Advanced Cardiac Life Support Helpful Hints for the 2025 Guidelines

Cardiac Arrest Chain of Survival

- Recognition and Emergency Activation → High-Quality CPR → Defibrillation → Advanced Resuscitation →Post-Cardiac Arrest Care → Recovery and Survivorship (p. 8)

Systematic Approach

- Agonal gasps are a likely indicator of cardiac arrest in an unresponsive patient (p. 19).
- Right after a defibrillation attempt, resume CPR, starting with chest compressions (p. 17).
- During a resuscitation attempt on a patient, the team leader learns that before the arrest, the patient had had poor oral intake, vomiting, and diarrhea, resulting in severe dehydration. The suspected reversible cause is hypovolemia (p. 23).
- Continuous waveform capnography is used to assess CPR quality and return of spontaneous circulation (p. 20).
- If you observe agonal gasping and are unsure about a faint carotid pulse after evaluating the patient for 5-10 seconds, begin CPR, starting with chest compressions immediately (p. 18).
- A patient who sustained a cardiac arrest had been hospitalized many times for severe asthma, and the patient had recently been using an inhaler for several hours. The patient has been difficult to ventilate with a bag-mask-valve without breath sounds upon assisted ventilation. The most likely cause of the cardiac arrest is a tension pneumothorax (p. 192).
- 10 SECONDS is the maximum interval you should allow for any interruptions in chest compressions (p. 18).

Recognition: Signs of Clinical Deterioration

- Improving patient outcomes by identifying and treating early clinical deterioration is the primary purpose of a medical emergency team or rapid response team to provide early intervention in patients whose conditions are deteriorating (p. 26).

Acute Coronary Syndrome

- You are evaluating a patient having chest discomfort with low blood pressure. The only way to identify ST-segment elevation myocardial infarction is to obtain a 12-lead ECG (p. 35).
- A patient reports having stomach pain, chest discomfort radiating down their left arm. Coronary artery stents were placed 5 days ago. The patient is diaphoretic and hypotensive with ventricular tachycardia and tachypneic with low oxygen saturations. Supplemental oxygen is administered, and the patient goes into ventricular fibrillation. Acute Coronary Syndrome is a reasonable answer to what led to the cardiac arrest (p. 27).
- A patient is having retrosternal chest discomfort that began at rest. The patient reports no significant medical history. Their vital signs are stable. Aspirin to chew is the medication or therapy that the healthcare professional should provide next for acute coronary syndrome (p. 32).
- For patients with ST-segment elevation myocardial infarction, 90 minutes best describes the recommended maximum goal for first medical contact–to–balloon inflation time for percutaneous coronary intervention (p. 30).
- Acute Coronary Syndrome includes: Unstable angina (UA), non-ST-segment elevation acute coronary syndrome or non-ST-segment elevation myocardial infarction (NSTEMI), and ST-segment elevation myocardial infarction (STEMI) according to page 27.

Acute Stroke

- A non-contrast CT scan should be performed for a patient with suspected stroke as early as possible, but no more than 20 minutes after hospital arrival, and be read within 45 minutes of arrival to the ED (p. 58).
- Consider thrombolytic therapy and endovascular therapy when caring for patients with a suspected stroke whose symptoms started within 3-hours, a normal CT scan, no signs of hemorrhage, and no contraindications to thrombolytic therapy (P. 46).
- According to the Adult Suspected Stroke Algorithm, the critical action of providing prehospital notification performed by the EMS team will expedite a suspected stroke patient's care on arrival and reduce the time to treatment (p. 49).

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Bradycardia

- For a patient experiencing bradycardia who presents with symptoms of chest tightness and nausea, and is hypotensive, Atropine 1 mg IV should be prepared as the first line of treatment (p. 72).
- The successive prolongation of the PR interval until an atrial impulse is not conducted to the ventricles best describes a second-degree atrioventricular block type 1. These waveforms are described as the P-R interval getting progressively longer (p. 67-68).
- A third-degree atrioventricular block is most clinically significant because it is most likely to cause cardiovascular collapse and require immediate pacing (p. 67-68).
- Second-degree atrioventricular block type II has intermittent nonconduction of P waves or atrial impulses with a constant PR interval on conducted beats with an occasional dropped QRS complex (p. 67-68).

