ACLS Helpful Hints 2020 Guidelines with ACLS Test Review Revised 9.20.22

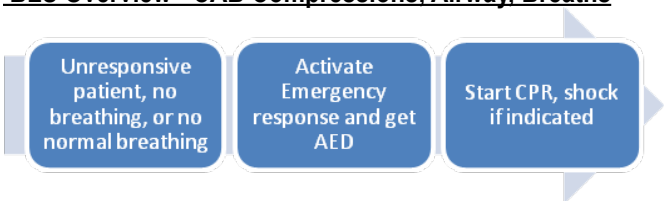
The ACLS Provider or Renewal course is a comprehensive program that covers the 2020 guidelines for Advanced Cardiac Life Support. Knowledge of basic cardiac dysrhythmias is required. The ACLS exam is 50 questions. Rhythm recognition is required for 11 questions. The exam passing score is 84% or you may miss 8 questions. Remediation allowed. The exam is open resource (book, notes).

Book Required before the class: Purchase at shopcpr.heart.org 2020 Guidelines ACLS Provider Manual

- ACLS Provider Manual eBook Product number 20-3100 or ACLS Provider Manual (Paper version) Product Number: 20-1106

ACLS Precourse Self-Assessment and Pre-Course Work Required before the class (no charge) 70% to Pass. American Heart Association link is elearning.heart.org/courses. **Precourse Self-Assessment and Pre-Course Work (no charge). In search bar put in code 1498.** Complete this assessment prior to taking the course. Dysrhythmia knowledge is required as strip recognition is required.

BLS Overview - CAB Compressions, Airway, Breaths



- Push Hard and Fast-Repeat every 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 80% or greater
  +Charge defibrillator 15 sec before rhythm check

Elements of High-Quality CPR

- Compressions started within 10 seconds
  - Rate-at least +100 – 120 per minute
  - Compressions push hard and fast depth at least 2 inches, not more than 2.4 inches.
  - Allow complete chest recoil after compression
  - Switch compressors every 2 min or 5 cycles
  - +Minimize interruptions (less 10 secs)
  - +$PETCO_2$ reading of at least 10
  - Chest compression fraction (CCF) above 80%
- Ventilation
  - Effective breaths to make the chest rise
  - Avoid excessive ventilation
  - +1 breath every 6 seconds (10/min)
  - 30 compressions to 2 ventilations
- Use AED/defibrillator as soon as possible
- Can compress while defibrillator is charging.
- +Excessive ventilation can decrease cardiac output

+Cardiac Rhythm Strips to Interpret/treat

- ✓ +Ventricular Tachycardia
  - Stable, Unstable, Monomorphic VT
- ✓ +Supraventricular tachycardia, unstable
- ✓ +Heart Blocks
  - Second-degree atrioventricular Type I
  - Second-degree atrioventricular Type II
  - Third degree atrioventricular
- ✓ +Ventricular Fibrillation
- ✓ +PEA, Pulseless Electrical Activity

Stroke

- 8 D's - Detection, dispatch, delivery, door, data decision, drug/device, disposition
- 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
- +Provide prehospital notification

+Acute Coronary Syndromes (ACS), STEMI

+STEMI door-to-balloon within 90 min or less of initial contact. Door to needle fibrinolysis 30 min or less. +Give Fibrinolytics as soon as possible, consider endovascular therapy. +Coronary reperfusion-capable medical center
+12 lead for chest pain, epigastric pain, or rhythm change
Aspirin is +162 – 325 mg, NTG, Morphine
Right ventricular MI - caution with NTG
+Pt. with stents, crushing chest pain suspect ACS

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 min to Max 3 mg
• If Atropine ineffective
-Dopamine infusion (5 – 20 mcg/kg/min)
-Epinephrine infusion (2-10mcg/min)
-Transcutaneous pacing

Tachycardia with a pulse

•If unstable (wide or narrow)-go straight to +synchronized cardioversion (sedate first)
•If stable narrow complex
-obtain 12 lead ECG -vagal maneuvers
+-adenosine 6mg RAPID IVP, followed by 12mg

+Team Dynamics

- +Closed Loop –question if wrong, Noisy? - repeat
- +Incorrect order? – address immediately
- +Task out of scope? – ask for new task or role
- +Clearly delegate tasks

