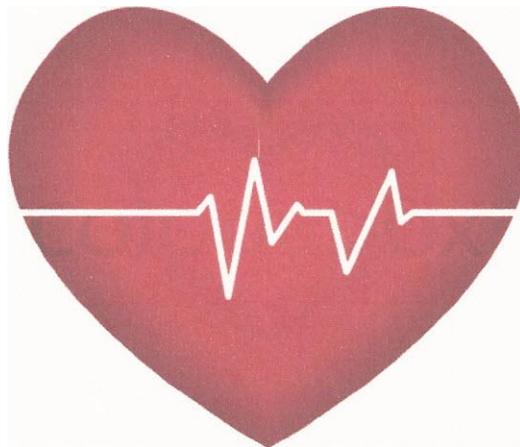


HeartSmart

2015 PALS Guidelines



HeartSmartacls.com

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PALS drugs and dosages

Bradycardia

Epinephrine

Increases HR, peripheral vascular resistance and cardiac output, During CPR increases myocardial and cerebral blood flow

IV/IO

0.01 mg/kg 1: 10,000 (0.1 ml/kg) q3-S 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

Smg/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

2S-S0mg/kg over 10-20 min max 2grams

Miscellaneous

Glucose Increases blood glucose, protects from hypoglycemia when insulin is used in hyperkalemia treatment

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

Narcan Opiate antagonist

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

Sodium Bicarb pH buffer in prolonged arrest

IV/IO 1mEq/kg slowly

BLS Healthcare Provider Pediatric Cardiac Arrest Algorithm for 2 or More Rescuers-2015 Update

Verify scene safety

Victim is unresponsive.
Shout for nearby help.

First rescuer remains with victim.
Second rescuer activates emergency response system and retrieves AED and emergency equipment.

Provide rescue breathing:
1 breath every 3-5 seconds, or about 12-20 breaths/min.

- Add compressions if pulse remains *560/min* with signs of poor perfusion.
- Activate emergency response system (if not already done) after 2 minutes.
- Continue rescue breathing; check pulse about every 2 minutes. If no pulse, begin CPR (go to "CPR" box).

Normal

breathing, Monitor until has pulse emergency responders arrive.

Look for no breathing or only gasping and check pulse (simultaneously).
Is pulse **definitely** felt within 10 seconds?

No breathing or only gasping, no pulse

No normal breathing, has pulse

CPR

First rescuer begins CPR with 30:2 ratio (compressions to breaths).
When second rescuer returns, use 15:2 ratio (compressions to breaths).
Use AED as soon as it is available.



AED analyzes rhythm.
Shockable rhythm?

Yes, shockable

No,

nonshockable

Give 1 shock. Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check).
Continue until ALS providers take over or victim starts to move.

Resume CPR immediately for about 2 minutes (until prompted by AED to allow rhythm check).
Continue until ALS providers take over or victim starts to move.

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PALS Systematic Approach

Initial Impression

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

Primary Assessment

A,B,C,D,E

Secondary Assessment

SAMPLE History

Identify the Problem

Respiratory or Circulatory

Intervene

M.O.V.E your patient

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

O- 02-94-99⁰/o-pulse ox is not always reliable

V- venous access-IO is immediate!-check BG

E- EKG-try quick interventions (vagal)

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Respiratory

Upper is above the lungs Lower is in the lungs

Distress vs Failure

Failure is decreased oxygenation and ventilation

Distress until too tired to compensate leads to failure

Lung Tissue Disease

Blocks gas exchange causing decreased oxygen saturation

Think fluids or mucus

Disordered Control of Breathing

Neurological source. Think seizures or ICP

Circulatory

Bradycardia

Try improving oxygenation first to stimulate an increased heartrate

Tachycardia

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

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Management of Respiratory Emergencies

BLS FIRST - Airway Position-Oxygen-Pulse Oximetry-EKG Monitor

UPPER AIRWAY OBSTRUCTION

Croup	Anaphylaxis	Aspiration/Foreign Body
<ul style="list-style-type: none"> *Nebulized Epinephrine *Corticosteroids 	<ul style="list-style-type: none"> *IM Epinephrine *Albuterol *Antihistamines *Corticosteroids 	<ul style="list-style-type: none"> * Allow position of comfort *Specialty Consultation

LOWER AIRWAY OBSTRUCTION

Bronchiolitis	Asthma
<ul style="list-style-type: none"> *Nasal Suctioning *Bronchodialator trial 	<ul style="list-style-type: none"> *Albuterol = Ipratropium *Corticosteroids *Subcutaneous Epinephrine *Magnesium Sulfate *Terbutaline