Tachycardia: Unstable and Stable

- During an event of unstable regular monomorphic ventricular tachycardia, performing synchronized cardioversion would be done first (p. 85).
- If a patient in stable regular narrow-complex tachycardia with a peripheral IV in place does not respond to the first adenosine dose of 6 mg, a dose of 12 mg would be administered, followed by a saline flush (p. 92).
- A patient reports having light-headedness, nausea, and chest discomfort. The patient is awake and responsive but appears ill, pale, and grossly diaphoretic. Their radial pulse is weak, thready, and fast. Monomorphic ventricular tachycardia is seen on the monitor. The ACLS algorithm to be followed is Adult Tachyarrhythmia with a Pulse (p. 81-82).
- If a patient has a low reading on a pulse oximeter, reading less than 90% on room air, apply oxygen (p. 83).
- For patients with a pulse and tachycardias, such as unstable narrow-complex tachycardia, unstable atrial fibrillation, unstable atrial flutter, and unstable regular monomorphic tachycardia, perform synchronized cardioversion (p. 85).
- A patient with a history of heart failure is experiencing shortness of breath, hypotension, and a heart rate over 180 / minute in supraventricular tachycardia, otherwise known as an unstable narrow-complex tachycardia (p. 78-79).

High-Performance Team Roles and Dynamics

- The CPR Coach notes that the PETCO2 reading is less than 10 mm Hg during a resuscitation attempt. The CPR coach should direct the rescuer to compress deeper to improve blood delivery to the lungs (p. 129).
- Charging the defibrillator 15 seconds before conducting a rhythm check can increase the chest compression fraction during a code, allowing for continuity of compressions (p. 96).
- When a team member realizes a task is beyond their scope of practice, they should ask for a new task or role instead (p. 100).
- If a team member is about to make a mistake during a resuscitation attempt, the Team Leader or other team members should address the team member immediately (p. 101).
- A patient is being resuscitated in a distracting environment. A team member thinks the Team Leader gave an order for 500 mg of amiodarone IV. The best response from the team member is to repeat the order, "I have an order to give 500 mg of amiodarone IV. Is this correct?" (p. 103).
- The primary focus of the CPR Coach on a resuscitation team is to ensure high-quality CPR and coordinate the performance of high-quality BLS skills (p.99).
- An example of closed-loop communication is when you instruct a team member to give 1 mg of atropine IV, and they respond saying, "I'll administer 1 mg of atropine IV push" (p. 102).

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Respiratory Arrest

- To select an appropriate size oropharyngeal airway, place it against the side of the face, and measure from the corner of the mouth to the angle of the mandible (p. 111)
- Continuous waveform capnography is the most reliable method to confirm and monitor the correct placement of an endotracheal tube (p. 117).
- Decreased cardiac output is an effect of excessive ventilation, causing an increase in intrathoracic pressure, decreases venous return to the heart, diminishes cardiac output and survival, and may cause cerebral vasoconstriction, reducing blood flow to the brain (p. 106).
- To properly ventilate a patient with a perfusing rhythm, squeeze the bag once every 6 seconds (p. 106).

Cardiac Arrest: VF or pVT (Shockable)

- Chest compressions provide blood flow and oxygen throughout the system, but, critically, also to the heart and brain. Successful defibrillation leads to a perfusing rhythm that is typically more effective than chest compressions to achieve return of spontaneous circulation (p. 123).
- After a second defibrillation attempt, the drug and dose used for a patient in sustained ventricular fibrillation is Epinephrine 1 mg (p. 126).
- After the first dose of epinephrine and another defibrillation attempt during a cardiac arrest in sustained ventricular fibrillation, an antiarrhythmic such as Lidocaine 1 to 1.5 mg/kg is given next (p. 127).
- If capnography shows a persistent waveform and a PETCO2 of less than 10 mm Hg, the significance of this finding may indicate how chest compressions may not be effective (p. 129).
- If a patient has sustained monomorphic ventricular tachycardia and becomes apneic and pulseless, performing defibrillation takes the highest priority (p. 119).
- A patient in the emergency department becomes unresponsive, and lead II on the ECG reveals ventricular fibrillation. The appropriate treatment is immediate defibrillation (p. 123-124).

