

**REGION I EMERGENCY MEDICAL SERVICES  
STANDING MEDICAL ORDERS  
EMT – Paramedic**

**SMO: Pediatric Cardiac Arrest  
Ventricular Fibrillation & Pulseless V-Tach**

**Overview:** Ventricular tachycardia (VT) and ventricular fibrillation (VF) are uncommon in children. Hypoxia and respiratory arrest is the most common cause of cardiac arrest in children. Other causes of VF / VT include Congenital heart disease, Cardiomyopathies, Myocarditis, Reversible causes (e.g., drug toxicity), Metabolic causes (e.g., hypoglycemia), Hypothermia and Commotio Cordis (blunt chest trauma). The goal EMS is early BLS, rapid defibrillation and early ALS care.

**INFORMATION NEEDED**

- Patient age
- Medical history (ex. history of cardiovascular disease, congenital heart defect, respiratory disease, trauma, diabetes)
- History of present event (ex. complaints prior to arrest, possibility of choking, allergic reaction, blunt chest trauma, etc.)
- Weight of patient (length based tape may be used)

**OBJECTIVE FINDINGS**

- Patient is apneic and pulseless
- Monitor shows ventricular fibrillation or ventricular tachycardia

**TREATMENT**

- Assess patient and confirm pulselessness
- Start CPR using pediatric standards
- Assure adequacy of ventilations and compressions
- Obtain quick, resuscitation-oriented patient history
- Routine Medical Care (RMC)
- Confirm that patient is in V-Fib and pulseless with quick-look paddles or electrodes.
- Ensure adequacy of CPR until defibrillator ready
- Defibrillate 2 J/kg
- Resume CPR immediately
- Continue with sequences of 5 Cycles (2 minutes) of CPR and one defibrillate at 4 J/Kg. CPR and defibrillation is the primary treatment, the following should be added as soon possible however **prevent and minimize CPR interruptions.**
- Standard cardiac arrest management: ABC's, CPR, ET intubation, confirm ETT placement, ventilate with 100% oxygen, establish IV or IO of NS
- Epinephrine:**
  - IV/IO: (1:10,000) 0.01 mg/kg (0.1 ml/kg)
  - ET: (1:1000) 0.1 mg/kg (0.1 ml/kg)
  - Repeat q 3-5 min.
- Lidocaine** 1 mg/kg IV or IO (or 2 mg/kg ETT), repeat x 1 in 5 min.

**TREATMENT (cont)**

- \_\_\_ If defibrillation is successful at any point, and normal sinus rhythm, sinus tachycardia, or another supraventricular rhythm with pulses results, per Medical Control administer **Lidocaine** 1 mg/kg IVP (unless just given in last 5 min.), may repeat with half doses q 5 to 10 min. to a max dose of 3 mg/kg IVP
- \_\_\_ If rhythm changes, check for pulses, and proceed to appropriate **CARDIAC ARREST** or **DYSRHYTHMIA** Protocol as indicated

**Documentation of adherence to protocol:**

- \_\_\_ Airway management
- \_\_\_ Defibrillation energy levels correct
- \_\_\_ Epinephrine given if no return of circulation with initial 3 shocks

**Medical Control Contact Criteria**

- \_\_\_ High dose IV/IO **Epinephrine** (1:1,000) 0.1mg/kg

**PRECAUTIONS AND COMMENTS**

- Epinephrine and Lidocaine can be given via ETT. ET drug doses for Lidocaine are 2 to 3 times the IV dose, and should be diluted **IF NECESSARY** with NS to 3 ml total volume for an infant, and 5 ml total volume for a small child.
- Drugs administered via ETT should be delivered and the patient should be ventilated several times after giving the drugs before starting chest compressions again.
- When defibrillating, use “infant” paddles on patients younger than 1 year/10 kg weight. Patients >1 year/10 kg, use “adult” paddles with anterior/posterior placement. Leave paddles on chest, visually reconfirming rhythm after each defibrillation.
- Use length base resuscitation tape to estimate child weight in order to calculate fluid boluses, drug doses and estimate tube sizes