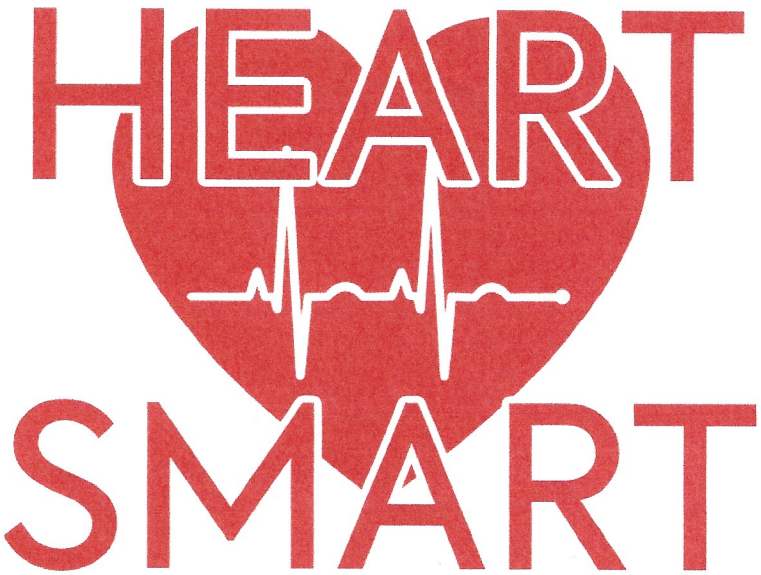


PALS Study Guide

HeartSmartACLS.com

HeartSmart CPR LLC

PALS drugs and dosages

Bradycardia

Epinephrine Increases HR, peripheral vascular resistance, cardiac output, myocardial and cerebral blood flow

IV/IO 0.01 mg/kg 1:10,000 (0.1 ml/kg) q3-5 min

Atropine Consider after oxygen, ventilation and Epi. Blocks vagal input-increasing SA activity and AV conduction.

IV/IO 0.02 mg/kg may double for second dose

Do not give less than 0.1 mg, may worsen bradycardia. Child max 1 mg. Adolescent max 2mg

Tachycardia

Adenosine Drug of choice for SVT. Blocks AV node conduction for a few seconds to interrupt AV node re-entry.

