

## Adult Cardiac Arrest Circular Algorithm

Cascading numbered boxes and a circular pattern correspond to actions the provider should perform in sequence.

### Box 1

#### Start CPR

- Give oxygen.
- Attach monitor/defibrillator.

### Box 2

- Check rhythm. This box starts a repetitive pattern, represented by the outside of a circle. If VF/pVT, deliver shock, followed by 2 minutes of:
  - Continuous CPR
  - Monitor CPR Quality
  - Continuous CPR
- After 2 minutes, check rhythm again and repeat this cycle until Return of Spontaneous Circulation (ROSC), then initiate post-cardiac arrest care.

Inside the circle are listed things to perform as necessary during the resuscitation effort:

#### Drug Therapy

- IV/IO access
- Epinephrine every 3 to 5 minutes
- Amiodarone or lidocaine for refractory VF/pVT

#### Consider Advanced Airway

- Quantitative waveform capnography

#### Treat Reversible Causes

### Sidebar

#### CPR Quality

- Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.
- Minimize interruptions in compressions.
- Avoid excessive ventilation.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30 to 2 compression-ventilation ratio.
- Quantitative waveform capnography
  - If PETCO<sub>2</sub> is low or decreasing, reassess CPR quality.

#### Shock Energy for Defibrillation

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120 to 200 Joules); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 Joules

#### Drug Therapy

- **Epinephrine IV/IO dose:** 1 milligram every 3 to 5 minutes
- **Amiodarone IV/IO dose:** First dose: 300 milligram bolus. Second dose: 150 milligrams.  
*or*  
**Lidocaine IV/IO dose:** First dose: 1-1.5 milligrams per kilogram. Second dose: 0.5-0.75 milligrams per kilogram.

#### Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor

#### ET tube placement

- Once advanced airway in place, give 1 breath every 6 seconds (10 breaths per minute) with continuous chest compressions

#### Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure

- Abrupt sustained increase in PETCO<sub>2</sub> (typically greater than or equal to 40 millimeters of mercury)
- Spontaneous arterial pressure waves with intra-arterial monitoring

#### Reversible Causes

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