Disordered Control of Breathing

Increased ICP	Poison/OD NeuroMuscular
<ul style="list-style-type: none"> *Avoid hypoxemia *Avoid Hypercarbia 	<ul style="list-style-type: none"> *Antidote *Contact Poison Control *Non invasive ventilator support

LUNG TISSUE (PARENCHYMAL) DISEASE

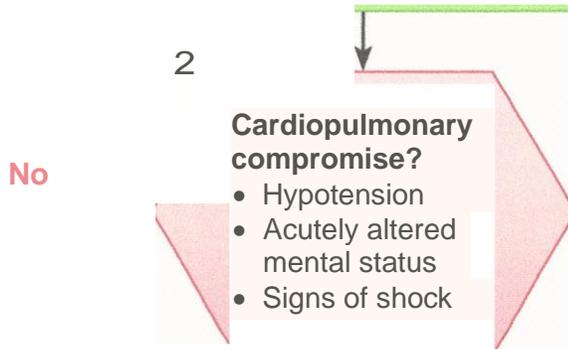
Pneumonia	Pulmonary Edema/ARDS
<ul style="list-style-type: none"> *Albuterol *Antibiotics as ordered 	<ul style="list-style-type: none"> *PEEP (consider) *Vasoactive support (consider) *Diuretic (consider)

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



3

Yes

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

• Support ABCs

- Give oxygen
- Observe
- Consider expert consultation

No

4

Bradycardia persists?

Yes

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

Doses/Details

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

6

~Useless arrest develops, go to Cardiac Arrest Algorithm~

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Tachycardia with Pulses and Adequate Perfusion

IDENTIFY AND TREAT UNDERLYING

CAUSE

- *Maintain patent airway and assist breathing as necessary
- *Oxygen
- *Cardiac monitor to identify rhythm, monitor BP, and oximetry
- *12 lead if practical

Evaluate QRS Duration

NARROW (<0.09 SEC)

Probable Sinus Tach - P waves normal, rate <220 infant or <180 child

Probable SVT - P waves abnormal, rate >220 infant or > 180 child

Search for and treat cause, Consider vagal maneuver

Consider Adenosine 0.1 mg/kg IV, 2nd dose 0.2 mg/kg

WIDE (>0.09 SEC)