IV/IO 0.1 mg/kg first dose 0.2 mg/kg second dose

Antiarrhythmics

Amiodarone Slows AV node and ventricular conduction. Increases QT

IV/IO 5mg/kg VF/PVT bolus Tachy over 20-60 min

Lidocaine Ventricular antiarrhythmic to consider if Amio unavailable

IV/IO 1mg/kg VF/PVT/VT bolus q5-15 min

Magnesium Ventricular anti arrhythmic for Torsades and Hypomag

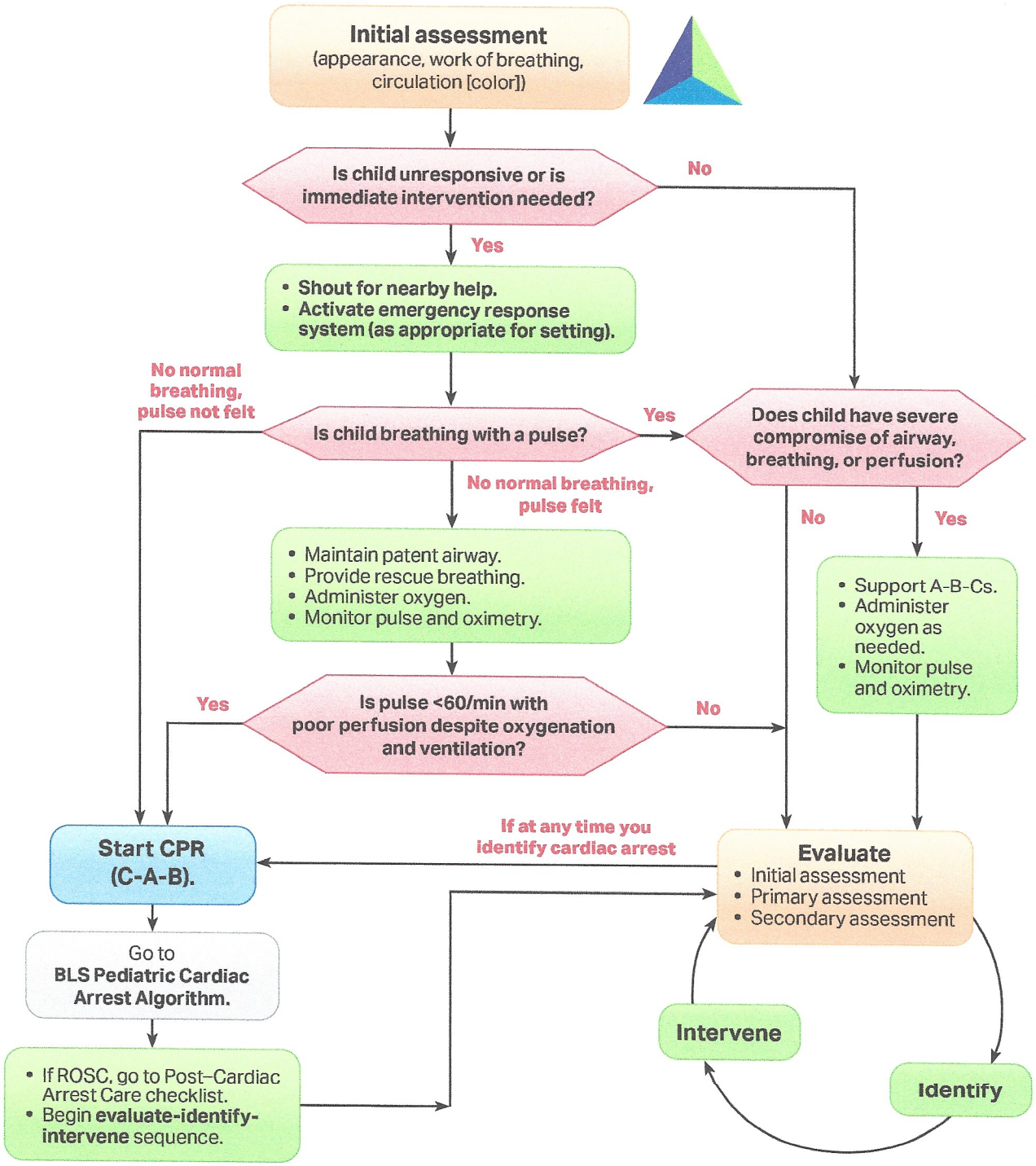
IV/IO 25-50mg/kg over 10-20 min max 2grams

