


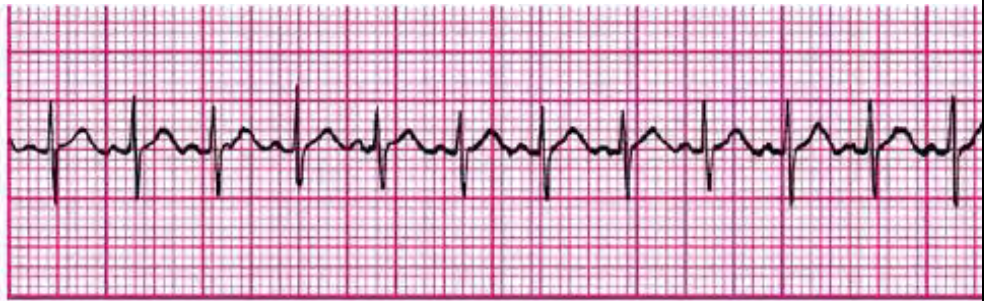
PALS Precourse Self-Assessment Study Guide

The PALS Course requires a mandatory **Precourse Self-Assessment** with a passing score of at least 70%. A Student may take as many times as needed. How to Find Precourse Self-Assessment Course for Traditional PALS Course, click on link. <https://elearning.heart.org/course/1639>
 How to Find Precourse Self-Assessment Course and Precourse Work for PALS Course (AHA Preferred), click on link. <https://elearning.heart.org/course/1538>

11 rhythm strips on Precourse Self-Assessment with the following matching choices:




Normal Sinus Rhythm Sinus Tachycardia Sinus Bradycardia Supraventricular Tachycardia (SVT) Wide-Complex Tachycardia: presumed ventricular tachycardia (Monomorphic) Ventricular Fibrillation (VF)	Asystole Pulseless Electrical Activity (PEA) SVT converting to sinus rhythm after adenosine administration Torsades de Pointes VF with successful defibrillation and resumption of organized rhythm
--	---

Rhythm Identification

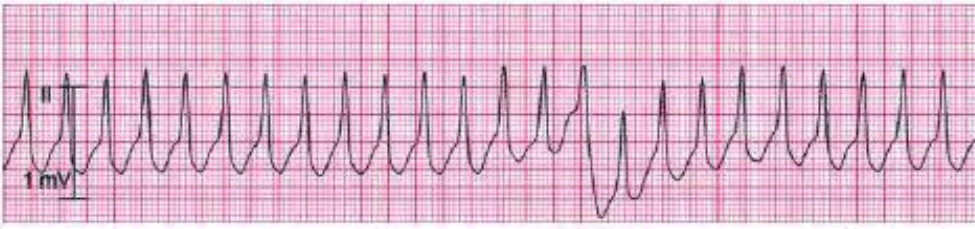
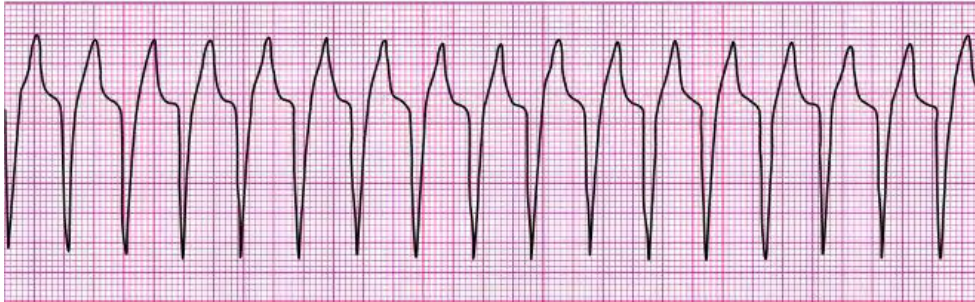

