PALS Study Guide (Pediatric Advanced Life Support)

Information in this Study Guide is based on the American Heart Association's

2025 Guidelines for Resuscitation

This study guide was created by Express Training Solutions and is meant as a quick reference to help students focus on key concepts and enhance their learning. **The AHA still requires that each student have their own copy of the most current PALS Provider Manual before, during and after the course.**

Pre-Course Requirements for Classroom Courses: The PALS course now requires a mandatory **PALS Precourse Self-Assessment and Video Prework** with a passing score of at least 70%. Students may take the self-assessment as many times as needed. Please bring your Certificate of Completion with you to the PALS class or email in advance to **info@cprflorida.net** Instructions for accessing the Precourse Requirements are included in your registration confirmation.

Pre-Course Requirements for Blended Courses: Students taking a Blended PALS Course such as the Fast-Track need to complete the Heartcode PALS Online Course. Fast-Track and 1Stop Station with Access registrations include Heartcode Access and instructions are provided via email. Skills Only students must purchase/obtain the Heartcode PALS Online Course separately. Please bring your Certificate of Completion with you to the skills class or email in advance to **info@cprflorida.net**

PALS Written Exam: The PALS Provider exam is 50 multiple-choice questions, with a required passing score of 84%. All AHA exams are now "open resource" which means student may use the PALS manual, study guides, handouts and personal notes during the exam. Using the PALS Provider Manual ahead of time with the online resources is very helpful.

Pediatric BLS Review

Assessment Steps for BLS

1. Make sure scene is safe for rescuer and victim
2. Tap/shout to check for responsiveness
3. Call for help if patient is unresponsive
4. Check for pulse and breathing (at least 5, no more than 10 seconds)
5. If no pulse (or not sure) begin CPR

✓ If you are alone and have no cell phone, do 2 minutes of CPR before activating EMS or take the child with you to a phone

Compressions

- ✓ At least 1/3 depth of the Child or Infant's chest (approximately 5cm/2 inches for child and 4cm/1.5 inches for infant)
- ✓ Compress at a rate between 100 – 120/min and allow for full chest recoil between compressions
- ✓ Interruptions in compressions should be < 10 seconds, switch compressors every 2 min. or sooner if fatigued
- ✓ PEtCO2 (intubated) < 10 mmHg indicates poor compression quality

Ventilations During CPR

- ✓ Each breath given over 1 second, an effective breath will result in visible chest rise. Avoid excessive ventilation
- ✓ Single rescuer compressions to breaths ratio of 30:2, if multiple rescuers are present, use a 15:2 ratio or other adv. protocols that maximize CCF
- ✓ Advanced Airway: 1 ventilation every 2-3 seconds, or other advanced protocols that maximize CCF

Airway, Ventilations, and Respiratory Issues

- ✓ Ventilations without Compressions (Rescue Breathing): 1 breath every 2-3 seconds, give breaths gently, over 1 second
- ✓ Difficulty positioning airway for patency and audible snoring, consider placement of an OPA or NPA
  - OPA Placement = Measure from the corner of the mouth to the angle of the mandible
  - NPA Placement = Measure from the tip of the nose to the tragus of the ear
- ✓ Difficulty Ventilating, unequal chest movement or breath sounds; consider pneumothorax, higher risk with mechanical ventilation, lung disease history like asthma. If the patient has a pneumothorax, they will need placement of a Chest Tube. If it is a Tension Pneumothorax, the patient will need a Needle Decompression and Chest Tube
- ✓ Waveform Capnography is the most reliable method for both confirming and monitoring ETT placement

Chest Compressions and Chest Compression Fraction (CCF)

- ✓ Should be at least 60% but with good teamwork and effort, greater than 80% may be achieved
- ✓ Pre-charge defibrillator before conducting a rhythm check can help increase chest compression fraction (CCF)
- ✓ Locating a pulse before stopping CPR for a rhythm check can help increase chest compression fraction (CCF)

Defibrillation

- ✓ Initial shock of 2 to 4 joules, always resume CPR immediately after a shock

PALS Study Guide (Pediatric Advanced Life Support)

Team Dynamics Review

- ✓ Clear roles and responsibilities: Team leader should clearly delegate tasks
- ✓ Knowing your limitation: Stay in scope of practice / ask for a new role if inappropriately assigned
- ✓ Constructive interventions: if someone is about to make a mistake address that team member immediately
- ✓ Knowledge sharing
- ✓ Summarizing and Re-evaluation
- ✓ Clear and Closed loop communication: Repeat back the order, clarify if intervention or dose is incorrect
- ✓ Mutual respect
- ✓ Team Roles: Team Leader, Compressor, Airway, Medications, Monitor/Defib, Recorder/Timer, CPR Coach
- ✓ CPR Coach focuses on ensuring high quality CPR and improving CCF