Pulseless Rhythms, Apneic

Oxygen, Monitor +Shockable Rhythms, VF, Pulseless V-Tach
+Vfib, defib, after defib resume CPR
Push hard and fast 100-120/min 2 minutes
Oxygen, monitor, IV, Fluids, Glucose Check
+Agonal gasps are a likely indicator
+Defibrillation – Biphasic 120-200 J, Monophasic 360 J

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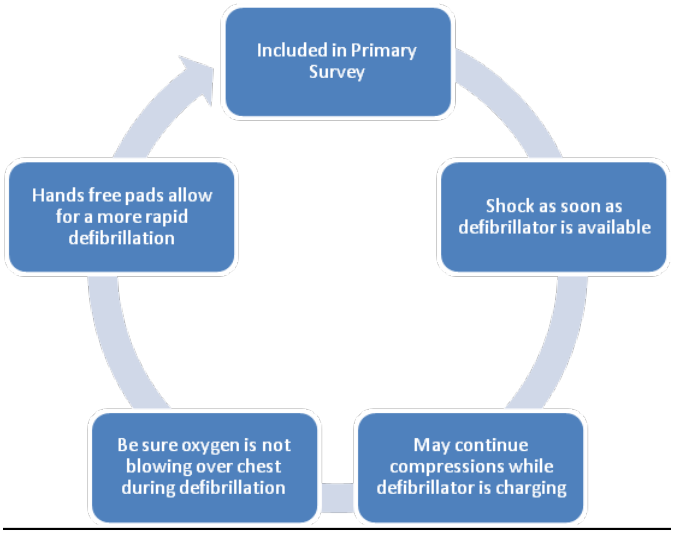
♥ +Epinephrine 1 mg every 3-5 minutes
♥ Amiodarone +300mg 1st dose then 150 mg **or**
+Lidocaine 1-1.5 mg/kg first dose then 0.5-0.75 mg/kg

Non Shockable Rhythms - Asystole/PEA

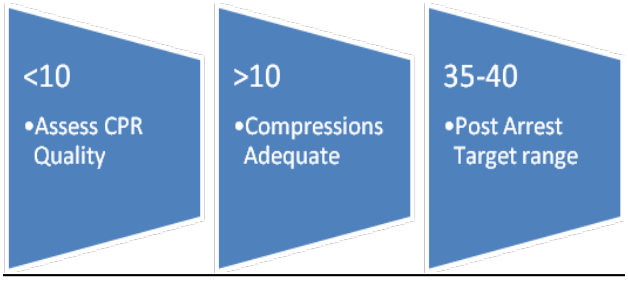
Push hard and fast 100-120/min 2 minutes
♥ *Epinephrine 1 mg every 3-5 minutes

+Synchronized Cardioversion V-Tach with BP
Unstable VT, unstable SVT



Treat reversible causes (H's and T's)

Hypovolemia	**T**ension pneumothorax
Hypoxia	**T**amponade, cardiac
Hydrogen ion **(acidosis)**	**T**oxins – poisons, drugs
Hypo/hyperkalemia	**T**hrombosis, Pulmonary
Hypothermia	**T**hrombosis, Coronary



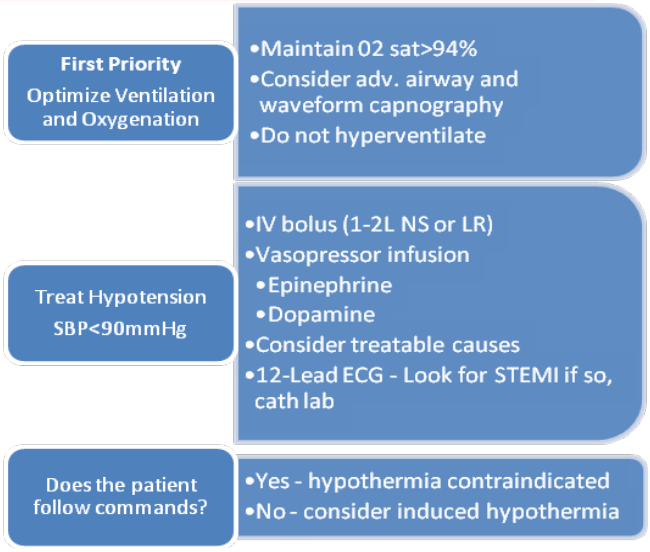
Waveform Capnography in ACLS (PETC02)

