CARDIAC ARREST · ACLS

Adult Advanced Life Support · 2025 AHA

DEFIB
early

IMMEDIATE: Start high-quality CPR · give O_2 · attach monitor / defibrillator · obtain IV or IO access

RHYTHM CHECK · SHOCKABLE vs NON-SHOCKABLE

SHOCKABLE *VF / pulseless VT*

1. SHOCK 120-200 J biphasic (then max)
2. CPR 2 min · IV / IO access
3. Rhythm check → still shockable? SHOCK
4. EPINEPHRINE 1 mg (after 2nd shock), q3-5 min
5. SHOCK · CPR 2 min
6. AMIODARONE 300 mg (or lidocaine 1-1.5 mg/kg)
7. Repeat cycles; amio 150 / lidocaine 0.5-0.75

NON-SHOCKABLE *Asystole / PEA*

1. CPR 2 min · IV / IO access
2. EPINEPHRINE 1 mg ASAP, then q3-5 min
3. Do NOT shock
4. Rhythm check every 2 min
5. Find & fix reversible causes (4 Hs / 4 Ts)
6. Becomes shockable? → shockable pathway

Check rhythm every 2 min; switch pathway if the rhythm changes.

DRUGS & ENERGY

Agent / setting	Dose	Note
Epinephrine	1 mg IV/IO every 3-5 min	Both pathways; early in non-shockable
Amiodarone	300 mg, then 150 mg	Refractory VF / pulseless VT
Lidocaine	1-1.5 mg/kg, then 0.5-0.75 mg/kg	Alternative to amiodarone
Defibrillation	biphasic 120-200 J (escalate)	Monophasic 360 J; minimise pre-shock pause
Magnesium	1-2 g IV	Torsades only - NOT routine

HIGH-QUALITY CPR

- **Rate -** 100-120 / min
- **Depth -** 5-6 cm (2-2.4 in), full recoil
- **Interruptions -** < 10 s; chest-compression fraction > 60%
- **Ventilate -** 10 / min with advanced airway; don't hyperventilate
- **Capnography -** $EtCO_2$ < 10 mmHg = poor; abrupt rise = ROSC
- **Rotate -** swap compressor every 2 min to limit fatigue

REVERSIBLE CAUSES *4 Hs / 4 Ts*

4 Hs: Hypoxia · Hypovolaemia · H^+ (acidosis) · Hypo/hyperkalaemia · Hypothermia

4 Ts: Tension pneumothorax · Tamponade · Toxins · Thrombosis (coronary or pulmonary)

Fix each: O_2 / ventilate · fluids ± blood · treat acidosis · Ca + insulin-glucose or replace K · rewarm · needle / finger thoracostomy · pericardiocentesis · antidote · thrombolysis or PCI.

ROSC → airway & breathing, 12-lead ECG, treat the cause, targeted temperature, ICU. See Post-Cardiac Arrest Care (#16).

PEARLS & PITFALLS

- Compressions and early defibrillation save lives - drugs are secondary; keep hands on the chest.
- In PEA the priority is finding and fixing the cause (4 Hs / 4 Ts), not more adrenaline.
- Minimise every pause: charge the defibrillator during compressions and pre-brief the rhythm check.
- Do not hyperventilate - it raises intrathoracic pressure and cuts coronary perfusion.

References: AHA Guidelines for CPR & ECC 2025 (Part 9, Adult ALS) · ERC ALS 2021 · standard ACLS references.

Educational aid; verify doses against local protocol and patient factors.