NON-TRAUMATIC CARDIOPULMONARY ARREST – PEDIATRIC

BASE GUIDELINES

Ventricular Fibrillation (VF)
OR
Pulseless Ventricular Tachycardia (VT)

1. Determine ALS Standing Order treatments/procedures rendered prior to base hospital contact. Use ALS standing order as guidelines for treatment or procedures not initiated prior to Base Hospital/CCERC contact.
2. If at any time patient develops a rhythm with a pulse/return of spontaneous circulation (ROSC), patient should be routed to the nearest open CCERC (preferred) or ERC.
3. For return of spontaneous circulation (ROSC) with palpable brachial artery pulses:
   - ▶ If NO signs of congestive heart failure (lungs clear to auscultation), consider administering **20 mL/kg Normal Saline bolus**
   - ▶ If hypotension persists after NS bolus, consider **Push Dose Epinephrine**. (See PR-205)

Mixing Instructions:
- Take the epinephrine preparation of 1mg in 10mL (0.1 mg/mL – cardiac epinephrine) and waste 9 mL of the epinephrine solution.
- Into that syringe, withdraw 9 mL of normal saline from the patient's IV bag. Shake well.
- Mixture now provides 10 mL of epinephrine at a 10 mcg/mL concentration.

Push Dose:
- 0.1 mL/kg of above solution (0.001 mg/kg) IV/IO
- Maximum single dose 1 mL of above solution (10 mcg)
- May repeat dose every 3 minutes
- Titrate to a SBP >70 + age in years X 2 for age up to 10 years.
- For ages of 10 or more, titrate to a SBP >90

ALS STANDING ORDER

ALS STANDING ORDERS: Make base hospital contact (CCERC pediatric base preferred) as soon as possible per OCEMS Policy #310.00.

Ventricular Fibrillation (VF)
OR
Pulseless Ventricular Tachycardia (VT)

1. Initiate or continue CPR and when defibrillator available:
   - ▶ **Defibrillate once at 2 J/kg** biphasic setting (or pre-programmed manufacture's recommended defibrillator setting)
2. If at any time develops rhythm with pulse:
   - Ventilate and oxygenate
   - Assess for and correct hypoxia or hypovolemia
   - ALS escort as directed by Base Hospital (CCERC pediatric base preferred)
3. If remains pulseless:
   - → Maintain CPR approximately 2 minutes
   - ▶ High-flow oxygen by BVM
   - → IV/IO vascular access without interruption of CPR
4. Continually monitor cardiac rhythm:
   - → If persistent VF/pulseless VT
   - ▶ **Defibrillate once at 4 J/kg** biphasic setting (or pre-programmed/manufacturer's recommended defibrillator setting)
   - → If PEA or asystole: refer to PEA/Asystole section.
5. For continued VF/pulseless VT or if rhythm reverts back to VF/pulseless VT:
   - → Maintain CPR
   - ▶ Administer **Epinephrine 0.01 mg/kg IV/IO** (0.1 mg/mL preparation), repeat approximately every 3 minutes for continued VF/pulseless VT

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NON-TRAUMATIC CARDIOPULMONARY ARREST – PEDIATRIC

BASE GUIDELINES

4. If child has known congenital heart disease or previous heart surgery, the best destination is a CCERC.
5. Generally, it is not advisable to pronounce a pediatric patient in the field. The usual standard is to transport with CPR in progress.

V-Fib or Pulseless V-Tach				
Medication	**Dose**	**Route**	**Max Single Dose**	**Max Total Dose**
Defibrillation	**2-4 J/kg**			
Epinephrine [0.1 mg/mL concentration]	**0.01 mg/kg**	IV/IO	1 mg	Every 3 minutes
Amiodarone	**5 mg/kg**	IV/IO	300 mg	450 mg
Normal Saline	**20 mL/kg**	IV/IO	250 mL	
Lidocaine	**1mg/kg**	IV/IO	100 mg	100 mg

ALS STANDING ORDER

6. For continued VF/pulseless VT:
   → Maintain CPR
   ▶ **Defibrillate once at 4 J/kg** biphasic setting (or pre-programmed/manufacturer's recommended defibrillator setting)
7. For continued VF/pulseless VT:
   → Maintain CPR
   ▶ Administer **Amiodarone 5 mg/kg IV/IO**, may repeat 5 mg/kg IV/IO in 5 and 10 minutes. Maximum dose 450 mg; **OR**
   ▶ **Lidocaine 1mg/kg IV/IO**. Maximum dose 100mg, one time only.
8. After approximately 2 minutes of CPR, if there is continued VF/pulseless VT:
   ▶ **Defibrillate once at 4 J/kg** biphasic setting (or pre-programmed/manufacturer's recommended defibrillator setting)
9. For continued VF/VT:
   → Maintain CPR and request Base Hospital (CCERC base preferred) provide:
   - Further resuscitation orders and destination decision.