Miscellaneous

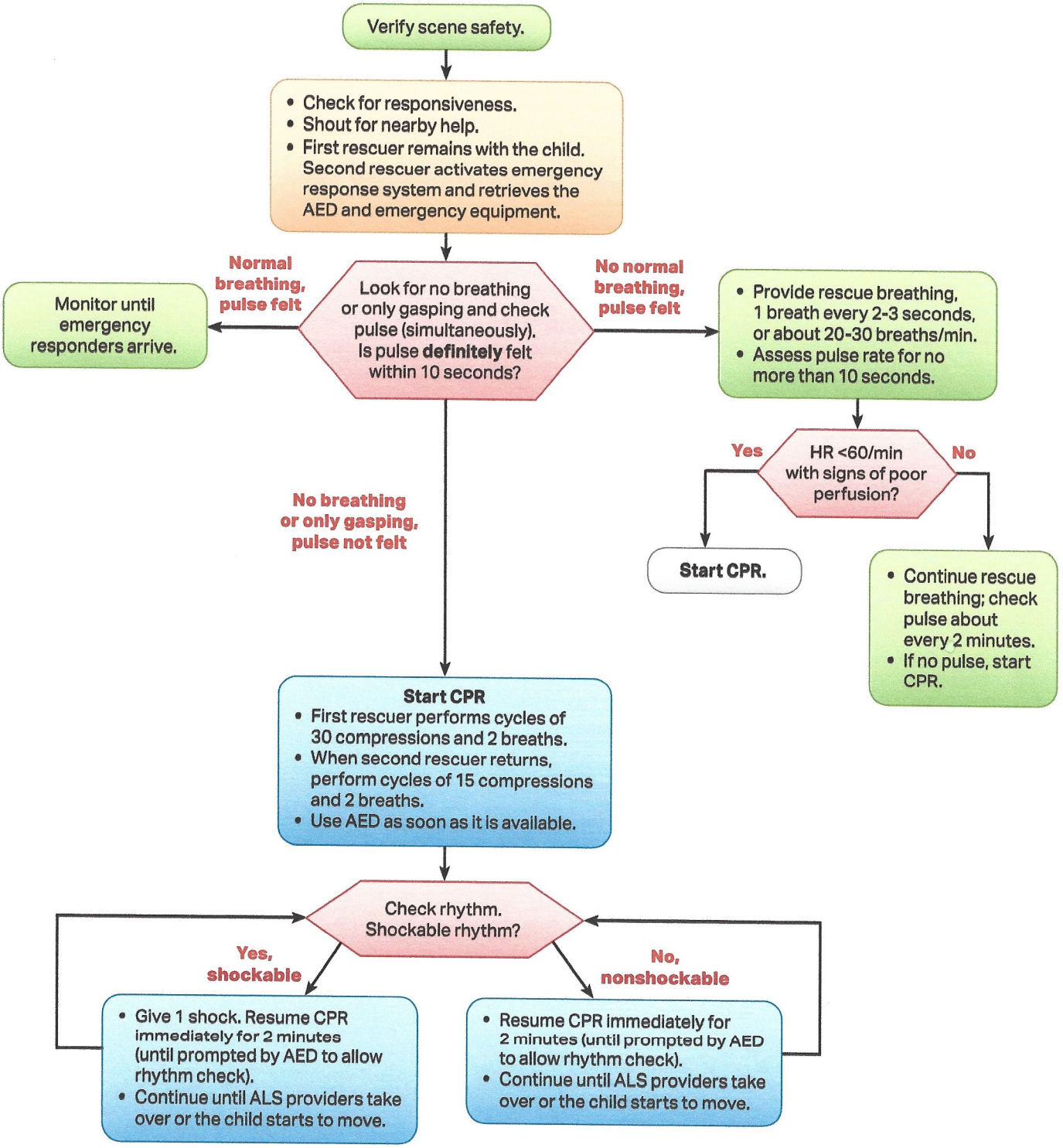
Glucose IV/IO 0.5-1gr/kg of D25

Narcan IV/IO 0.1mg/kg <5yo/20mg >5yo/20kg up to 2mg

PALS Systematic Approach Algorithm



Pediatric Basic Life Support Algorithm for Healthcare Providers—2 or More Rescuers



PALS Systematic Approach

Initial Impression

LOC A.V.P.U, Work of Breathing, Skin Color

Primary Assessment

A,B,C,D,E airway, breathing, circulation, disabilities, expose the skin

Secondary Assessment

S.A.M.P.L.E. symptoms, allergies, meds, past hx, events

Indentify the Problem

Respiratory or Circulatory, Follow PALS Algorithm

BLS steps first, progress to ALS interventions

Reposition, oxygen, BVM, Blood Glucose, Antibiotics

M.O.V.E your patient

M-monitor-gives VS-know the normal for different ages

O-O2-94-99%-pulse ox is not always reliable

V-venous access-IO is immediate for cardiac arrest *

E-EKG-try quick interventions (vagal)

*IO contraindicated in site infection, injuries, or IO attempt

Respiratory

Upper is above the lungs Inspiratory sounds and effort increased

Lower is in the lungs Expiratory sounds and effort increased

Lung Tissue Disease Fluids block gas exchange causing decreased o2 saturation

Disordered Control of Breathing Neurological source. Think seizures or ICP

Distress vs Failure

Distress is increased effort and audible sounds

Failure is decreased oxygenation and ventilation

Circulatory

Bradycardia

Hypoxia is the #1 cause. Oxygenation first to stimulate an increased heartrate, then compressions if remains less than 60 bpm

