

Pediatric Ventricular Fibrillation Pulseless Ventricular Tachycardia

History

- Events leading to arrest
- Estimated downtime
- Past medical history
- Medications
- Existence of terminal illness
- Airway obstruction
- Hypothermia

Signs and Symptoms

- Unresponsive
- Cardiac Arrest

Differential

- Respiratory failure / Airway obstruction
- Hyper / hypokalemia, Hypovolemia
- Hypothermia, Hypoglycemia, Acidosis
- Tension pneumothorax, Tamponade
- Toxin or medication
- Thrombosis: Coronary / Pulmonary Embolism
- Congenital heart disease

Pediatric Pulseless Arrest Protocol

| | |
|----------|--|
| | Begin Continuous CPR Compressions Push Hard (1.5 inches Infant / 2 inches in Children) ($\geq 1/3$ AP Diameter of Chest) (Push Fast (100 - 120 / min) Change Compressors every 2 minutes (Limit changes / pulse checks ≤ 10 seconds) Ventilate 1 breath every 6 seconds 15:2 Compression:Ventilation if no Advanced Airway |
| A | Defibrillation Automated <i>if available</i> |
| | IV / IO Procedure |
| | Epinephrine 1:10,000 0.01 mg/kg IV / IO Maximum 1mg Or Epinephrine 1:1000 0.1 mg / kg ETT Maximum 2.5 mg Repeat every 3 – 5 minutes |
| P | <u>If Rhythm Refractory</u> Continue CPR and give Agency specific Anti- arrhythmic(s). Continue epinephrine during compressions. Continue CPR up to point where you are ready to defibrillate with device charged. Repeat pattern during resuscitation. |
| P | |
| | |
| | |

AT ANY TIME

Return of
Spontaneous
Circulation



Go to
Post Resuscitation
Protocol

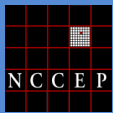
Persistent VF / VT
Or
Torsades de Points

Magnesium Sulfate
40 mg/kg IV / IO over
1 – 2 minutes
May repeat
every 5 minutes
Maximum 2 g



Notify Destination or
Contact Medical Control





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Pearls

- **Recommended Exam: Mental Status**
- **Beginning compressions first is recommended in pediatric patients during CPR. However, the majority of pediatric arrests stem from a respiratory insult or hypoxic event. Compressions should be coupled with ventilations.**
- **When 1 provider is present, perform 30 compressions with 2 ventilations.**
- **When 2 providers are present, perform 15 compressions with 2 ventilations.**
- **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated. Compress $\geq 1/3$ anterior-posterior diameter of chest, in infants 1.5 inches and in children 2 inches. Consider early IO placement if available and / or difficult IV access anticipated.**
- **DO NOT HYPERVENTILATE: If advanced airway in place ventilate 8 – 10 breaths per minute with continuous, uninterrupted compressions.**
- **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
- **Defibrillation:** First defibrillation is 2 J/kg, second defibrillation is 4 J/kg, subsequent shocks ≥ 4 J/kg (Maximum 10 J/kg or adult dose)
- **End Tidal CO₂ (EtCO₂)**
 - If EtCO₂ is < 10 mmHg, improve chest compressions.
 - If EtCO₂ spikes, typically > 40 mmHg, consider Return of Spontaneous Circulation (ROSC)
- **Antiarrhythmic agents:**
 - Adenosine:** First dose: 0.1 mg / kg (Maximum 6 mg) Second dose: 0.2 mg / kg (Maximum 12 mg)
 - Amiodarone** 5 mg / kg IV / IO (single dose Maximum 300 mg). May repeat x 2 to a Maximum of 15 mg / kg.
 - Lidocaine** 1 mg / kg IV / IO. Infusion 20 – 50 mcg / kg / min. If infusion is initiate > 15 minutes from first bolus, repeat 1 mg / kg bolus.
 - Magnesium Sulfate** 40 mg / kg IV / IO over 10 – 20 minutes. In Torsades de pointes give over 1 – 2 minutes. Maximum 2 g.
 - Procainamide** 15 mg / kg IV / IO over 30 – 60 minutes. Monitor for increased QRS and increased QT.
- Success is based on proper planning and execution. Procedures require space and patient access. Make room to work. Consider Team Focused Approach / Pit-Crew Approach assigning responders to predetermined tasks. Refer to optional protocol.
- In order to be successful in pediatric arrests, a cause must be identified and corrected.
- If no IV / IO access may use **Epinephrine 1:1000 0.1 mg/kg (0.1 mL/kg) via ETT (Maximum 2.5 mg)**