ACLS Study Guide (Advanced Cardiovascular 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 ACLS Provider Manual before, during and after the course.**

Pre-Course Requirements for Classroom Courses: The ACLS course now requires a mandatory **ACLS 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 ACLS 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 ACLS Course such as the Fast-Track need to complete the Heartcode ACLS 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 ACLS Online Course separately. Please bring your Certificate of Completion with you to the skills class or email in advance to **info@cprflorida.net**

ACLS Written Exam: The ACLS 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 ACLS manual, study guides, handouts and personal notes during the exam. Using the ACLS Provider Manual ahead of time with the online resources is very helpful.

Adult 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

Compressions

- ✓ At least 2 inches with 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
- ✓ No Advanced Airway: Ratio of compressions to breaths 30:2 or other advanced protocols that maximize CCF
- ✓ Advanced Airway: 1 ventilation every 6 seconds, or other advanced protocols that maximize CCF
- ✓ No Advanced Airway: 1 ventilation every 6 seconds, or other advanced protocols that maximize CCF
- ✓ Avoid excessive ventilation which can decrease cardiac output

Airway, Ventilations, and Respiratory Issues

- ✓ Ventilations without Compressions (Rescue Breathing): 1 breath every 6 seconds, give breaths gently, over 1 second
- ✓ Difficulty positioning airway for patency, 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 or COPD. 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 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)

Opioid Overdose (Known or Suspected)

- ✓ Apneic with a Pulse, give breaths and naloxone if available
- ✓ No Pulse, start CPR first and then give naloxone if available (Do not delay starting CPR)

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EXPRESS TRAINING SOLUTIONS

Acute Coronary Syndrome (ACS) and STEMI Review

- ✓ ACS Symptoms: Pale, cool, diaphoretic, chest discomfort, stomach pain, dyspnea, anxiety, hypotension, poor perfusion
- ✓ ACS: If stable and time allows, obtain a 12-lead ECG
- ✓ ACS: Control pain
- ✓ ASC: Aspirin, 162-325 mg (chewable, non-coated)
- ✓ ACS: Oxygen Goal: At least 90%
- ✓ STEMI patients window of time from contact to Coronary Reperfusion (PCI) should be < 90min

Stroke / Suspected Stroke Review

- ✓ Noncontrast Head CT within 20 min. of hospital arrival. A normal CT may rule out hemorrhagic stroke
- ✓ To better facilitate care, notify receiving hospital in advance
- ✓ Ischemic Stroke: start fibrinolytic therapy ASAP if there are no contraindications
- ✓ Hemorrhagic Stroke: neuro consult

RRT / MET Review (Rapid Response Team / Medical Emergency Team)

- ✓ MET / RRT focuses on prevention of deterioration to cardiac arrest
- ✓ Improve patient care by identifying and treating early clinical deterioration

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

Bradycardia and Tachycardia Review

Bradycardia with a Pulse

- ✓ If symptomatic, give 1 mg Atropine, may repeat every 3-5 min, max total dose of 3 mg
- ✓ If stable, 12-lead and get expert consultation
- ✓ If Atropine is ineffective, proceed to a drip (Dopamine or Epinephrine) and/or Transcutaneous Pacing

Tachycardia with a Pulse

- ✓ If unstable, immediate synchronized cardioversion, *see tachycardia algorithm for recommended joules
- ✓ If stable, 12-lead and expert consultation
- ✓ If stable w/narrow QRS: consider Adenosine
  - ○ Adenosine 1st dose 6 mg / 2nd dose 12 mg

Cardiac Arrest Review (No Pulse)

Assessment Findings

- ✓ Unresponsive
- ✓ No pulse & no breathing
- ✓ Agonal gasps may occur

pVT/VF (Pulseless V-Tach or V-Fib)

- ✓ Immediate CPR and defibrillation
- ✓ CPR while charging the defibrillator
- ✓ 1 mg epinephrine q 3-5 min (1st drug)
- ✓ Amiodarone 1st dose 300 mg / 2nd 150 mg
- ✓ Only 2 shockable rhythms in cardiac arrest
- ✓ May use Lidocaine instead of Amiodarone

Asystole/PEA

- ✓ CPR first
- ✓ DO NOT Shock
- ✓ 1 mg Epinephrine as soon as possible, may repeat in 3-5 min
- ✓ If NO pulse and not pVT, VF, or asystole, then you have PEA

Defibrillation Review (No Pulse)

- ✓ While setting up defibrillation provide compressions
- ✓ Immediately after a shock resume compressions
- ✓ Continue CPR while the defib is charging
- ✓ Do not delay a shock to remove jewelry (AED or Defibrillator)
- ✓ Charging the defibrillator before a rhythm check can help increase chest compression fraction (time doing compressions)

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EXPRESS TRAINING SOLUTIONS

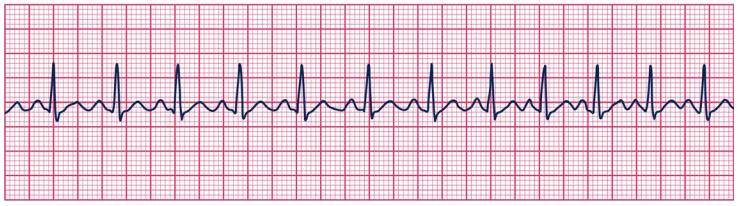
Rhythms Review *(with a Pulse)*

Symptomatic vs. Non-Symptomatic (Hypotensive | Altered Mental Status | Chest Discomfort | Signs of Shock | Acute Heart Failure)

