypothermia
- Hypo/Hyperkalemia
- Hypoglycemia
- Tension pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombosis (pulmonary)(PE)
- Thrombosis (coronary)(MI)

**12 Lead EKG**

ETCO₂ documentation

Base Hospital Contact for PEA
San Mateo County Emergency Medical Services

Cardiac Arrest - Asystole/PEA

For non-traumatic cardiac arrest in which any resuscitation is initiated, NOT dead on arrival

Pearls

• Efforts should be directed at high quality and continuous chest compressions with limited interruptions and early defibrillation when indicated. Direct IV access is preferred over IO.
• Provide resuscitative efforts on scene for 30 minutes to maximize chance of ROSC.
• If resuscitative efforts do not attain ROSC, consider cessation of efforts in accordance with the Determination of Death policy.
• Epinephrine in doses of greater than 3mg has been shown to be detrimental to patient outcome.
• Survival from PEA or Asystole is based on identifying and correcting the CAUSE: consider a broad differential diagnosis with early and aggressive treatment of possible causes.
• Consider breathing and airway management after second shock or two (2) rounds of chest compression (2 minutes each round).
• Potential association of PEA with hypoxia may exist, so placing an effective BLS airway with oxygenation early may provide benefit.
• PEA caused by sepsis or severe volume loss may benefit from higher volume of normal saline administration.
• Return of spontaneous circulation after Asystole/PEA requires continued search for underlying cause of cardiac arrest.
• Treatment of hypoxia and hypotension are important after resuscitation from Asystole/PEA.
• Asystole is commonly an end stage rhythm following prolonged VF or PEA with a poor prognosis.
• Prior to termination of efforts, an advanced airway shall be established.
• Discussion with the Base Hospital can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.
• Potential protocols used during resuscitation include: Overdose/Toxic Ingestion and Hypoglycemia.
• In the setting of renal failure, dialysis, suspected DKA or hyperkalemia, calcium chloride followed by sodium bicarbonate shall be administered.