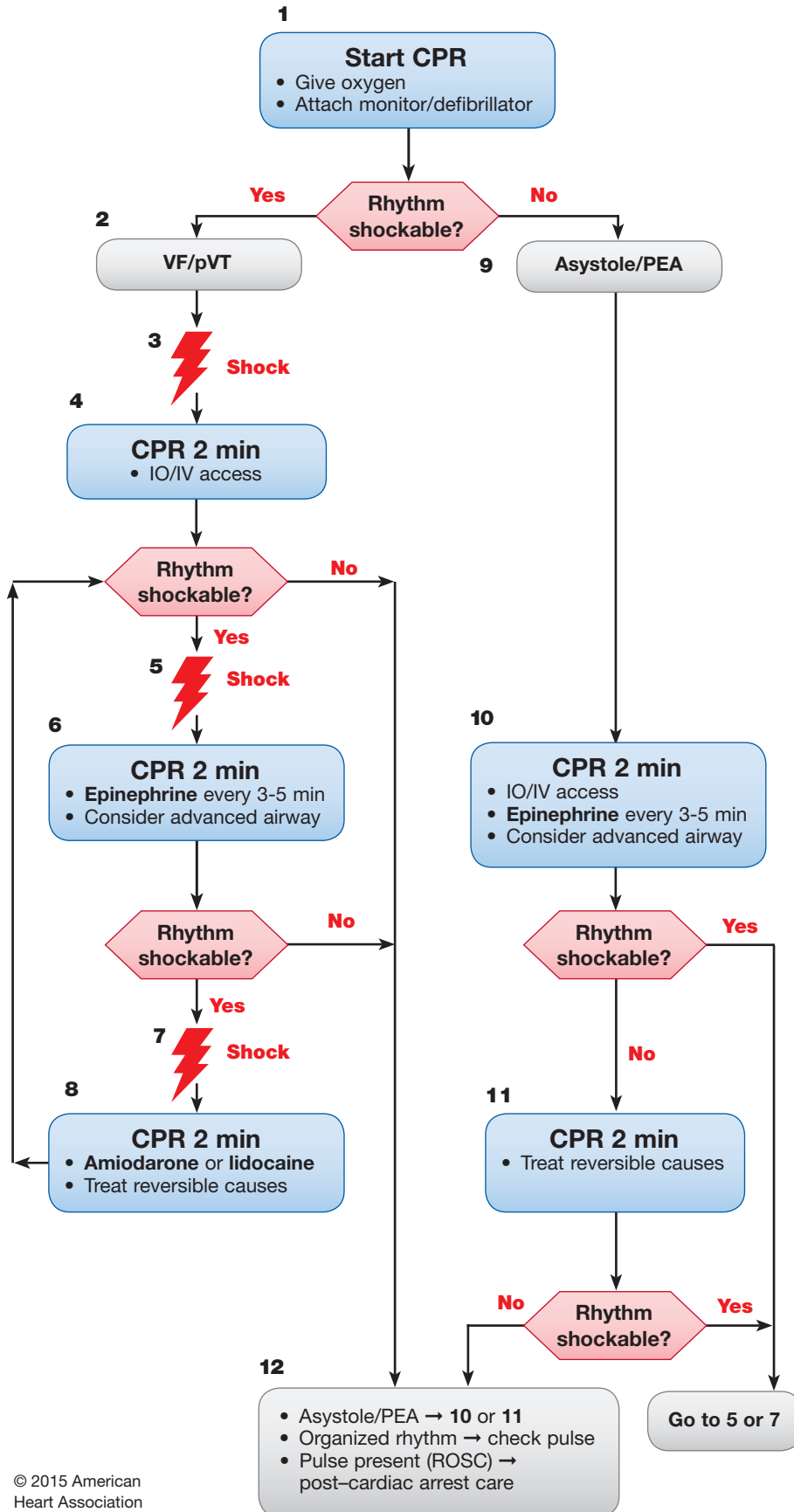


Pediatric Cardiac Arrest Algorithm—2015 Update



CPR Quality

- Push hard ($\geq\frac{1}{2}$ 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)
- Hypoglycemia
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

Pediatric Bradycardia With a Pulse and Poor Perfusion Algorithm

1

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

2

Cardiopulmonary compromise?

- Hypotension
- Acutely altered mental status
- Signs of shock

No

Yes

3

CPR if HR <60/min
with poor perfusion despite
oxygenation and ventilation

4a

- Support ABCs
- Give oxygen
- Observe
- Consider expert consultation

No

4

Bradycardia persists?

Yes

5

- **Epinephrine**
- **Atropine** for increased vagal tone or primary AV block
- Consider transthoracic pacing/transvenous pacing
- Treat underlying causes

6

If pulseless arrest develops, go to Cardiac Arrest Algorithm

Doses/Details

Epinephrine IO/IV dose:

0.01 mg/kg (0.1 mL/kg of 1:10 000 concentration). Repeat every 3-5 minutes. If IO/IV access not available but endotracheal (ET) tube in place, may give ET dose: 0.1 mg/kg (0.1 mL/kg of 1:1000).

Atropine IO/IV dose:

0.02 mg/kg. May repeat once. Minimum dose 0.1 mg and maximum single dose 0.5 mg.

Pediatric Tachycardia With a Pulse and Poor Perfusion Algorithm

1

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

2

Narrow (≤ 0.09 sec)

Wide (> 0.09 sec)

Evaluate QRS duration

3

Evaluate rhythm with 12-lead ECG or monitor

4

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

6

Search for and treat cause

5

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

7

Consider vagal maneuvers (No delays)

8

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

9

Possible ventricular tachycardia

10

Cardiopulmonary compromise?

- Hypotension
- Acutely altered mental status
- Signs of shock

Yes

11

Synchronized cardioversion

No

12

Consider adenosine if rhythm regular and QRS monomorphic

13

Expert consultation advised

- **Amiodarone**
- **Procainamide**

Doses/Details
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.
Drug Therapy
Adenosine IO/IV dose: First dose: 0.1 mg/kg rapid bolus (maximum: 6 mg). Second dose: 0.2 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.