**ACLS Provider Exam** has 50 multiple-choice questions. Passing score is 84%. Student may miss 8 questions. All AHA exams are “open resource” so Student may use books and/or handouts for the exam.

**Mandatory Precourse Self-Assessment Score at least 70% to pass. Bring proof of completion to class.**

[How to Find Precourse Self-Assessment Course](https://elearning.heart.org/courses) for Traditional ACLS Course and Traditional ACLS Update Course click on link.

[How to Find Precourse Self-Assessment Course and Precourse Work](https://elearning.heart.org/courses) for ACLS Course and ACLS Update Course click on link.

**BLS Overview – CAB Compressions, Airway, Breaths**



* Push hard and fast 100-120/min for 2 minutes
* If person unresponsive, check breathing and pulse. Pulse check no more than 5-10 seconds
* Anytime no pulse or unsure – COMPRESSIONS
* Chest Compression Fraction (CCF) 80% or greater
* Charge defibrillator 15 seconds before rhythm check

**Elements of High-Quality CPR**

Compressions started within 10 seconds

* Rate-at least 100-120 per minute
* Compression depth at least 2 inches, not more than 2.4 inches or 6cm
* Switch compressors every 2 minutes or 5 cycles
* Minimize interruptions (less than 10 secs)
* Chest Compression Fraction (CCF) above 80%

Recoil Allow complete chest recoil after compression to allow maximum blood return to the heart

Ventilation

* Effective breaths to make the chest rise
* Avoid excessive ventilation
* 1 breath every 6 seconds (10/min)
* 30 compressions to 2 ventilations
* Excessive ventilation can decrease cardiac output

AED

* Immediately after defibrillation resume CPR, starting with chest compressions
* Use AED/defibrillator as soon as possible
* Can compress while defibrillator is charging

**Stroke**

* 8 D’s – **D**etection, **D**ispatch, **D**elivery, **D**oor, **D**ata **D**ecision, **D**rug/**D**evice, **D**isposition
* Perform validated stroke screen, severity tool
* Facial Droop, Arm Drift, Abnormal Speech
* Establish time for symptom onset
* Emergent Non Contrast CT scan or MRI of Head
* Best practice – bypass ED go straight to imaging
* Start fibrinolytic therapy as soon as possible consider endovascular therapy
* Provide prehospital notification

**Acute Coronary Syndromes, STEMI**

* STEMI door-to-balloon within 90 minutes or less of initial contact
* Door to needle fibrinolysis 30 minutes or less. Give fibrinolytics as soon as possible, consider endovascular therapy
* Coronary reperfusion – capable medical center
* 12-Lead for CP, epigastric pain, or rhythm change
* Aspirin is 162-325 mg chewed, NTG, Morphine
* Right ventricular MI – withhold Nitroglycerin

**Cardiac Rhythm Strips to Interpret**

* Ventricular Tachycardia (VT)
	+ - Stable, Unstable, Monomorphic VT
* Supraventricular Tachycardia (SVT), unstable
* Heart Blocks
	+ Second-degree atrioventricular Type I
	+ Second-degree atrioventricular Type II
	+ Third-degree atrioventricular
* Ventricular Fibrillation (VF)
* Pulseless Electrical Activity (PEA)

**Bradycardia-Heart rate below 50**

Need to assess stable versus unstable

**If stable . . .**

* Monitor, observe, and obtain expert consultation

**If unstable . . .**

* Atropine 1 mg IV. Can repeat q 3-5 minutes to 3 mg

maximum dose of 3.0 mg (including heart blocks)

* If Atropine ineffective
	+ Dopamine infusion (5-20 mcg/kg/min)
	+ Epinephrine infusion (2-10 mcg/min)
	+ Transcutaneous pacing

**Tachycardia with a Pulse**

* If unstable (wide or narrow) – go straight to synchronized cardioversion (sedate if possible)
* If stable narrow complex
* Obtain 12-lead ECG
* Vagal maneuvers
* Adenosine 6 mg RAPID IVP, followed by 12 mg