RHYTHM IDENTIFICATION	CRITERIA OVERVIEW	MEDICATION	SAMPLE STRIPS
<p>Normal Sinus Rhythm</p> <ul style="list-style-type: none"> Normal, None Acceptable rate range varies according to age 	RHY – Regular R – 60-100 P – Upright PRI – 0.12-0.20 QRS – 0.04-0.10	None required	Clinical Clues: age 8 years; heart rate 78/min 
<p>Sinus Tachycardia</p> <ul style="list-style-type: none"> Exercise Anxiety Caffeine Nicotine Fever Shock CHF Hypotension Pain Hypoxemia Anterior MI 	RHY – Regular R – 100-160 P – Upright PRI – 0.12-0.20 QRS – 0.04-0.10	Response to fever, pain, dehydration, physical exertion. Corrected by treating the underlying cause	Clinical Clues: febrile infant; heart rate 188/min 

The American Heart Association strongly promotes knowledge and proficiency in all AHA courses and has developed instructional materials for this purpose. Use of these materials in an educational course does not represent course sponsorship by the AHA. Any fees charged for such a course, except for a portion of fees needed for AHA course materials, do not represent income to the AHA




PALS Precourse Self-Assessment Study Guide

RHYTHM IDENTIFICATION	CRITERIA OVERVIEW	MEDIICATION	SAMPLE STRIPS
<p><i>Sinus Bradycardia</i></p> <ul style="list-style-type: none"> Damage SA Normal sleep athletes Vagal Glaucoma Hypothermia Inferior MI Drugs – MS, digoxin, Inderal IICP 	<p>RHY – Regular R – Below 60 P – Upright PRI – 0.12-0.20 QRS – 0.04-0.10</p>	<p>Most common, usually Resp/oxygen related. If patient is compromised and not an immediate Respiratory fix, start CPR. Epinephrine is the first drug for Pediatric patients</p> <p>Epinephrine (1:10,000) 0.01 mg/kg IV or IO every 3 to 5 minutes</p> <p>Epinephrine (1:1,000) 0.1 mg/kg ETT every 3 to 5 minutes</p> <p>Atropine 0.02 mg/kg IV or IO with a minimum single dose of 0.1 mg and a maximum single dose of 0.5mg</p>	<p>Clinical Clues: age 3 months; heart rate 65/min</p>  <p>Clinical Clues: age 7; heart rate 38/min</p> 
<p><i>Supraventricular Tachycardia (SVT)</i></p> <ul style="list-style-type: none"> Not visible sudden start or stop HR greater than 220 in Infants, and 180 in Children 	<p>RHY – Regular R – 160 - 250 P – Upright PRI – 0.12-0.20 QRS – 0.04 – 0.10</p> <p>P wave can be absent or abnormal, rate does not vary with activity</p>	<p>If stable, consider Vagal Maneuvers but do not waste time if unstable.</p> <p>Adenosine or Synchronized Cardioversion</p> <p>Adenosine 1st dose = 0.1 mg/kg IV/IO rapid push to Max dose of 6 mg</p> <p>2nd dose = 0.2 mg/kg IV/IO rapid push to Max dose of 12 mg</p>	<p>Clinical Clues: heart rate 300/min</p> 



PALS Precourse Self-Assessment Study Guide

RHYTHM IDENTIFICATION	CRITERIA OVERVIEW	MEDICATION	SAMPLE STRIPS
<p>Wide-Complex Tachycardia; presumed Ventricular Tachycardia (Monomorphic)</p> <ul style="list-style-type: none"> All complexes are the same shape and look the same 	<p>RHY – Regular R – Above 100 P – None PRI – None QRS – <u>Wide, bizarre</u></p>	<p>Adenosine 0.1 mg/kg IV rapid push or IO rapid push (6mg maximum dose)</p> <p>Amiodarone 5 mg/kg IV or IO in 20 to 60 minutes</p> <p>Procainamide 15 mg/kg IV or IO in 30 to 60 minutes</p>	<p>Clinical Clues: heart rate 214/min</p>  <p>Clinical Clue: heart rate 150/min</p> 
<p>Ventricular Fibrillation (VF)</p> <ul style="list-style-type: none"> Following V Tach Acute MI Electrolyte Imbalance 	<p>RHY – Chaotic R – None P – None PRI – None QRS – None, fibrillatory line</p>	<p>Epinephrine (1:10,000) 0.01 mg/kg IV or IO every 3 to 5 minutes</p> <p>If Refractory: Amiodarone 5mg/kg IV or IO</p> <p>Lidocaine 1 mg/kg by IV or IO</p>	<p>Clinical Clue: no detectable pulses</p> 

