Pediatric Post Resuscitation

History
- Respiratory arrest
- Cardiac arrest

Signs/Symptoms
- Return of pulse

Differential
- Continue to address specific differentials associated with the original dysrhythmia

Transport Destination Decision

Post-resuscitation patient is medically complex.

Consider facility capabilities:
- Pediatric ICU service
- Pediatric Cardiology service
- Pediatric Neurology service
- Targeted Temperature Management

	Pediatric Airway Protocol(s) AR 5 - 7 ***as needed***
	Monitor Vital Signs / Reassess
	Blood Glucose Analysis Procedure ASP 4
	Optimize Ventilation and Oxygenation • Maintain SpO2 92% - 98% • Advanced airway if indicated • Respiratory Rate 12 – 20 **DO NOT HYPERVENTILATE**
B	12 Lead ECG Procedure CSP 1
	IV / IO Access Protocol UP 6
P	Cardiac Monitor
	Pediatric Diabetic Protocol PM 2 ***if indicated***
	Pediatric Hypotension / Shock Protocol PM 3 ***if indicated***
	Pediatric Bradycardia Protocol PC 2 ***if indicated***
	Pediatric Tachycardia Protocol PC 5, 6 ***as indicated***

Hypotension Age Based

0 – 31 Days
< 60 mmHg

1 Month to 1 Year
< 70 mmHg

> than 1 Year
< 70 + (2 x age) mmHg

Antiarrhythmic Medication Given During Arrest

YES

	Continue Antiarrhythmic Utilized Refer to Appropriate Pediatric Arrhythmia Protocol
P	**Amiodarone 5mg/kg IV / IO** **Maximum Single Dose 300mg** May repeat x 2 to a Max of 15mg/kg **Or** **Lidocaine 1.0 mg/kg IV / IO** **May repeat 0.5 mg/kg if refractory** **Maximum 3 mg/kg**

NO

Arrhythmias are common and usually self limiting after ROSC

If Arrhythmia Persists follow Rhythm Appropriate Protocol

Post-intubation / BIAD Management Protocol AR 8

Notify Destination or Contact Medical Control

Pediatric Cardiac Protocol Section

Pediatric Post Resuscitation

** Refer to Length Based Medication Tape for Medication Doses IF pediatric patients weight is unknown **

Push-Dose Vasopressor Agent - Procedure

1. **Indications**
   a. Peri-intubation hypotension
   b. Post-arrest (post-ROSC) hypotension
   c. Hypotension requiring initiation of vasopressor drip – prior to drip setup
   d. Unstable bradycardia (as a supplement to other therapy)
2. **Instructions**
   a. Draw up 1mL of 1:10,000 epinephrine
   b. Waste 1mL of saline from a 10mL saline flush
   c. Add the 1mL of epinephrine to the remaining 9mL of saline
      i. This yields epinephrine in a concentration of 10mcg/mL
   d. Place a medication added label on this syringe to identify it as a vasopressor
   e. Administer 1mcg/kg (0.1mL/kg) every 2 minutes as needed to achieve desired blood pressure or heart rate and/or max 10mcg (1mL)

Pearls

- **Recommended Exam: Mental Status, Neck, Skin, Lungs, Heart, Abdomen, Extremities, Neuro**
- **Goals of care are to preserve neurologic function, prevent secondary organ damage, treat the underlying cause of illness, and optimize prehospital care. Frequent reassessment is necessary.**
- **Hyperventilation is a significant cause of hypotension and recurrence of cardiac arrest in the post resuscitation phase and must be avoided. Titrate FiO_2 to maintain SpO_2 of 92 - 98%.**
- **Use length-based or weight-based pediatric resuscitation system for medication, equipment, cardioversion, and defibrillation guidance. Pediatric paddles should be used in children < 10 kg.**
- **Pain/sedation:**
  Patients requiring advanced airways and ventilation commonly experience pain and anxiety.
  Unrelieved pain can lead to increased catecholamine release, ischemia, immunosuppression, and prolonged hospitalization.
  Ventilated patients cannot communicate pain / anxiety and providers are poor at recognizing pain / anxiety.
  Vital signs such has tachycardia and / or hypertension can provide clues to inadequate sedation, however they both are not always reliable indicators of patient's lack of adequate sedation.
  Pain must be addressed first, before anxiety. Opioids are typically the first line agents before benzodiazepines. Ketamine is also a reasonable first choice agent.
- **Ventilator / Ventilation strategies:**
  Tailored to individual patient presentations. Medical Control can indicate different strategies above.
  In general ventilation with BVM should cause chest rise. With mechanical ventilation a reasonable tidal volume should be about 6 mL/kg and peak pressures should be < 30 cmH20.
  Continuous pulse oximetry and capnography should be maintained during transport for monitoring.
  Head of bed should be maintained at least 10 – 20 degrees of elevation when possible to decrease aspiration risk.
- **EtCO2 Monitoring:**
  Initial End tidal CO2 may be elevated immediately post-resuscitation, but will usually normalize.
  Goal is 35 – 45 mmHg but DO NOT hyperventilation to achieve.
  EtCO2 should be continually monitored with advanced airway in place.
- **Administer resuscitation fluids and vasopressor agents to maintain SBP at targets listed on page 1. This table represents minimal SBP targets.**
- **Targeted Temperature Management is recommended in pediatrics, but prehospital use is not associated with improved outcomes. Transport to facility capable of intensive pediatric care.**
- **Consider transport to facility capable of managing the post-arrest patient including hypothermia therapy, cardiology / cardiac catheterization, intensive care service, and neurology services.**
- The condition of post-resuscitation patients fluctuates rapidly and continuously, and they require close monitoring. Appropriate post-resuscitation management may best be planned in consultation with Medical Control.