Tachycardia

Try vagal response first, use ice to the face for infants

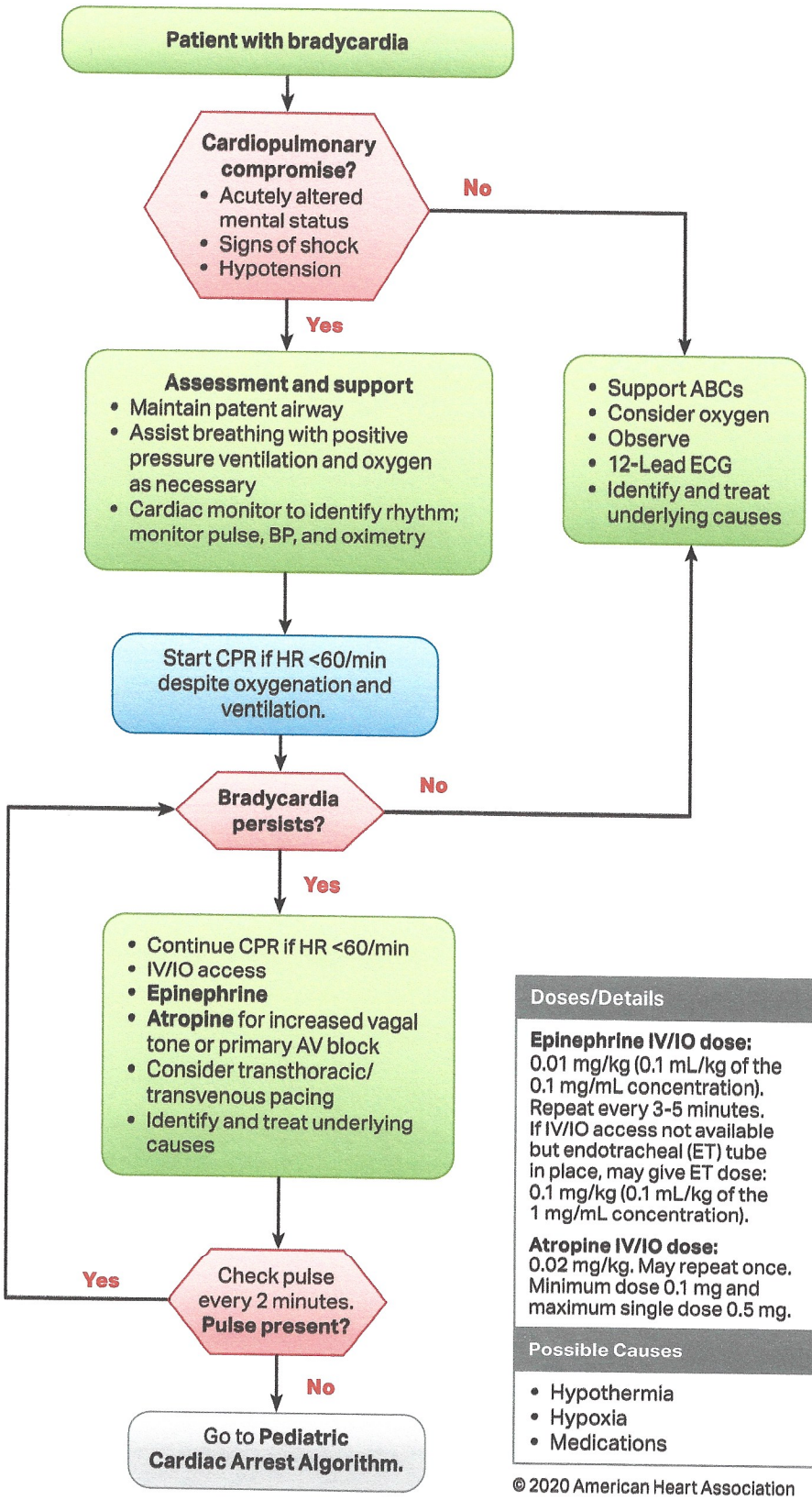
Hypotension

Fluid Bolus 10-20 mg/kg

Managing Respiratory Emergencies Flowchart

Managing respiratory emergencies flowchart		
• Airway positioning • Suction as needed	• Oxygen • Pulse oximetry	• ECG monitor as indicated • BLS as indicated
Upper airway obstruction **Specific management for selected conditions**		
Croup	**Anaphylaxis**	**Aspiration foreign body**
• Nebulized epinephrine • Corticosteroids	• IM epinephrine (or autoinjector) • Albuterol • Antihistamines • Corticosteroids	• Allow position of comfort • Specialty consultation
Lower airway obstruction **Specific management for selected conditions**		
Bronchiolitis	**Asthma**	
• Nasal suctioning • Consider bronchodilator trial	• Albuterol ± ipratropium • Corticosteroids • Magnesium sulfate • IM epinephrine (if severe) • Terbutaline	
Lung tissue disease **Specific management for selected conditions**		
Pneumonia/pneumonitis **Infectious, chemical, aspiration**	**Pulmonary edema** **Cardiogenic or noncardiogenic (ARDS)**	
• Albuterol • Antibiotics (as indicated) • Consider noninvasive or invasive ventilatory support with PEEP	• Consider noninvasive or invasive ventilatory support with PEEP • Consider vasoactive support • Consider diuretic	
Disordered control of breathing **Specific management for selected conditions**		
Increased ICP	**Poisoning/overdose**	**Neuromuscular disease**
• Avoid hypoxemia • Avoid hypercarbia • Avoid hyperthermia • Avoid hypotension	• Antidote (if available) • Contact poison control	• Consider noninvasive or invasive ventilatory support

