Pediatric Cardiac Arrest Algorithm
AHA 2015 Update

1. Start CPR
   - Give oxygen
   - Attach monitor/defibrillator

2. Rhythm shockable?
   Yes: 9
   No: 3

3. Shock

4. CPR 2 min
   • IO/IV access

5. Rhythm shockable?
   Yes: 5
   No: 6

6. CPR 2 min
   • Epinephrine every 3-5 min
   • Consider advanced airway

7. Rhythm shockable?
   Yes: 11
   No: 8

8. CPR 2 min
   • Amiodarone or lidocaine
   • Treat reversible causes

9. Asystole/PEA
   - Go to 5 or 7

10. CPR 2 min
    • IO/IV access
    • Epinephrine every 3-5 min
    • Consider advanced airway

11. Rhythm shockable?
    Yes: 11
    No: 12

12. CPR 2 min
    • Asystole/PEA
    10 or 11
    • Organized rhythm check pulse
    • Pulse present (ROSC) post-cardiac arrest care

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 1:10 000 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
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

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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 rhythm with 12-lead ECG or monitor**

**Narrow (<0.09 sec)**
- **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

**Wide (>0.09 sec)**
- **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**
- **Consider adenosine if rhythm regular and QRS monomorphic**
- **Yes**
  - Expert consultation advised
  - Amiodarone
  - Procainamide
- **No**

**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.