

EL DORADO COUNTY EMS AGENCY

PREHOSPITAL PROTOCOLS

Effective: July 1, 2014

Reviewed: July 2014, 2018

Revised: July 1, 2016

Scope: BLS/ALS – Adult/Pediatric



EMS Agency Medical Director

PULSELESS ARREST

BLS TREATMENT

1. Ensure scene safety and confirm unresponsiveness.
2. Simultaneously check for pulse and no breathing or only gasping for no more than 10 seconds.
3. Start CPR as per current guidelines. Support ventilation with appropriate airway adjuncts.
4. **Prior to defibrillation:** Ensure skin is clean and dry. Remove metal necklaces and underwire bras. Check the person for implanted medical devices or piercings, place pads at least 1 inch away from implanted devices or piercings.
5. **Unwitnessed arrest:**
CPR should be initiated while the AED/defibrillator equipment is being retrieved and applied. Defibrillation, if indicated, should be attempted as soon as the device is ready for use. If no shock advised continue CPR.
Witnessed arrest:
Attach AED/defibrillator to patient. If shock advised, deliver shock and immediately follow shock, and each subsequent shock, with 2 minutes of CPR (5 cycles of 30:2) starting with compressions. If no shock advised continue CPR.
Pediatric Note: If an AED with an attenuator is not available, an AED with standard electrodes may be used. Attach pads in anterior/posterior position.
6. **If patient is hypothermic limit shocks to one (1) only, refer to COLD EXPOSURES protocol.**
7. Continue CPR and follow AED instructions until ROSC achieved and/or care is transferred to ALS personnel.
8. Establish airway with King Tube Device (EXPANDED SCOPE EMTS).

Return of Spontaneous Circulation (ROSC):

1. If patient is resuscitated and has:
 - **Effective spontaneous respirations:** Apply high flow oxygen, place patient in left lateral recumbent position and be prepared to suction airway.
 - **Ineffective or absent respirations:** Assist/provide ventilations, do not over-ventilate the patient. Administer 10 ventilations per minute and be prepared to suction airway.
2. Re-assess the patient's vital signs and effectiveness of ventilations frequently.

PROTOCOL PROCEDURE:

Flow of protocol presumes pulseless arrest is continuing. Effective CPR with a minimum of interruptions should be the primary objective. Consider possible cause (H's and T's) and treat accordingly. If correctable cause is suspected or condition changes refer to appropriate protocol.

ADULT ALS ALGORITHM

ASYSTOLE/PEA	PULSELESS VT/VF
<ol style="list-style-type: none"> 1) Do 5 cycles of CPR <u>between each procedure.</u> 2) Establish IV/IO. 3) Give Epinephrine IV/IO: 1 mg 1:10,000 May repeat q 3-5 min. 4) Insert advanced airway. 5) If no IV/or IO give Epinephrine via ET: 2 mg 1:1,000 dilute in 5-10 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min. 6) Consider Sodium Bicarbonate 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD. 	<ol style="list-style-type: none"> 1) Check rhythm. If indicated give 1 shock*, then immediately resume CPR. Deliver shocks every 2 minutes if VF/VT continues. 2) Do 5 cycles of CPR <u>between each procedure.</u> 3) Establish IV/IO. 4) Give Epinephrine 1 mg 1:10,000 IV/IO. May repeat q 3-5 min. 5) Give Amiodarone: 300 mg Slow IV/IO push over 1-2 minutes. 6) Consider Magnesium Sulfate 2 Gm IV/IO diluted in 10 mL NS or SW for Torsades de pointes. 7) Insert advanced airway. EtCO2 waveform monitoring 8) If no IV/or IO give Epinephrine via ET: 2 mg 1:1,000 dilute in 5-10 mL NS or SW followed by 5 normal ventilations. 9) Repeat Amiodarone 5 min after first dose: 150 mg Slow IV/IO push over 1-2 minutes. 10) Consider Amiodarone 150 mg IV over 10 minutes for recurrent VF/VT with periods of ROSC where no antiarrhythmic has yet been given.

