Pediatric Cardiac Arrest Algorithm
AHA 2015 Update

CPR QUALITY
- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100–120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Rotate compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 15:2 compression-ventilation ratio.

SHOCK ENERGY FOR DEFIBRILLATION
- First shock 2 J/kg
- Second shock 4 J/kg
- Subsequent shocks ≥4 J/kg, maximum 10 J/kg or adult dose

DRUG THERAPY
- Epinephrine IO/IV dose:
  - 0.01 mg/kg (0.1 mL/kg of 1:1000 concentration). Repeat every 3-5 minutes.
  - If no IO/IV access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of 1:1000 concentration).
- Amiodarone IO/IV dose:
  - 5 mg/kg bolus during cardiac arrest. May repeat up to 2 times for refractory VF/pulseless VT.
- Lidocaine IO/IV dose:
  - Initial: 1 mg/kg loading dose.
  - Maintenance: 20-50 mcg/kg per minute infusion (repeat bolus dose if infusion initiated >15 minutes after initial bolus therapy).

ADVANCED AIRWAY
- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement
- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions

RETURN OF SPONTANEOUS CIRCULATION (ROSC)
- Pulse and blood pressure
- Spontaneous arterial pressure waves with intra-arterial monitoring

REVERSIBLE CAUSES
- Hypovolemia
- Hypo/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary
Pediatric Tachycardia with a Pulse and Poor Perfusion Algorithm
AHA 2015 Update

Identify and treat underlying cause
• Maintain patent airway; assist breathing as necessary
• Oxygen
• Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
• IO/IV access
• 12-Lead ECG if available; don’t delay therapy

Evaluate QRS duration
Narrow (<0.09 sec)
Wide (>0.09 sec)

Evaluate rhythm with 12-lead ECG or monitor

Probable sinus tachycardia
• Compatible history consistent with known cause
• P waves present/normal
• Variable R-R; constant PR
• Infants: rate usually <220/min
• Children: rate usually <180/min

Probable supraventricular tachycardia
• Compatible history (vague, nonspecific); history of abrupt rate changes
• P waves absent/abnormal
• HR not variable
• Infants: rate usually ≥220/min
• Children: rate usually ≥180/min

Possible ventricular tachycardia
• Cardiopulmonary compromise?
  • Hypotension
  • Acutely altered mental status
  • Signs of shock

Search for and treat cause

Consider vagal maneuvers (No delays)

Synchronized cardioversion

If IO/IV access present, give adenosine or
• If IO/IV access not available, or if adenosine ineffective, synchronized cardioversion

Consider adenosine

Expert consultation advised
• Amiodarone
• Procainamide

Syncope with a pulse

DRUG THERAPY
• Adenosine IO/IV dose:
  • First dose: 1.1 mg/kg rapid bolus (maximum: 6 mg).
  • Second dose: 1.2 mg/kg rapid bolus (maximum second dose: 12 mg).
• Amiodarone IO/IV dose:
  • 5 mg/kg over 20-60 minutes or
• Procainamide IO/IV dose:
  • 15 mg/kg over 30-60 minutes
  • Do not routinely administer amiodarone and procainamide together.

SYNCHRONIZED CARDIOVERSION
• Begin with 0.5-1 J/kg.
• If not effective, increase to 2 J/kg.
• Sedate if needed, but don’t delay cardioversion.