Systematic Approach Review

- ✓ Immediate Intervention in needed for anyone with signs of a life-threating condition such as airway obstruction, apnea, significant increased work of breathing, bradypnea, poor perfusion or hypotension, bradycardia, decreased level of consciousness, hypo or hyperthermia, significant bleeding and more.
- ✓ Always check glucose during the primary assessment for anyone with a mental status change

Initial Impression	**Primary Assessment**	**Secondary Assessment**

• This is a quick "doorway" assessment looking at the child's Appearance, Work of Breathing, and Circulation
• Is the child in failure or distress?
	• Airway
	• Breathing
	• Circulation
	• Disability
	• Exposure
		• Head to Toe Physical
		• History: SAMPLE
		  ○ **S**igns and Symptoms
		  ○ **A**llergies
		  ○ **M**edications
		  ○ **P**ast Medical History
		  ○ **L**ast Meal
		  ○ **E**vents leading up to admission

Respiratory Complications Review

- ✓ Classic signs of Respiratory Distress include increased work of breathing, increased rate, retractions and use of accessary muscles, noisy breathing
- ✓ Consider chest x-ray, blood gas, position of comfort, monitoring
- ✓ **Respiratory Failure** is inadequate Oxygenation or inadequate Ventilation, or both. Immediately initiate bag-mask ventilation. A decrease in the respiratory rate with a worsening condition could be a sign of respiratory failure.

Upper Airway Obstruction	**Lower Airway Obstruction**
• Inspiratory Stridor is a common finding • Foreign Body, Croup, Epiglottitis, Anaphylaxis, Trauma • VS, oxygen, monitor, IV, CXR, possible blood gas • Nebulized Epi (Racemic Epinephrine), Steroids • Keep child calm to prevent situation from worsening	• Expiratory Wheezing is a common finding • Asthma, Bronchiolitis • VS, oxygen, monitor, IV, CXR, possible blood gas • Bronchodilator (Albuterol) / Steroids • Consider CPAP or BiPAP
Lung Tissue Disease	**Disordered Control of Breathing**
• Expiratory Grunting is a common finding • Crackles often heard on auscultation • Hypoxemia despite oxygen administration • Pneumonia • O2, monitor, IV, CXR, blood gas, CBC, Cultures • Antibiotics within first hour, provide supportive care	• Absent or abnormal breathing • Toxins, poisons, head trauma, seizures • Ensure adequate oxygen **and** ventilation • Treat the underlying cause to correct

PALS Study Guide (Pediatric Advanced Life Support)

Shock/Circulatory Complications Review

- ✓ IO placement is an acceptable option if IV access cannot quickly be established. Contraindications to IO placement include previous attempts, infection, or fracture / crush injury in the same extremity.
- ✓ In Shock but BP is acceptable = **Compensated** / BP is unacceptable = **Hypotensive**
  - Acceptable BP is 70 + 2(age in years). Example: 4 y/o is compensated if his systolic pressure is greater than 78.
- ✓ Fluid Boluses should be administered over 5-10 minutes (slower if suspected cardiogenic shock)

Hypotension for Infants (1-12 months)	Hypotension for Children (1-10 years)	Hypotension for Children > 10 years
Systolic < 70	Systolic <70+ (age in years × 2)	Systolic <90

Hypovolemic Shock

- Blood or fluid loss
- Treat with fluid bolus and consider blood products
- Standard bolus: 20cc/kg of Isotonic Crystalloids with Normal Saline being the most common
- Deliver bolus over 5 to 10 minutes

Obstructive Shock

- Must fix the underlying cause
- Examples: Cardiac Tamponade, Tension Pneumothorax, PE
- Consider CPAP or BiPAP
- Tension Pneumothorax is most common type of obstructive shock requiring a needle decompression and chest tube

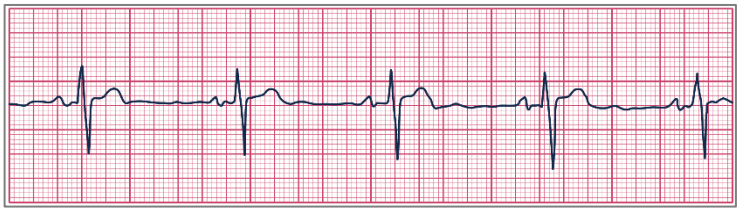
Cardiovascular Shock

- Pulmonary edema and possibly enlarged heart
- Consult Cardiology / 12 lead / Ultrasound
- Consider smaller/slower boluses if needed (10cc/kg)
- Consider CPAP/BiPap to mobilize fluids

