# Adult Asystole / Pulseless Electrical Activity

**History**
- SAMPLE
- Estimated downtime
- See Reversible Causes below
- DNR, MOST, or Living Will

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

**Differential**
- See Reversible Causes below

Cardiac Arrest Protocol AC 3

**Criteria for Death / No Resuscitation**
**Review DNR / MOST Form**

YES →
Decomposition
Rigor mortis
Dependent lividity
Blunt force trauma
Injury incompatible with life
Extended downtime with asystole

Do not begin resuscitation

Follow
Deceased Subjects
Policy

NO ↓

**Begin Continuous CPR Compressions**
**Push Hard (≥ 2 inches) Push Fast (100 - 120 / min)**
**Change Compressors every 200 compressions**
**(*sooner if fatigued*)**
**(*Limit compressor changes ≤ 5 seconds*)**
- **Pulse checks ONLY when EtCO2 not available or at end of cycle with spike in EtCO2 readings**

**Ventilate 1 breath every 20th compression**
***Monitor EtCO2 when available***

AED Procedure
***if available***

**P** Cardiac Monitor

IV or IO Access Protocol UP 6

**A**

**Epinephrine (1:10,000) 1 mg IV / IO**
First Dose: Then Follow Dosing Regimen Below

**<u>At 5 minutes from initial Epinephrine Dose</u>**
**Second Dose is based on EtCO2 level**

**<u>If EtCO2 is < 30 mmHg</u>**
**Epinephrine (1:10,000) 1 mg IV / IO**

**<u>If EtCO2 ≥ 30</u>**
**Do not repeat Epinephrine**
**Maximum 2 mg Total Dose**

**Normal Saline Bolus 500 mL IV / IO**
May repeat as needed
**Maximum 2 L**

Search for Reversible Causes

Blood Glucose Analysis Procedure
***if applicable***

Cardiac: Mechanical CPR – LUCAS Procedure CSP-8
**if available**

On Scene Resuscitation / Termination of Resuscitation Protocol(s) AC 12
***as indicated***

**Notify Destination or Contact Medical Control**

**AT ANY TIME**

**Return of Spontaneous Circulation**

**Go to Post Resuscitation Protocol AC 10**

**<u>Reversible Causes</u>**
Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypothermia
Hypo / Hyperkalemia

Tension pneumothorax
Tamponade; cardiac
Toxins
Thrombosis; pulmonary (PE)
Thrombosis; coronary (MI)

**<u>Suspected Opioid Overdose</u>**
Administer Naloxone per Overdose / Toxic Ingestion Protocol TE 7

**Adult Cardiac Protocol Section**

# Adult Asystole / Pulseless Electrical Activity



**PRIMARY FOCUS IS ON HIGH-QUALITY, CONTINUOUS, AND UNINTERRUPTED COMPRESSIONS:**

**Compressor Responsibilities:**
- Compress at rate of 120/ minute
- Push ≥ 2 inches depth of compression
- Allow complete recoil of chest on upstroke
- Call out every 20th compression
- Next compressor moves into ready position at compression 180
- Do not interrupt compressions > 5 seconds

**ALS Responsibility:**
- Ensure adequate compressions and ventilations
- Establish IV or IO access and administer first epinephrine
- Charge defibrillator every sequence at the 180th compression

**Ventilator Responsibilities:**
- Ventilate ONLY at every 20th compressions
- Same rate with BVM, BIAD, or ETT
- May help compressor count
- DO NOT HYERVENTILATE

**LUCAS Mechanical CPR:**
- Ventilate ONLY every 6 seconds (GREEN LIGHT FLASHES)
- Charge defibrillator at the 2-minute mark (3-BEEP)
- When fully charged, pause LUCAS for rhythm check

**Airway takes precedence if cardiac event or a primary respiratory event, drug overdose, drowning, hanging, suffocation, or trauma.**

**Medication Dosing:**
- **If EtCO2 falls below 30 mmHg during the first 30 minutes of the resuscitation give the additional 1 mg of Epinephrine.**
- Atropine not likely beneficial and no longer indicated with PEA or Asystole (can give at discretion of team leader to max of 3 mg.)

**Hyperkalemia: Unknown in field setting.** End stage renal dialysis patient is at risk and Sodium bicarbonate and Calcium chloride should be given. ECG findings may not reflect common teaching such as peaked T waves. PEA with a bizarre or widened complex may indeed be hyperkalemia.

**Toxicology:** Consider Calcium Channel Blocker (CCB) and Beta Blocker (BB) overdose with PEA and asystole. If suspected BB overdose give Glucagon 2 mg IV. If you see ECG improvement you may repeat and then contact medical control. Large doses of Glucagon may be needed. Calcium Chloride (or Ca gluconate - preferred) may be beneficial in BB overdose. If suspected CCB overdose administer 1 amp of Calcium Chloride (or Ca gluconate-preferred) over 3 minutes. If you see ECG improvement you may repeat and then contact medical control.

**Termination of Resuscitation:** Follow On Scene Resuscitation / Termination of Resuscitation On Scene Protocol AC 12.

## Pearls

- **Team Focused Approach / Pit-Crew Approach recommended; assigning responders to predetermined tasks. Refer to optional Team Focused CPR Protocol AC 11 or development of local agency protocol.**
- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
- **DO NOT HYPERVENTILATE, ventilate ONLY at every 20th compression with BVM, BIAD, or ETT.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- **Reassess and document BIAD and / or endotracheal tube placement and EtCO2 frequently, after every move, and at transfer of care.**
- **IV / IO access and drug delivery are secondary to high-quality chest compressions and early defibrillation.**
- **IV access is preferred route. Follow IV or IO Access Protocol UP 6.**
- **Defibrillation:** Follow manufacture's recommendations concerning defibrillation / cardioversion energy when specified.
- **End Tidal CO2 (EtCO2)**
  If EtCO2 is < 10 mmHg, improve chest compressions. Goal is ≥ 20 mmHg.
  If EtCO2 spikes, typically > 40 mmHg, consider Return of Spontaneous Circulation (ROSC)
- **Special Considerations**
  **Maternal Arrest** - Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport preferably to obstetrical center if available and proximate. Place mother supine and perform Manual Left Uterine Displacement moving uterus to the patient's left side. IV/IO access preferably above diaphragm. Defibrillation is safe at all energy levels.
  **Renal Dialysis / Renal Failure** - Refer to Dialysis / Renal Failure Protocol AM 3 caveats when faced with dialysis / renal failure patient experiencing cardiac arrest.
  **Opioid Overdose** - If suspected, administer Naloxone per Overdose / Toxic Ingestion Protocol TE 7 while ensuring airway, oxygenation, ventilations, and high-quality chest compressions.
  **Drowning / Suffocation / Asphyxiation / Hanging / Lightning Strike** – Hypoxic associated cardiac arrest and prompt attention to airway and ventilation is priority followed by high-quality and continuous chest compressions and early defibrillation.
- **Transcutaneous Pacing:**
  Pacing is NOT effective in cardiac arrest and pacing in cardiac arrest does NOT increase chance of survival
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
- Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.