PALS Precourse Self-Assessment Study Guide

RHYTHM IDENTIFICATION	CRITERIA OVERVIEW	MEDICATION	SAMPLE STRIPS
<p>Asystole</p> <ul style="list-style-type: none"> Primary event in cardiac arrest Untreated V-Tach or V-Fib 	<p>RHY – None unless only Ps R – No Vent rate P – May be present PRI – None QRS – None</p>	<p>No Pulse Start high quality CPR with minimal interruptions</p> <p>Epinephrine (1:10,000) 0.01 mg/kg IV or IO every 3 to 5 minutes</p>	<p>Clinical Clue: no detectable pulses</p> 
<p>Pulseless Electrical Activity (PEA)</p> <ul style="list-style-type: none"> Any Organized Rhythm without a PULSE 		<p>Epinephrine (1:10,000) 0.01 mg/kg IV/IO every 3 to 5 minutes</p> <p>Epinephrine (1:1,000) 0.1 mg/kg ETT every 3 to 5 minutes</p>	<p>Clinical Clue: heart rate 44/min; no detectable pulses</p> 
<p>SVT converting to sinus rhythm after adenosine administration</p>	<p>RHY – Regular R – 160 – 250+ P – Upright PRI – 0.12-0.20 QRS – 0.04 – 0.10</p>	<p>Adenosine 1st dose = 0.1 mg/kg IV rapid push to max of 6 mg</p> <p>2nd dose = 0.2 mg/kg IV rapid push to max of 12 mg</p>	<p>Clinical Clue: initial rhythm associated with heart rate 300/min</p> 

PALS Precourse Self-Assessment Study Guide

RHYTHM IDENTIFICATION	CRITERIA OVERVIEW	MEDICATION	SAMPLE STRIPS
<p><i>Torsades de Pointes, Polymorphic Ventricular Tachycardia</i></p> <ul style="list-style-type: none"> • <i>Best treated with magnesium</i> 	<p>RHY – Chaotic waves R – None P – None PRI – None QRS – Points twist</p>	<p>Magnesium 25-50 mg/kg IV or IO</p>	<p>Clinical Clue: heart rate 200/min; no detectable pulses</p> 
<p><i>VF with successful defibrillation and resumption of organized rhythm</i></p>	<p>RHY – Chaotic R – None P – None PRI – None QRS – None, fibrillatory line SHOCK</p>	<p>Epinephrine (1:10,000) 0.01 mg/kg IV or IO Epinephrine (1:1,000) 0.1 mg/kg ETT Lidocaine 1 mg/kg IV or IO Amiodarone 5 mg/kg IV or IO</p>	<p>Clinical Clue: initial rhythm associated with no detectable pulses</p> 

PHARMACOLOGY

- Severe symptomatic bradycardia (heart rate 66/min) —First drug to administer is Epinephrine
- Resuscitating a child with ventricular fibrillation cardiac arrest. Deliver 2 shocks, establish IO access, give epinephrine 0.01 mg/kg. Persistent ventricular fibrillation. Administer shock, resume CPR. With persistent ventricular NOW administer Amiodarone 5 mg/kg IO
- Effects of standard code dose of epinephrine during resuscitation — Epinephrine decreases peripheral vascular resistance and reduces myocardial afterload
- Initial impression of a 2-year -old girl shows her to be alert with mild breathing difficulty during inspiration and pale skin color. Most appropriate initial intervention is humidified oxygen as tolerated
- Non-rebreathing face mask is the most reliable delivery system of high (90% or greater) concentration of inspired oxygen for a child
- Correct statement about endotracheal drug administration. The intravenous route is preferred
- Correct statement about the use of calcium chloride in pediatric patients. Routine administration of calcium chloride is not indicated during cardiac arrest