**Pulseless Rhythms - Cardiac Arrest CPR**

* Included in Primary Survey
* Shock as soon as defibrillator is available
* Continue compressions while defibrillator charging
* No oxygen blowing over chest during defibrillation
* Hands free pads allow for more rapid defibrillation

**Shockable Rhythms – VF, VTach**

* Push hard and fast 100-120/min for 2 minutes
* Oxygen, monitor, IV, fluids, glucose check
* Agonal gasps are a likely indicator of cardiac arrest

**Defibrillation** – Biphasic 120-200 J, Monophasic 360 J

* Epinephrine 1 mg IVP every 3-5 minutes
* Amiodarone 300 mg IVP first dose, Second dose 150 mg

OR

* Lidocaine 1-1.5 mg /kg IVP first dose, then 0.5-0.75 mg/kg

**Non-Shockable Rhythms – Asystole, PEA**

* Push hard and fast 100-120/min for 2 minutes
* Epinephrine 1 mg every 3-5 minutes

**Synchronized Cardioversion, Consider Sedation**

Unstable VT, unstable SVT

* Patient has a pulse
* Heart rate typically 150 or above
* Use synch setting on defibrillator
* Device specific shock recommendations (usually 50 J-100 J)

**Waveform Capnography in ACLS (PETC02)**



* Capnography allows for accurate monitoring quality of CPR especially if intubated to monitor PETCO2
* Most reliable method to confirm and monitor ETT placement

**Treat Reversible Causes (H’s and T’s)**

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

**Return of Spontaneous Circulation (ROSC)**

**Post Cardiac Arrest Care**

* Optimize Ventilation
* Treat hypotension systolic BP < 90 mm Hg
	+ IV bolus 1-2 L NS or LR
	+ Vasopressors Infusion (Epinephrine, Dopamine)
	+ Treatable causes – H’s and T’s
* 12-Lead ECG, airway, capnography
* Sp02 92-98%, 10 breaths per minute
* Targeted Temperature Management (TTM) if DOES NOT follow verbal commands (**TTM** **at least 24 hours**, 32 to 36 degrees C)
* Does the patient follow commands?
	+ Yes – TTM contraindicated
	+ No – consider induced TTM

**Cardiac Arrest in Pregnancy**

* CPR, defibrillation, drugs – as with cardiac arrest
* Most experienced person for intubation
* Place IV above diaphragm
* If receiving IV magnesium, stop and give calcium chloride or calcium gluconate
* BLS Guidelines – Uterus above umbilicus lateral uterine displacement, manually moving the uterus to the patient’s left side to relieve pressure on vessels
* Obstetric interventions – detach fetal monitor
	+ Prepare for perimortem Cesarean if no ROSC in minutes

**Opioid Poisoning**

* S/S Decreased respirations and pinpoint pupils
* Decreased breathing, consider Naloxone
* No breathing – CPR, AED, Naloxone 0.4 mg-2 mg IVP, IM, IN

**Points to Ponder**

* Medical Emergency Teams (MET)/ Rapid Response Teams (RRT) can improve outcome by identifying and treating early clinical deterioration
* OPA – Oropharyngeal airway measure from corner of mouth to angle of the mandible
* Minimal systolic blood pressure is 90 mm Hg
* Do not suction for more than 10 seconds
* Pulse oximeter reading low, apply oxygen
* CPR Coach – primary focus is to ensure high-quality CPR
* Chain of Survival – new 6th link is Recovery

Early Recognition, EMS, High-Quality CPR, Defibrillation, Post Cardiac Arrest Care, Recovery

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**Team Dynamics**

* Closed Loop – repeat orders, question if wrong
* Incorrect order? – address immediately
* Task out of scope? – ask for new task or role
* Clearly delegate tasks to avoid inefficiencies