- +Allows for accurate monitoring quality of CPR especially if intubated
- +Most method to confirm and monitor ETT placement

Post Cardiac Arrest Care

✓ 12 lead ECG, airway, capnography
✓ SpO_2 92 – 98%, 10 breaths per minute
✓ TTM Targeted Temperature Management

+Hypothermia if DOES NOT follow verbal commands (TTM **target temperature management,** +**at least 24 hours**, +32 to 36 degrees C)



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

- Breathing consider Naloxone
- No breathing - CPR, AED, Naloxone 0.04 – 0.4 mg IV

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
- Don't suction for more than 10 seconds
- +Pulse oximeter reading low, give oxygen
- CPR Coach team member to measure chest compressions (can be at the monitor also)
- 6th link is Recovery (early recognition, EMS, High-Quality CPR, defibrillation, Post Cardiac Arrest Care, Recovery

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ACLS Test Review for ACLS with Helpful Hints

- Adenosine 2nd dose 12 mg
- Agonal gasps most likely indicator of cardiac arrest in an unresponsive patient
- Amiodarone 300 mg 1st dose then 150 mg
- Aspirin dose 162 to 325 mg
- Cardiac arrest with ROSC – best facility is coronary reperfusion capable medical center
- Cardioversion synchronized – unstable VT, stable SVT
- Chest compression fraction 80% or greater
- Chest compression fraction can increase by charging defibrillator 15 seconds before rhythm check
- Chest compression rate 100 to 120/minute
- Chest compressions interruption less than 10 seconds
- Chest discomfort post stent then ventricular fibrillation – probable cause? Acute coronary syndrome
- CPR Coach focus – to ensure high quality CPR
- Defibrillation biphasic 120 to 200 j, monophasic 360 J
- Defibrillation next step after – resume CPR starting with chest compressions
- Defibrillator - charge for 15 seconds before defibrillation
- Hypothermia if does not follow verbal commands
- Lidocaine 1 – 1.5 mg/kg first does then 0.5 to 0.75 mg/kg dose
- Medical emergency teams (MET) RRT can improve outcome by identifying and treating early clinical deterioration
- Minimal systolic blood pressure is 90
- OPA -measure from corner of mouth to angle of the mandible
- PEA – epinephrine 1 mg
- $PETCO_2$ – assess CPR quality
- $PETCO_2$ low at 8 – chest compressions may not be effective
- Pulse check during BLS assessment 5 – 10 seconds
- Pulse oximeter reading low – give oxygen
- Pulseless rhythms – epinephrine 1 mg every 3 to 5 minutes
- STEMI, ACS – 12 lead ECG for chest discomfort
- STEMI, ACS - coronary reperfusion-capable medical center
- STEMI, ACS – door to balloon within 90 minutes of initial contact
- STEMI, ACS – give fibrinolytics as soon as possible
- Stroke – emergent non contrast CT scan or MRI of head
- Stroke – fibrinolytic therapy as soon as possible
- Stroke – Prehospital notification
- Tachycardia symptomatic with a pulse – synchronized cardioversion (sedate first)
- Tachycardia with a pulse – adenosine 6 mg rapid IVP followed by 12 mg
- Targeted temperature management – 32 to 36 degrees C
- Targeted temperature management – at least 24 hours
- Team dynamics – clearly delegate roles
- Team dynamics – closed loop
- Team dynamics – incorrect order address immediately
- Team dynamics task out of scope, ask for new task or role
- Unresponsive patient on floor – check breathing and pulse
- Ventilation – 1 breath every 6 seconds
- Ventilation – excessive ventilation can decrease cardiac output
- Ventricular fibrillation – epinephrine 1 mg IV push
- Waveform capnography – allows for accurate monitoring quality of CPR especially if intubate
- Waveform capnography – most reliable method to confirm and monitor ETT placement
- Rhythm strips
    - Ventricular tachycardia
    - Ventricular tachycardia monomorphic
    - 2nd degree AV block type I Wenckebach
    - 3rd degree AV block – complete heart block
    - 2nd degree AV block Mobitz II
    - Tachycardia with a pulse
    - Ventricular fibrillation
    - Supraventricular tachycardia
    - Unstable supraventricular tachycardia