PALS Precourse Self-Assessment Study Guide

- Child is agitated and leaning forward in obvious respiratory distress, speaking in short phrases and says he has asthma but does not carry an inhaler Medication to prepare is Albuterol
- Initial assessment reveals a child who responds only to painful stimuli and has irregular breathing, faint central pulses, bruises over abdomen, abdominal distention and cyanosis. The cardiac monitor shows sinus bradycardia. CPR is started. The child is intubated and ventilated with oxygen, and IV access is established. Heart rate is now 150/min with weak central pulses but no distal pulses. Systolic blood pressure is 74 mm Hg — Intervention of rapid bolus of 20 mL/kg of isotonic crystalloid should be provided
- Infant with history of vomiting and diarrhea and responds only to painful stimulation. Respiratory rate is 40 breaths/minute and central pulses are rapid and weak. Infant has good bilateral breath sound, cool extremities, and capillary refill time of more than 5 seconds. Blood pressure is 85/65 mm Hg, and glucose is 30 mg/dL. Administer oxygen and start IV. — Treatment most appropriate is administer a bolus of isotonic crystalloid 20 mL/kg over 5 to 20 minutes, and also give D₂₅W 2 to 4 mL/kg IV

PRACTICAL APPLICATION

If you are alone PHONE FIRST: PHONE FAST

- Adult victim is unresponsive, not breathing and no pulse — phone FIRST.
- **CHILD** or **INFANT** who is unresponsive, is not breathing and does not have a pulse — phone FAST. Provide CPR for about 2 minutes before leaving to activate the emergency response system
- You are alone and witness a child suddenly collapse. After delivering 30 compressions, open the airway with a head tilt-chin lift maneuver and give 2 breaths

COMPRESSIONS:

RATIO

- Ratio of compressions to breaths for 1-rescuer **CHILD** and **INFANT** CPR is 30 compressions to 2 breaths
- Compression-to-ventilation ratio for 2-rescuer **CHILD** and **INFANT** CPR is 15 compressions to 2 breaths

DEPTH

- Compress the chest for an **INFANT** is at least one third the anteroposterior diameter of the chest, approximately 1 ½ inches (4 cm)
- Compress the chest for a **CHILD** is at least one third the anteroposterior diameter of the chest, approximately 2 inches (5 cm)

RATE

- Chest compressions for **CHILD** and **INFANT** CPR is to compress at a rate of 100 to 120 per minute
- You and another rescuer begin CPR. After a few cycles, you notice that the compression rate is too slow. Offer constructive feedback and say, “You need to compress faster, at a rate of 100-120 per minute.”

RECOIL

- Allowing complete chest recoil is important when performing high-quality CPR so the heart will refill with blood between compressions

HAND PLACEMENT

- **CHILD** (1 year of age to puberty) 1 or 2 hands in the center of the chest, on the lower half of the sternum
- **INFANT** (younger than 1 year, excluding newborns)
1-rescuer — Heel of 1 hand or 2 thumb-encircling hands technique
2 or more rescuers — Heel of 1 hand or 2 thumb-encircling hands technique

BREATHS:

- Rescuers ensure that they are providing effective breaths when using a bag-mask device by observing chest rise with each breath
- During bag-mask ventilation, ensure effective seal between the child’s face and the mask by positioning your fingers using the E-C clamp technique
- Provide breaths for a **CHILD** or **INFANT** with a pulse — 1 breath every 2 to 3 seconds

