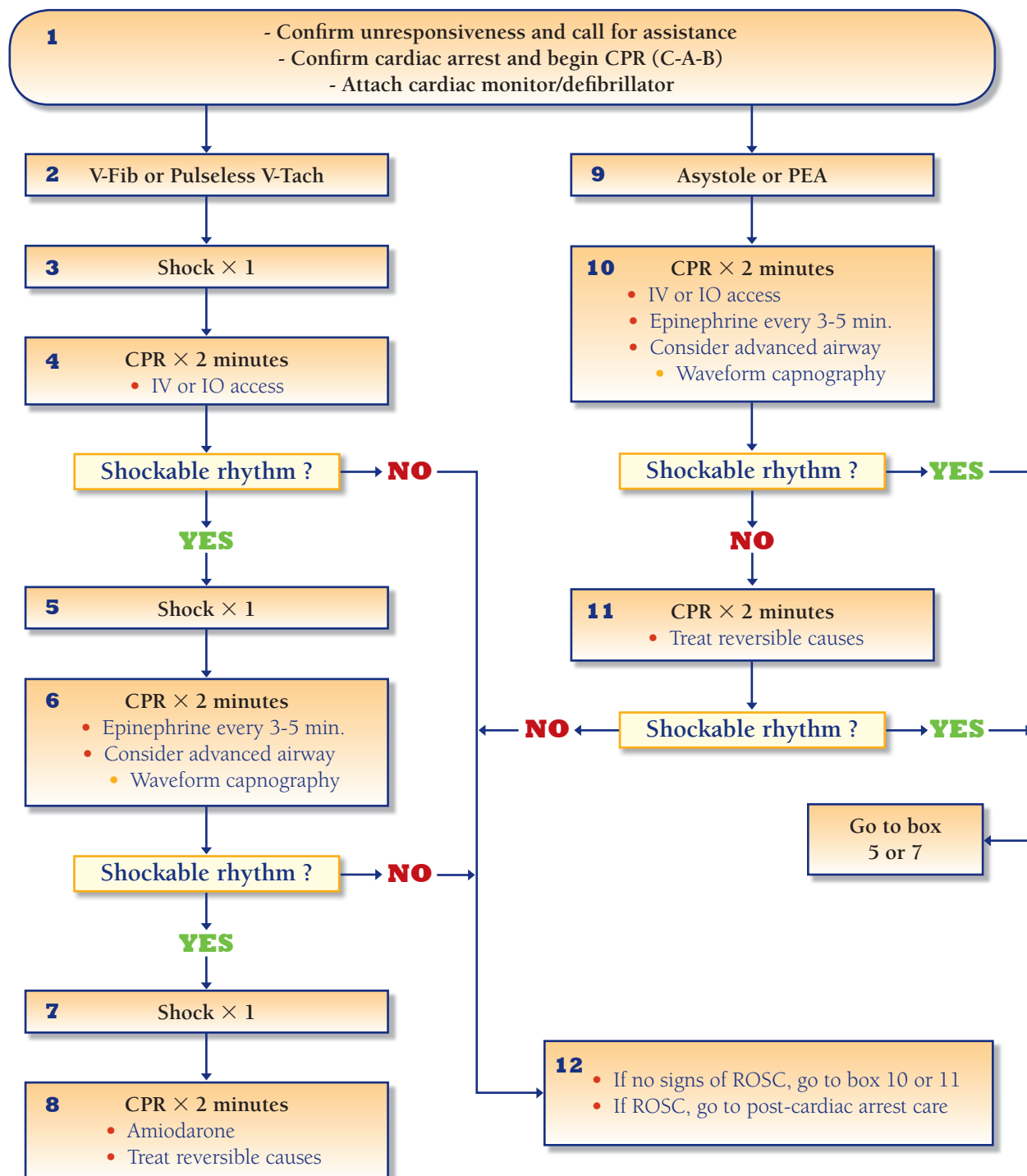


Cardiac Arrest Algorithm

Cardiac Arrest Algorithm (Adult or Pediatric)



▶ CPR Quality

- Push hard (at least 2 inches in the adult—at least one third of the anterior–posterior diameter of the chest in infants [about 1½ inches] and children [about 2 inches])—and fast (at least 100/min). Allow full chest recoil in between compressions.
- Switch compressor every 2 minutes. Avoid excessive ventilation. Minimize CPR interruptions.
- Compression-to-ventilation ratio:
 - All adult and single-rescuer CPR: 30:2
 - Two-rescuer infant and child CPR: 15:2
- Begin asynchronous CPR *after* the advanced airway has been inserted. Use a compression rate of at least 100/min and ventilations at 8 to 10 breaths/min (one breath every 6 to 8 seconds).
 - Waveform capnography
 - If $\text{ETCO}_2 < 10$ mm Hg, attempt to improve CPR quality

▶ Drug Doses and Intervals

- Epinephrine:
 - Adult: 1 mg IV/IO every 3–5 minutes
 - Pediatric:
 - IV/IO dose: 0.01 mg/kg (0.1 mL/kg of 1:10,000 solution) every 3 to 5 min
 - ET dose (if no IV or IO): 0.1 mg/kg (0.1 mL/kg of 1:1,000 solution)
- Vasopressin:
 - Adult: 40 units (IV/IO) *one time* to replace first *or* second dose of epinephrine
 - Pediatric: not applicable
- Amiodarone:
 - Adult: 300 mg initial dose; 150 mg second dose
 - Pediatric: 5 mg/kg IV or IO; may repeat twice at same dose; maximum of 15 mg/kg

▶ Advanced Airway

- Insert supraglottic airway device or endotracheal tube.
- Use quantitative waveform capnography to confirm and monitor ET tube placement.

- Begin asynchronous CPR *after* the advanced airway has been inserted. Use a compression rate of at least 100/min and ventilations at 8 to 10 breaths/min (one breath every 6 to 8 seconds). Do not hyperventilate!

▶ Defibrillation Energy

Adult:

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

Pediatric:

- First shock at 2 J/kg; second shock at 4 J/kg; subsequent shocks at least 4 J/kg.
- Maximum shock: 10 J/kg or adult energy setting.

▶ Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypoglycemia (especially in infants and children)
- Hypokalemia/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins (drug overdose, poisoning)
- Thrombosis, pulmonary
- Thrombosis, coronary

▶ Return of Spontaneous Circulation (ROSC)

- Abrupt and sustained increase in ETCO_2 (typically > 40 mm Hg); palpable pulse.
- Assess BP. Obtain 12-lead ECG. Maintain $\text{SpO}_2 \geq 94\%$.
- Maintain BP with IV/IO fluid bolus or vasopressor.
- Does the patient follow commands?
 - No → Consider induced hypothermia
 - Yes → STEMI or high suspicion of AMI
 - Advanced critical care; coronary reperfusion