Adult Cardiac Arrest Algorithm

1. **Start CPR**
   - Give oxygen
   - Attach monitor/defibrillator

2. **Rhythm shockable?**
   - Yes
   - **VF/pVT**
     - Shock
   - **Asystole/PEA**
     - No

3. **CPR 2 min**
   - IV/IO access
   - **Rhythm shockable?**
     - Yes
     - Shock
     - **CPR 2 min**
       - Epinephrine every 3-5 min
       - Consider advanced airway, capnography
     - **Rhythm shockable?**
       - Yes
       - Shock
       - **CPR 2 min**
         - Amiodarone or lidocaine
         - Treat reversible causes
     - **CPR 2 min**
       - IV/IO access
       - Epinephrine every 3-5 min
       - Consider advanced airway, capnography
     - **Rhythm shockable?**
       - No

4. **CPR 2 min**
   - IV/IO access
   - Epinephrine every 3-5 min
   - Consider advanced airway, capnography
   - **Rhythm shockable?**
     - Yes
     - Shock
     - **CPR 2 min**
       - Treat reversible causes
     - **Rhythm shockable?**
       - No

5. **Rhythm shockable?**
   - Yes
   - Shock

6. **CPR 2 min**
   - Epinephrine every 3-5 min
   - Consider advanced airway, capnography
   - **Rhythm shockable?**
     - No

7. **CPR 2 min**
   - Amiodarone or lidocaine
   - Treat reversible causes
   - **Rhythm shockable?**
     - Yes

8. **Rhythm shockable?**
   - No

9. **CPR 2 min**
   - IV/IO access
   - Epinephrine every 3-5 min
   - Consider advanced airway, capnography
   - **Rhythm shockable?**
     - No

10. **CPR 2 min**
    - Treat reversible causes
    - **Rhythm shockable?**
      - Yes

11. **CPR 2 min**
    - Treat reversible causes
    - **Rhythm shockable?**
      - No

12. **Rhythm shockable?**
    - Yes
      - Go to 5 or 7
    - 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.
- Change 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 (e.g., 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.
- Lidocaine IV/IO dose:
  - First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.

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