Distributive Shock

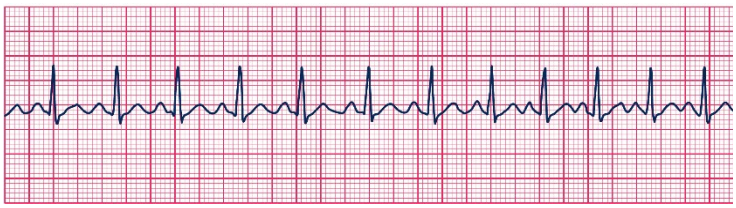
- Initial phase may show high fever, flushed skin bounding pulses
- More common in individuals with a weak immune system such as cancer patients
- Support oxygenation and ventilation, support blood pressure
- Antibiotics within the first hour

Cardiac Complications Review

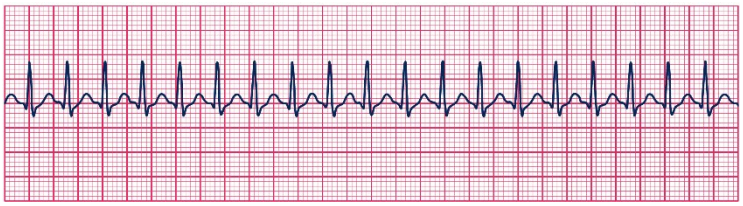


Normal Sinus Rhythm
Acceptable rate range varies according to age

Sinus Bradycardia
Most common, usually Resp/oxygen related. If patient is compromised and not an immediate Respiratory fix, start CPR. Epi is the first drug for Pediatric patients

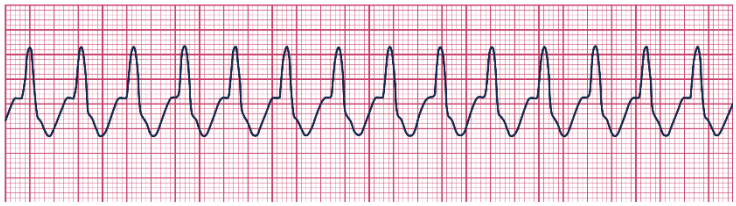
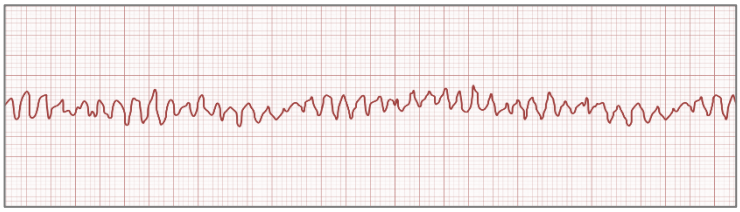
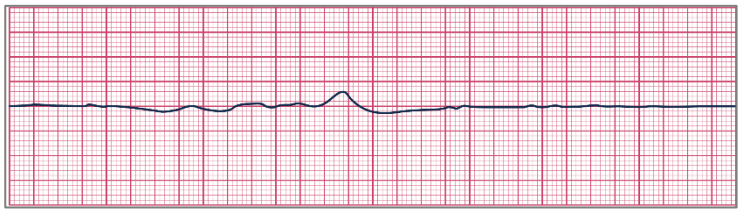


Sinus Tachycardia
Response to fever, pain, dehydration, physical exertion. Corrected by treating the underlying cause



Supraventricular Tachycardia
HR greater than 220 in Infants, and 180 in Children. P wave can be absent or abnormal; rate does not vary with activity. If stable, consider Vagal Maneuvers but do not waist time if unstable. Adenosine or Synchronized Cardioversion

PALS Study Guide (Pediatric Advanced Life Support)

	**Ventricular Tachycardia** Always verify if pulse is present. If so, use the Tachycardia Algorithm, wide complex. If no pulse, use the Cardia Arrest Algorithm. Shockable Rhythm (defib), Meds: Epi and Amiodarone (or Lidocaine) if refractory
	**Ventricular Fibrillation** As with Pulseless V-tach, Shockable Rhythm (defib), Meds: Epi and Amiodarone (or Lidocaine) if refractory
	**Asystole** High Quality CPR with minimal interruptions. Meds: Epi Non-Shockable

Pulseless Electrical Activity (PEA) ✓ PEA is a condition, not a rhythm. The heart has an organized rhythm but there is no mechanical activity (squeeze). ✓ If a patient has no pulse and the rhythm is not Asystole, V-Tach, or V-Fib, it is the condition known as PEA	**Post-Arrest after ROSC** ✓ Maintain O2 saturations between 94% - 99% ✓ Support and maintain adequate blood pressure ✓ Monitor for and treat hypoglycemia ✓ If patient remains comatose, maintain targeted temperature manage and treat fevers aggressively. it is recommended to avoid central temperatures >37.5 °C.