PALS Precourse Self-Assessment Study Guide

- An 8-month-old infant with severe diarrhea and dehydration becomes unresponsive, apneic, and pulseless. Start 2-rescuer CPR. Pulseless electrical activity (PEA) is shown on the monitor. The infant is intubated and ventilated with 100% oxygen. An IO line is established, and a dose of epinephrine is given. Next — Give isotonic crystalloid 20 mL/kg IO rapidly
- A 10-month-old infant on initial assessment is lethargic, pale with slow respirations and slow, weak central pulses. The team begins ventilation with a Bag-mask, attaches defibrillator, obtains vitals, and attempts to establish IV/IO access. Blood pressure is 58/38 mm Hg and heart rate 38/min with sinus bradycardia on the monitor. Chest compressions are started and IO access is obtained. Medication to be given is Epinephrine 0.01 mg/kg IO
- A 3-year-old unresponsive, apneic child is receiving CPR with a bag-mask ventilation. Ventricular fibrillation is shown on the monitor. A biphasic manual defibrillator is present. You quickly use the color-coded length-based resuscitation tape to estimate approximate weight as 15 kg. appropriate therapy for child is to attempt defibrillation at 30 J, and then resume CPR, beginning with compressions
- A 10-year-old boy is unresponsive, not breathing and has no pulse. Begin CPR, attempt defibrillation, continue CPR administer Epinephrine 0.01 mg/kg IV. If ventricular fibrillation or pulseless ventricular tachycardia persists after CPR, administer another shock. Drug and dose administered next — Lidocaine 1mg/kg IV
- A 1-year-old boy is evaluated for poor feeding, irritability, and sweating. The child is lethargic, labored breathing, very rapid pulses, and dusky color. Administer high-flow oxygen. Supraventricular tachycardia (SVT) is present. Appropriate therapy for child is administer Adenosine 0.1 mg/kg IV rapid push
- A child becomes unresponsive and is not breathing, uncertain if a pulse is present. Asystole is seen on the cardiac monitor. Next action is to start high-quality CPR
- You are preparing to use a manual defibrillator in a pediatric setting. It is appropriate to use the smaller, pediatric-sized paddles if the child is less than 8 years old.
- A 7-year-old boy is found unresponsive, apneic, and pulseless, CPR is ongoing. ECG monitor shows an organized rhythm with a heart rate of 45/min but no palpable pulses. High-quality CPR resumes, initial IV dose of epinephrine is administered. Next — Identify and treat reversible causes
- An irritable 6-year-old girl with mottled skin color. Patient is febrile, extremities are cold, capillary refill is 5 seconds. Distal pulses are absent and central pulses are weak. Heart rate is 180/min, respiratory rate is 45/min, blood pressure is 98/56 mm Hg. Categorize child's condition — Compensated shock associated with tachycardia and inadequate tissue perfusion.
- An 8-year-old child was struck by a car and is alert, anxious, and in respiratory distress. Breath sounds are absent over the right chest but present over the left chest, and the trachea is deviated to the left. Perform needle decompression of the right chest
- An 18-month-old child has a 1-week history of cough and runny nose. Child has diffuse cyanosis, slow respiration rate and rapid central pulses. Most appropriate immediate interventions — Open the airway and provide positive-pressure ventilation using 100% oxygen and a bag-mask device
- You supervise insertion of IO needle into an infant's tibia — "Fluids can be administered freely without local tissue swelling"
- A 3-year-old child with a history of diarrhea. After placing the child on a nonbreathing face mask (10-L/min flow) with 100% oxygen and obtaining vascular access, the most appropriate treatment is to administer a bolus of 20 mL/kg isotonic crystalloid
- Adequate bilateral breath sounds and chest expansion plus detection of ET_{CO}₂ with waveform capnography provides a reliable, prompt assessment of correct endotracheal tube placement
- A 4-year-old boy is in pulseless arrest. High-quality CPR is in progress. The monitor shows Torsades de Pointe rhythm. Patient received Epinephrine 0.01 mg/kg, but rhythm continues. Most appropriate medication to administer is Magnesium sulfate 25 to 50 mg/kg IV
- Estimated size of the uncuffed endotracheal tube for average-sized 4-year-old child is 5.5-mm tube
- A 3-year-old with vomiting and diarrhea. Pulses are palpable but faint. Child is now lethargic with heart rate variable (range, 44/min to 62/min) Begin bag-mask ventilations. Heart rate does not improve, begin chest compressions. Sinus bradycardia is on monitor. Most appropriate therapy to consider — Atropine 0.02 mg/kg IV
- A 6-year-old child is receiving positive pressure mechanical ventilation via an endotracheal tube. The most likely cause of child's acute deterioration is endotracheal tube displacement in the right main bronchus
- A 3-year-old boy presents with multiple system trauma from a high-speed motor vehicle crash. First action to take — While a colleague provides spinal motion restriction, open airway with a jaw thrust and provide bag-mask ventilation