***Joule settings:**

- **Monophasic:** 360J
- **Physio-Control® Biphasic:** 200J (Increase to 300J, then 360J for each subsequent shock)
- **Zoll® Biphasic:** 120J (increase to 150J, then 200J for each subsequent shock)

- Consider Sodium Bicarbonate 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD
- Consider Gastric Tube upon establishing an advanced airway
- Resuscitate on scene a minimum of 20 minutes or until there is return of spontaneous circulation (ROSC), consider pronouncement if resuscitation is not successful or transport per base station order. *See Determination of Death Policy*
- If ROSC achieved, consider Therapeutic Hypothermia if inclusion criteria are met. *See Procedure*

During CPR:

- Push hard and fast 100-120/min)
- Press at least 2-2.4" deep while Ensuring full chest recoil
- 1 cycle of CPR: 30:2, minimize interruptions
- Avoid hyperventilation
- Ventilate at 10 breaths per minute without compression pauses when an advanced airway is in place
- Rotate compressors every two minutes
- Check rhythm every 2 minutes

Consider possible correctable causes H's and T's:

- Hypovolemia**
- Hypoxia**
- Hydrogen ion (acidosis)**
- Hypo-/hyperkalemia**
- Hypoglycemia**
- Hypothermia**
- Toxins**
- Tamponade, cardiac**
- Tension pneumothorax**
- Thrombosis (coronary or pulmonary)**
- Trauma**

PEDIATRIC ALS ALGORITHM

ASYSTOLE/PEA	PULSELESS VT/VF		
<ol style="list-style-type: none"> 1. Do 5 cycles of CPR <u>between each procedure.</u> 2. Establish IV/IO. 3. Give Epinephrine IV/IO: 0.01 mg/kg (1:10,000: 0.1 mL/kg). May repeat q 3-5 min. 4. Insert advanced airway. 5. If no IV/or IO give Epinephrine via ET: 0.1 mg/kg (1:1,000: 0.1 mL/kg) dilute in 3-5 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min. 6. Consider Sodium Bicarbonate 1mEq/kg for known dialysis patient, arrest >20 minutes, or suspected tricyclic OD. 	<ol style="list-style-type: none"> 1) Check rhythm. If indicated give 1 shock*, then immediately resume CPR. Deliver shocks every 2 minutes if VF/VT continues. 2) Do 5 cycles of CPR <u>between each procedure.</u> 3) Establish IV/IO. 4) Give Epinephrine IV/IO 0.01 mg/kg (1:10,000: 0.1 mL/kg). May repeat q 3-5 min. 5) Give Amiodarone: 5 mg/kg mg Slow IV/IO push over 1-2 minutes. 6) Insert advanced airway. EtCO2 waveform monitoring 7) If no IV/or IO give Epinephrine via ET: 0.1 mg/kg (1:1,000: 0.1 mL/kg) dilute in 3-5 mL NS or SW followed by 5 normal ventilations. May repeat q 3-5 min. 8) Repeat Amiodarone q 5 minutes: 5 mg/kg Slow IV/IO push over 1-2 minutes. (Max of 15 mg/kg). 		
<p>*Joule settings: 1st dose: 2 J/kg 2nd and subsequent doses: 4 J/kg Consider increasing joules not to exceed 10J/kg or adult dose for refractory VF.</p>			
<p>Consider Gastric Tube upon establishing an airway.</p>			
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>During CPR:</p> <ul style="list-style-type: none"> • Push hard and fast 100 -120/min • Press at least 1/3 depth of the chest while Ensuring full chest recoil (approx 1.5" – infants, 2" – peds) • 1 cycle of CPR: 30:2 (1 rescuer) - 15:2 (2 rescuer) • Avoid hyperventilation • Ventilate at 10 breaths per minute without compression pauses when an advanced airway is in place • Rotate compressors every two minutes • Check rhythm every 2 minutes </td> <td style="width: 50%; vertical-align: top;"> <p>Consider possible correctable causes (H's and T's):</p> <ul style="list-style-type: none"> - Hypovolemia - Hypoxia - Hydrogen ion (acidosis) - Hypo-/hyperkalemia - Hypoglycemia - Hypothermia - Toxins - Tamponade, cardiac - Tension pneumothorax - Thrombosis (coronary or pulmonary) - Trauma </td> </tr> </table>		<p>During CPR:</p> <ul style="list-style-type: none"> • Push hard and fast 100 -120/min • Press at least 1/3 depth of the chest while Ensuring full chest recoil (approx 1.5" – infants, 2" – peds) • 1 cycle of CPR: 30:2 (1 rescuer) - 15:2 (2 rescuer) • Avoid hyperventilation • Ventilate at 10 breaths per minute without compression pauses when an advanced airway is in place • Rotate compressors every two minutes • Check rhythm every 2 minutes 	<p>Consider possible correctable causes (H's and T's):</p> <ul style="list-style-type: none"> - Hypovolemia - Hypoxia - Hydrogen ion (acidosis) - Hypo-/hyperkalemia - Hypoglycemia - Hypothermia - Toxins - Tamponade, cardiac - Tension pneumothorax - Thrombosis (coronary or pulmonary) - Trauma
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