Probable V-Tach

Expert consultation strongly recommended

Search for and treat cause, Obtain 12 lead EKG

Consider Pharmacologic Conversion

Amiodarone 5mg/kg IV over 20-60 minutes

Procainamide 15 mg/kg IV over 30-60 minutes

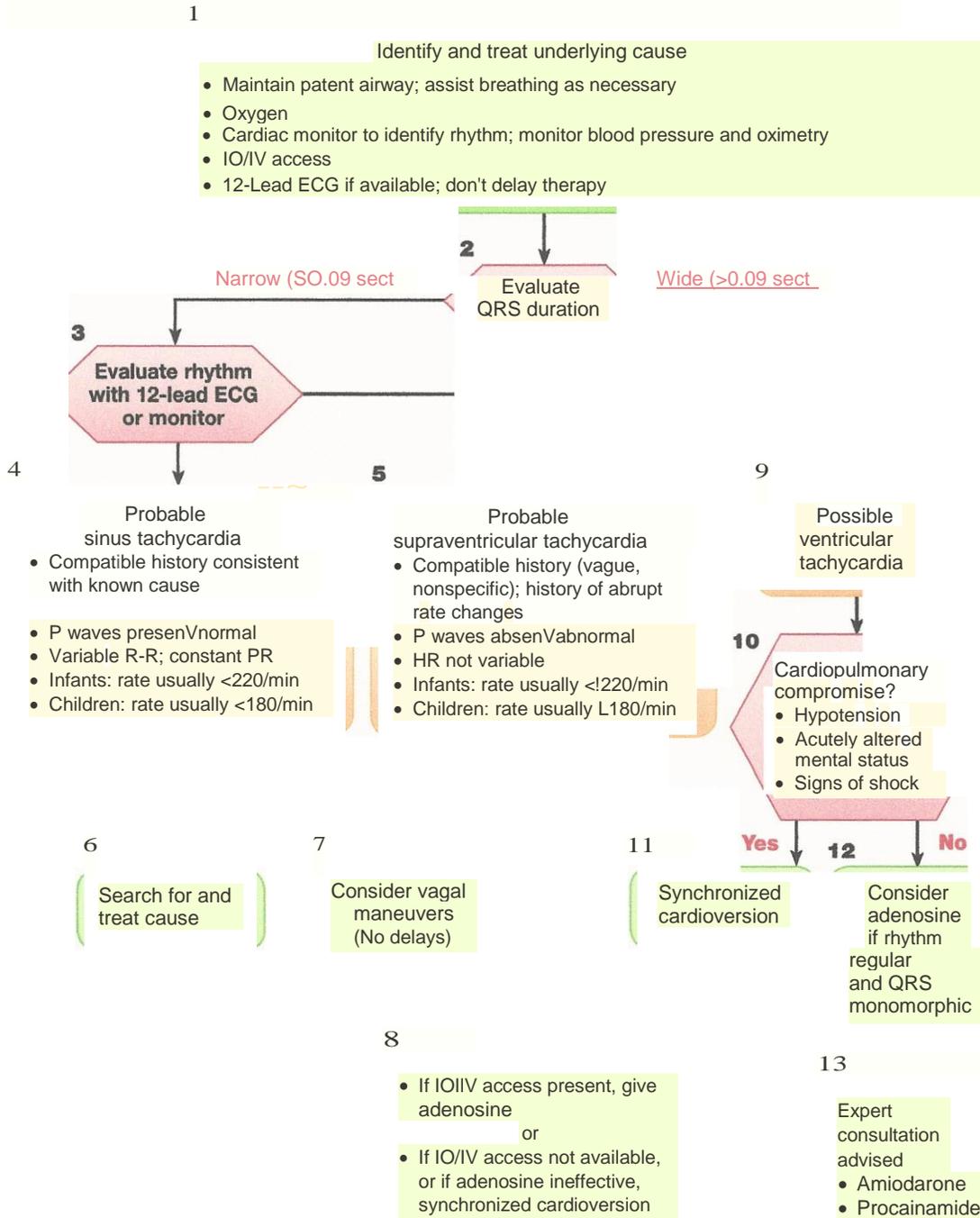
May attempt Adenosine if not already administered

Consider Electrical Conversion

Consult Pediatric Cardiologist

Attempt with 0.5-1 J/kg, then 2 J/kg

Pediatric Tachycardia With a Pulse and Poor Perfusion Algorithm



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Post Resuscitation Care

Management of Shock After ROSC

Optimize Ventilation and Oxygenation

*Titrate FiO₂ to maintain oxyhemoglobin saturation >94. If possible wean if saturation is 100

*Consider advanced airway placement and waveform capnography

Assess for and Treat Persistent Shock

*Identify and treat contributing factors **

*Consider 20 ml/kg IV/IO boluses of isotonic crystalloid. Consider smaller boluses (10 mg/kg) if poor cardiac function suspected.

*Consider the need for inotropic and/or vasopressor support for fluid refractory shock.

Hypotensive Shock

- * Epinephrine
- * Dopamine
- * Norepinephrine

Normotensive Shock

- * Dobutamine
- * Dopamine
- * Epinephrine
- * Milrinone

Monitor and treat for seizures and hypoglycemia

Assess blood gas, serum electrolytes, and calcium

If patient remains unresponsive, consider hypothermia

** hypovolemia, hypoxia, hydrogen ions, hypoglycemia, hypo/hyper kalemia, hypothermia, tension pneumothorax, tamponade, toxins, thrombosis, trauma

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Management of Septic Shock

Recognize altered mental status and perfusion.
Give oxygen and support ventilation; establish vascular access and
Begin resuscitation according to PALS guidelines.
Consider VBG or ABG, lactate, glucose, ionized calcium cultures, CBC

FIRST HOUR

*Push repeated 20ml/kg boluses of isotonic crystalloid to treat shock. Give 3 or more boluses unless rales, respiratory distress, or hepatomegaly develops.

*Correct hypoglycemia and hypocalcemia

*Administer first dose antibiotics STAT

*Consider ordering STAT vasopressor drip and stress dose hydrocortisone**



FLUID RESPONSIVE?? (normalized perfusion/hemodynamics)

ES - IeU Monitoring

N - Continu

*Begin vasoactive drug therapy and titrate to correct hypotension/poor perfusion. Consider arterial or central access.

*Normotensive-begin Dopamine

*Hypotensive-vasodilated (warm) shock-begin Norepinephrine

*Hypotensive-vasoconstricted cold shock-begin Norepinephrine

EVALUATE Scvo₂; goal sat > 70%

Treat according to your facility's protocols