Pediatric Bradycardia With a Pulse Algorithm



Doses/Details

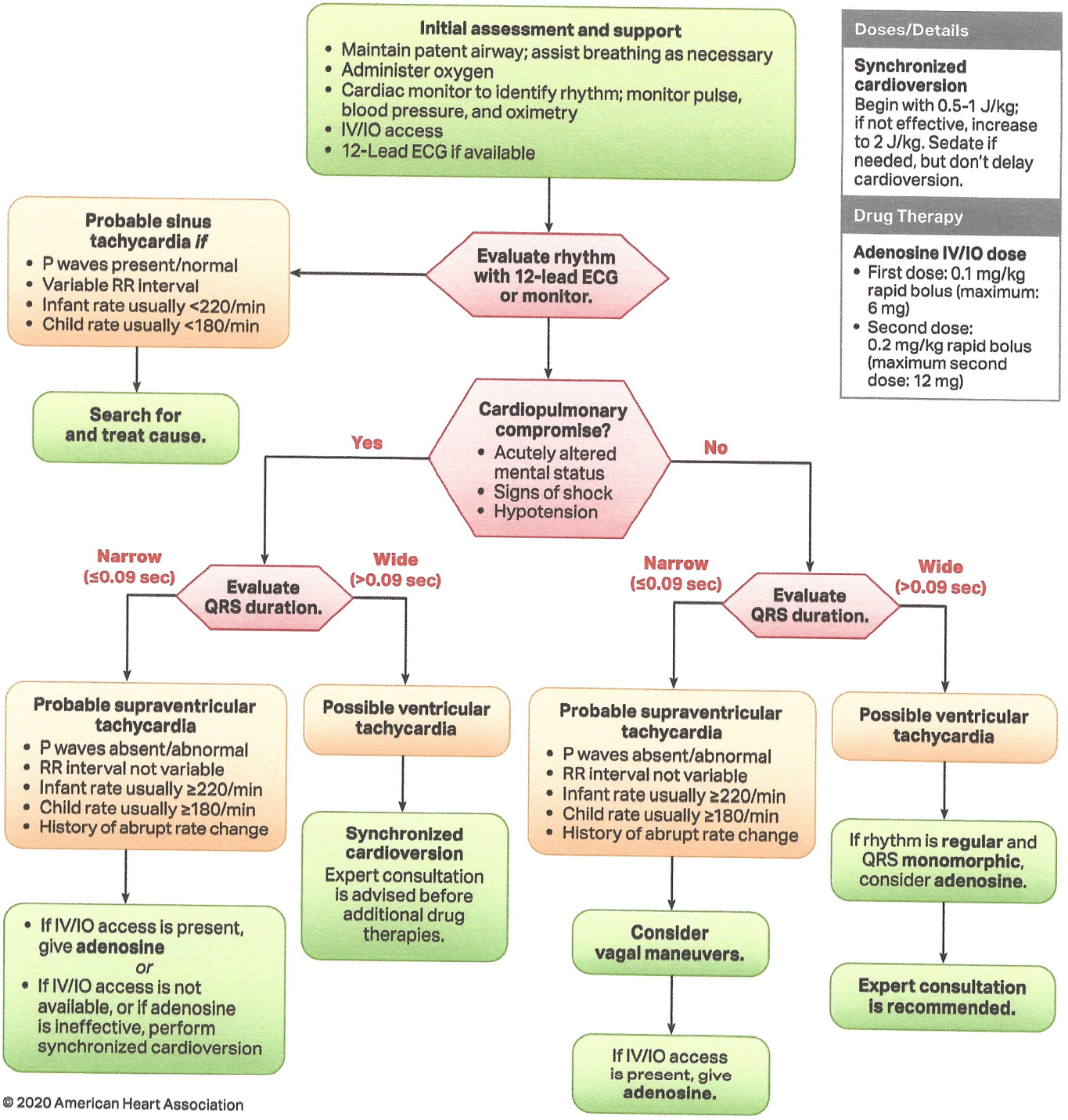
Epinephrine IV/IO dose: 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Repeat every 3-5 minutes. If IV/IO access not available but endotracheal (ET) tube in place, may give ET dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).