Cardiac Arrest: PEA and Asystole (Nonshockable)

- You find a patient with no pulse, and high-quality CPR is started immediately. Once ECG leads are in place, the ECG monitor displays the lead II rhythm as a sinus rhythm, and the patient still does not have a pulse. A member of your team resumes chest compressions, while another starts an IV. The first medication to be given is epinephrine 1 mg IV (p. 137).

Cardiac Arrest: Selected Special Situations

- A patient is found unresponsive with a history of opiate addiction, is not breathing normally, and does not have a pulse; the healthcare professional should begin providing chest compressions (p. 142).
- A patient is in ventricular fibrillation. While placing defibrillator pads in the anterolateral position on the patient's chest, you noticed the patient has a jewelry piercing at the navel. Continue by charging the defibrillator and delivering the shock as usual (p. 39).

Post-Cardiac Arrest Care

- After a successful return of spontaneous circulation, the patient is unable to follow commands. The therapy of choice is to initiate temperature control (p. 161).
- The minimum mean arterial pressure one should attempt to achieve with fluid administration or vasoactive agents in a hypotensive patient with post–cardiac arrest who achieves return of spontaneous circulation is 65 mm Hg (p. 160).
- During post–cardiac arrest care, at least 36 hours is the recommended duration to hold for temperature control after reaching the correct temperature range (p. 162).
- For temperature control, 32 °C to 37.5 °C is the recommended range from which a temperature should be selected and maintained constantly to achieve temperature control after cardiac arrest in a patient who does not respond to verbal commands (p. 161).

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Helpful Pearls

High-Quality CPR:

- → Chest compression fraction (CCF) ideally above 80% = Actual chest compression time ÷ Total code time (p. 122).
- → Avoid securing an airway that encircles the patient's neck too tightly, as this can obstruct venous flow from the brain (p. 158).
- → Excessive ventilation can decrease cardiac output by increasing intrathoracic pressure (p. 158).
- → For every minute of delay without defibrillation, the chances for survival decline by 7-10% per minute (p. 124).

Stroke Care:

- → 8 D's - Detection, dispatch, delivery, door, data decision, drug/device, disposition (p. 45).
- → Assessments & Actions (p. 50).
  - ✓ Assess ABCs
  - ✓ Initiate Stroke Protocol
  - ✓ Perform Physical Exam
  - ✓ Perform Neurologic Assessment (Cincinnati Prehospital Stroke Scale [CPSS], Los Angeles Prehospital Stroke Screen [LAPSS])
  - ✓ Establish time of symptom onset (last known normal)
  - ✓ Triage to the most appropriate stroke center
  - ✓ Check glucose if indicated
  - ✓ Provide prehospital notification and go straight to the brain imaging suite
  - ✓ Exercise caution with aspiration, upper airway obstruction, hypoventilation, and neurogenic pulmonary edema

Acute Coronary Syndromes (UA, STEMI, NSTEMI):

- → STEMI door-to-balloon within 90 minutes or less of initial contact (p. 39).
- → Door-to-needle fibrinolysis 30 min or less (p. 39).
- → Use Nitroglycerin cautiously with inferior wall and right ventricular infarction, hypotension (SBP < 90), bradycardia (HR < 50), tachycardia (HR >110), and recent use of phosphodiesterase inhibitors (e.g., sildenafil, tadalafil, and vardenafil) (p. 39).

Reversible Causes (p. 136):

- ✓ Hypovolemia
- ✓ Hypoxia
- ✓ Hydrogen Ion (acidosis)
- ✓ Hypo-/hyperkalemia
- ✓ Hypothermia
- ✓ Tension pneumothorax
- ✓ Tamponade, cardiac
- ✓ Toxins
- ✓ Thrombosis, pulmonary
- ✓ Thrombosis, coronary

Post-Cardiac Arrest Care (p. 157):

- → Manage Airway
- → Manage oxygenation & ventilation
- → Manage hemodynamics
- → Early diagnostics (12-lead, CT)
- → Emergency cardiac interventions
- → Temperature control
- → Prognostication

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