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NON-TRAUMATIC CARDIOPULMONARY ARREST – PEDIATRIC

BASE GUIDELINES

Pulseless Electrical Activity (PEA)
OR
Asystole

1. Determine ALS Standing Order treatments/procedures provided prior to base hospital contact. Use ALS standing order as guidelines for treatment or procedures not initiated prior to base hospital/CCERC contact.
2. If at any time patient develops a rhythm with a pulse/return of spontaneous circulation (ROSC), patient should be routed to the nearest open CCERC (preferred) or ERC.
3. As soon as possible, remind field personnel to assess for reversible causes for arrest:

Hypovolemia	Acidosis	Hypoxia
Tension pneumothorax	Hypothermia	Toxins

4. For return of spontaneous circulation (ROSC) with palpable brachial artery pulses:
   - ▶ If NO signs of congestive heart failure (lungs clear to auscultation), consider administering **20 mL/kg Normal Saline bolus**.
   - ▶ If hypotension persists after NS bolus, consider **Push Dose Epinephrine**. (See PR-205)

Mixing Instructions:

- Take the epinephrine preparation of 1mg in 10mL (0.1 mg/mL – cardiac epinephrine) and waste 9 mL of the epinephrine solution.
- Into that syringe, withdraw 9 mL of normal saline from the patient's IV bag. Shake well.
- Mixture now provides 10 mL of epinephrine at a 10 mcg/mL concentration.

Dosing instructions on next page

ALS STANDING ORDER

Pulseless Electrical Activity (PEA)
OR
Asystole

1. Initiate or maintain CPR without interruption unless pulses obtained by any step below
   - ▶ High-flow oxygen by BVM
2. Continually monitor cardiac rhythm:
   - → Maintain CPR for 2 minutes
3. IV/IO vascular access
4. Administer **Epinephrine 0.01 mg/kg IV/IO** (0.1mg/mL preparation) approximately every 3-5 minutes
5. For persistent PEA/Asystole, continue CPR for 2 minutes
   - → Consider capnography
6. Correct possible reversible causes:

hypovolemia	hypo/hyperkalemia	tamponade, cardiac
hypoxia	hypothermia	thrombosis, pulmonary
hydrogen ion (acidosis)	thrombosis, coronary	toxins
hypoglycemia	tension pneumothorax	

   If diabetic and hypoglycemia suspected, administer:
   - ▶ Dextrose 10% 5 mL/kg IV/IO (maximum dose 250 mL)
7. If VF/pulseless VT develops:
   - ▶ **Defibrillate once at 2 J/kg** for first defibrillation **OR 4 J/kg** for subsequent defibrillation at a biphasic setting (or pre-programmed/manufacturer's recommended defibrillator setting) and follow VF/pulseless VT algorithm

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NON-TRAUMATIC CARDIOPULMONARY ARREST – PEDIATRIC

BASE GUIDELINES

Push Dose:

- 0.1 mL/kg of above solution (0.001 mg/kg) IV/IO
- Maximum single dose 1 mL of above solution (10 mcg)
- May repeat dose every 3 minutes
- Titrate to a SBP >70 + age in years X 2 for age up to 10 years.
- For ages of 10 or more, titrate to a SBP >90

5. Remind field personal to maintain an open airway, assure ventilation and avoid over-inflation of lungs or aggressive ventilation that may expand stomach with air.
6. Suggest to field personnel to review scene for evidence of possible poisoning or toxic exposure.
7. If child has immediate history of vomiting or diarrhea, concentrate field on fluid resuscitation.
8. Generally, it is not advisable to pronounce a pediatric patient in the field. The usual standard is to transport with CPR in progress.

Pulseless Electrical Activity (PEA) or Asystole				
Medication	**Dose**	**Route**	**Max Single Dose**	**Max Total Dose**
Epinephrine [0.1 mg/mL concentration]	**0.01 mg/kg**	IV/IO	1 mg	Every 3 minutes
Dextrose 10%	**5 mL/kg**	IV/IO	250 mL	
Normal Saline	**20 mL/kg**	IV/IO	250 mL	

ALS STANDING ORDER

8. If at any time a rhythm with pulse develops (ROSC):
   a. Continue with ventilation and oxygenation
   b. Assess for and correct hypoxia, hypovolemia, hypoglycemia, or hypothermia
   c. ALS escort as directed by Base Hospital (CCERC pediatric base preferred)
9. For continued PEA or asystole:
   a. Maintain CPR and request Base Hospital (CCERC base preferred) provide:
      i. Further resuscitation orders and destination decision

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