Atropine IV/IO dose: 0.02 mg/kg. May repeat once. Minimum dose 0.1 mg and maximum single dose 0.5 mg.

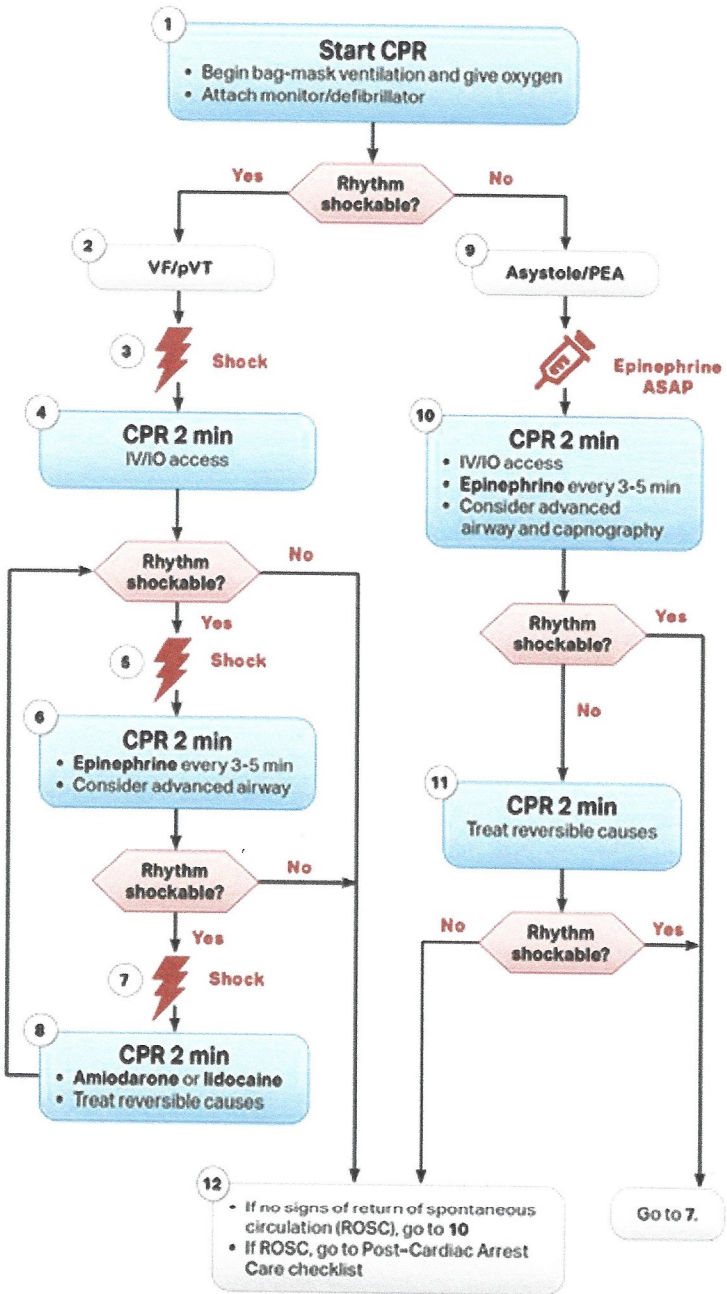
Possible Causes

- Hypothermia
- Hypoxia
- Medications

Pediatric Tachycardia With a Pulse Algorithm



Pediatric Cardiac Arrest Algorithm



CPR Quality

- Push hard (≥⅓ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds

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 IV/IO dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Max dose 1 mg. Repeat every 3-5 minutes. If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IV/IO dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT
  or
  Lidocaine IV/IO dose: Initial: 1 mg/kg loading dose

