Adult Cardiac Arrest Algorithm
AHA 2015 Update

1. Start CPR
   - Give oxygen
   - Attach monitor/defibrillator
   - CPR 2 min
     - IV/IO access
     - Epinephrine every 3-5 min
     - Consider advanced airway, capnography
     - CPR 2 min
     - Amiodarone
     - Treat reversible causes
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   Rhythm shockable?
   - Yes
   - Shock
   - CPR 2 min
     - IV/IO access
     - Epinephrine every 3-5 min
     - Consider advanced airway, capnography

   Rhythm shockable?
   - No
   - If no signs of return of spontaneous circulation (ROSC), go to 10 or 11
   - If ROSC, go to Post-Cardiac Arrest Care

   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.
   - Rotate compressor every 2 minutes, or sooner if fatigued.
   - If no advanced airway, 30:2 compression-ventilation ratio.
   - Quantitative waveform capnography
     - If PetCO2 <10 mm Hg, attempt to improve CPR quality.
     - Intra-arterial pressure
     - If relaxation phase (diastolic) pressure <20 mm Hg, attempt to improve CPR quality.

   SHOCK ENERGY FOR DEFIBRILLATION
   - 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.
   - Monophasic: 360 J

   DRUG THERAPY
   - Epinephrine IV/IO dose:
     - 1 mg every 3-5 minutes
   - Amiodarone IV/IO dose:
     - First dose: 300 mg bolus.
     - Second dose: 150 mg

   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/min) with continuous chest compressions

   RETURN OF SPONTANEOUS CIRCULATION (ROSC)
   - Pulse and blood pressure
   - Abrupt sustained increase in PetCO2 (typically >40 mm Hg)
   - Spontaneous arterial pressure waves with intra-arterial monitoring

   REVERSIBLE CAUSES
   - Hypovolemia
   - Hypo-/hyperkalemia
   - Hypothermia
   - Tension pneumothorax
   - Tamponade, cardiac
   - Toxins
   - Thrombosis, pulmonary
   - Thrombosis, coronary
If ventricular rate is >150/min, prepare for immediate cardioversion. May give brief trial of medications based on specific arrhythmias. Immediate cardioversion is generally not needed if heart rate is ≤150/min.

Have available at bedside
- Oxygen saturation monitor
- Suction device
- IV line
- Intubation equipment

Premedicate whenever possible*

Synchronized cardioversion†‡
- Atrial fibrillation§ 120-200 J, increase in stepwise fashion (per manufacturer’s recommendation)
- Stable monomorphic VT¶ 100 J, increase in stepwise fashion (per manufacturer’s recommendation)
- Other SVT, atrial flutter‖ 50-100 J, increase in stepwise fashion (per manufacturer’s recommendation)

Notes
*Effective regimens have included a sedative (eg, diazepam, midazolam, etomidate, methohexital, propofol) with or without an analgesic agent (eg, fentanyl, morphine). Many experts recommend anesthesia if service is readily available.
†Note possible need to resynchronize after each cardioversion.
‡If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.
§These doses are for biphasic waveforms. For monophasic waveforms, initial dose is 200 J for atrial fibrillation.
¶Recommended biphasic and monophasic doses are equivalent.