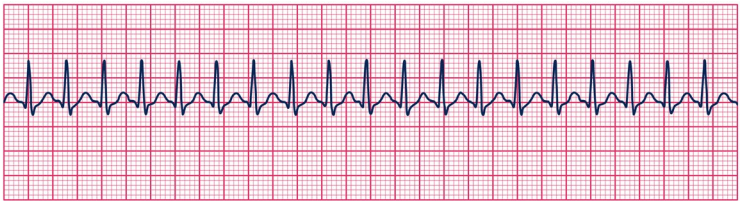
**Symptomatic Bradycardia - Atropine

**Symptomatic Tachycardia - Synchronize Cardioversion

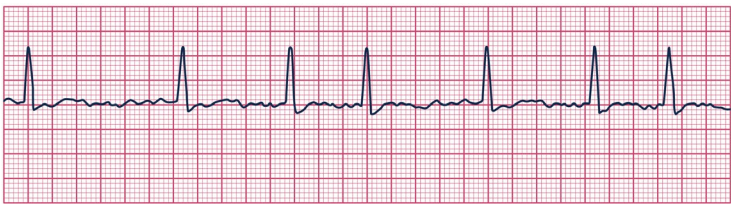
Sinus Tachycardia



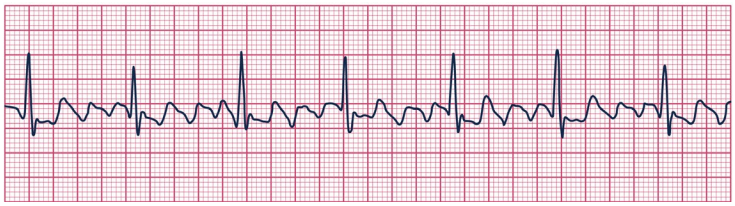
Narrow-Complex Tachycardia (formaly SVT)



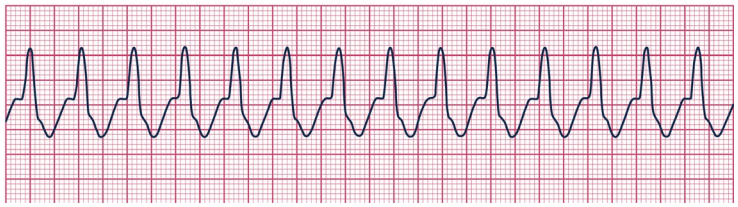
Atrial Fibrillation (A-Fib)



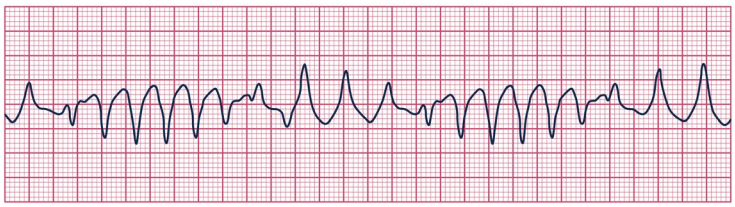
Atrial Flutter



Monomorphic Ventricular Tachycardia (V-Tach)



Polymorphic Vetricular Tachycardia (Torsades de Pointes)



Sinus Bradycardia

1st Degree AV Block

2nd Degree AV Block: Type 1

2nd Degree AV Block: Type 2

3rd Degree / Complete Block

- **Sinus Brady:** Hear Rate < 50
- **1st Degree Block:** Prolonged PR Interval
- **2nd Degree-Type 1:** Increasing PR Interval, then dropped QRS
- **2nd Degree-Type 2:** Constant PR interval, and randomly dropped QRS complexes
- **3rd Degree AV Block:** P wave and QRS complete dissociation

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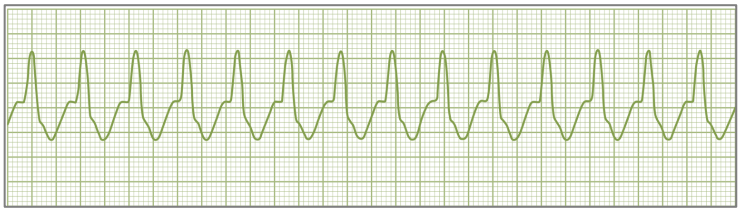
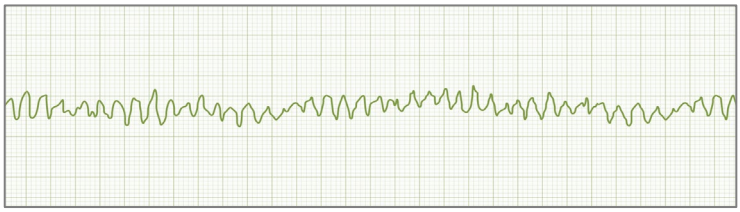
Pulseless Rhythm Review (Cardiac Arrest)

Ventricular Tachycardia (V-Tach)



Ventricular Fibrillation (V-Fib)



Asystole

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 Resuscitation Review (ROSC is Achieved)

1. Optimize ventilation and oxygenation
2. Mean Arterial Pressure (MAP) goal of at least 65 mmHg
3. If STEMI the patient needs to go directly to the Cath Lab
4. If not following command: initiate Temperature Control Protocols. The AHA recommends cooling to 32-37.5 C for at least 36 hrs.

Hs and Ts Review

The list of Hs and Ts are used to help team members remember the common reversible causes of cardiac arrest

- Hypovolemia: Severe fluid loss
- Hypoxia: Inadequate oxygen supply to the tissues
- Hydrogen ion (Acidosis): Excess of acid in blood
- Hypo/Hyperkalemia: Low or high potassium levels
- Hypothermia: Low core body temperature
- Tension pneumothorax: Air trapped in chest cavity, collapsing lung
- Tamponade (cardiac): Fluid buildup around heart, compressing it
- Toxins: Poisoning or drug overdose
- Thrombosis (coronary): A blockage in a coronary artery
- Thrombosis (pulmonary): A blood clot in the pulmonary artery