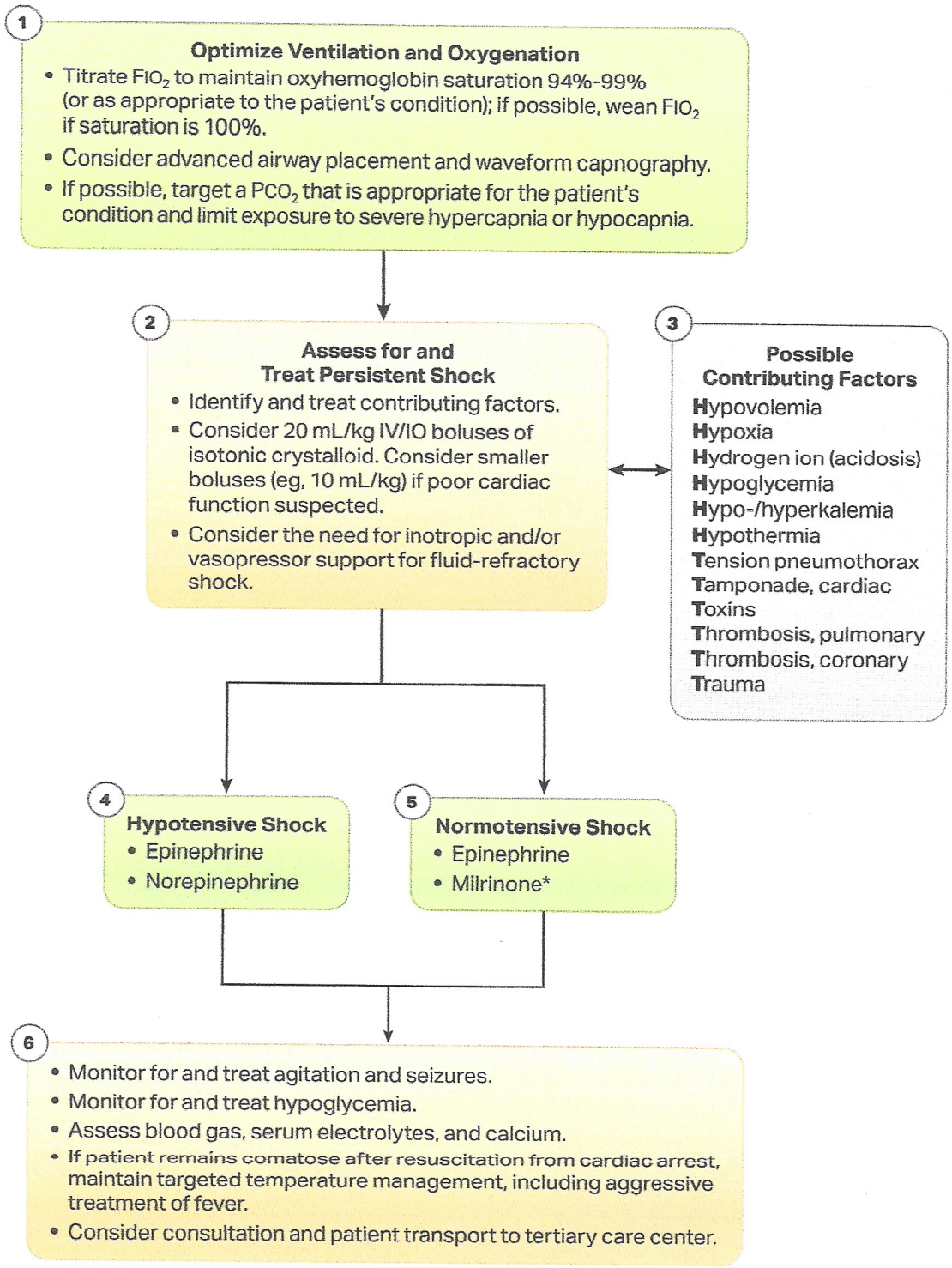
Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement

Reversible Causes

- **H**ypovolemia
- **H**ypoxia
- **H**ydrogen ion (acidosis)
- **H**ypoglycemia
- **H**ypo-/hyperkalemia
- **H**ypothermia
- **T**ension pneumothorax
- **T**amponade, cardiac
- **T**oxins
- **T**hrombosis, pulmonary
- **T**hrombosis, coronary

Figure 53. PALS Management of Shock After ROSC Algorithm.



*Milrinone can cause hypotension, so use and initiation of it should generally be reserved for those experienced with its use, initiation, and side effects (eg, ICU personnel).