Cardiac Arrest Circular Algorithm

Shout for Help/Activate Emergency Response

Start CPR

- Give Oxygen
- Attach Monitor/Defibrillator

2 minutes

Check Rhythm

If VF/VT Shock

Post-Cardiac Arrest Care

Drug Therapy

- Return of Spontaneous Circulation (ROSC)

Continuous CPR

Drug Therapy

- IV/IO access

Epinephrine every 3–5 minutes
- Amiodarone OR Lidocaine for refractory VT/VF

Consider Advanced Airway
- Quantitative waveform capnography

Treat Reversible Causes
- Continuous CPR

Monitor CPR Quality

Start CPR

Shout for Help/Activate Emergency Response

Doses/Details for the Cardiac Arrest Algorithms

CPR Quality

- Push at least 2" (100–120/min) and allow complete chest recoil
- Minimize interruptions in compressions**
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 30:2 compression-ventilation ratio
- Quantitative waveform capnography
- If PETCO2<10 mm Hg, attempt to improve CPR quality

Drug Therapy

- Epinephrine IV/IO Dose: 1 mg every 3–5 minutes
- First dose: 300 mg bolus
- Second dose: 150 mg
- First dose: 1–1.5 mg/kg
- Second dose: 0.5–0.75 mg/kg

- Amiodarone IV/IO Dose***: First dose: 300 mg bolus
- Second dose: 150 mg

- Lidocaine: First dose: 1–1.5 mg/kg
- Second dose: 0.5–0.75 mg/kg

Advanced Airway****

- Supraglottic advanced airway or endotracheal intubation
- 10 breaths per minute with continuous chest compressions

Indication of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase of PETCO2, of > 25 mm Hg check perfusion status.
  An increase to greater than 40 mm Hg is confirmation of ROSC.
- Spontaneous arterial pressure waves with intra-arterial monitoring

Shock Energy

- Biphasic: Manufacturer recommendation (eg. initial dose of 120–200 J): if unknown, use maximum available
- Second and subsequent doses should be equivalent, and higher doses may be considered

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/Hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

** Bobrow BJ, Clark LL, Ewy GA, Chikani V, Sanders AB, Berg RA, Richman PB Minimally Interrupted cardiac resuscitation by emergency medical services for out of hospital cardiac arrest. JAMA 2008;299:1158-1165

Version control: This document follows 2020 American Heart Association® guidelines for CPR and ECC. American Heart Association® guidelines are updated every five years. If you are reading this page after December 2025, please contact support@acls.net for an update. Version 2021.06.a

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Cardiac Arrest Algorithm

Start CPR

1. Give Oxygen
   - Attach Monitor/Defibrillator

2. VF/VT

3. Shock*

4. CPR 2 min
   - IV/IO access

5. Shock

6. CPR 2 min
   - Epinephrine every 3-5 min
   - Consider advanced airway, capnography

7. Shock

8. CPR 2 min
   - Amiodarone or Lidocaine
   - Treat reversible causes

9. Asystole/PEA

10. CPR 2 min
    - IV/IO access
    - Epinephrine every 3–5 min
    - Consider advanced airway, capnography

11. CPR 2 min
    - Treat reversible causes

12. If no signs of return of spontaneous circulation (ROSC), go to 10 or 11.

   If ROSC, go to Post-Cardiac Arrest Care.

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http://circ.ahajournals.org/content/122/18_suppl_3/S706

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