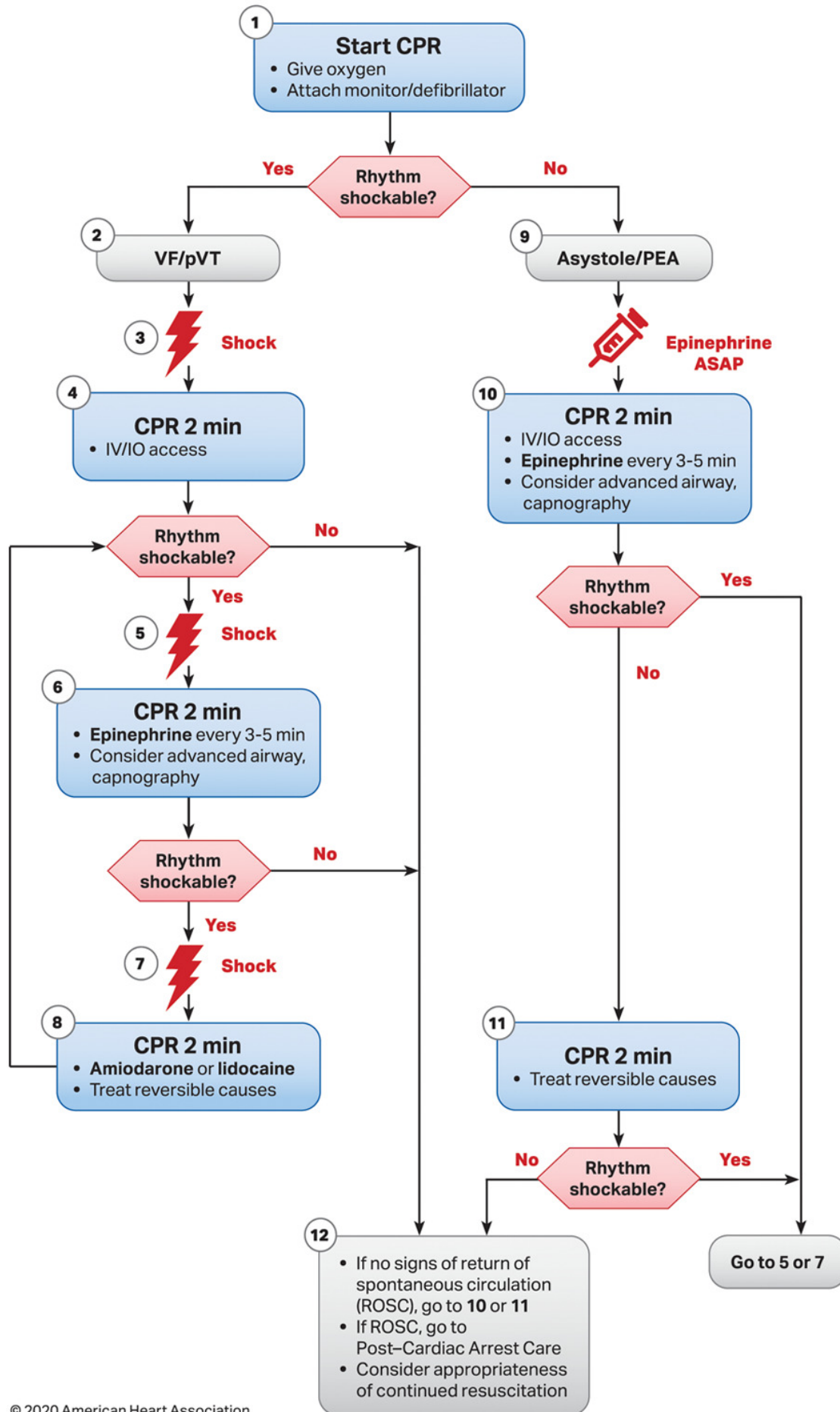
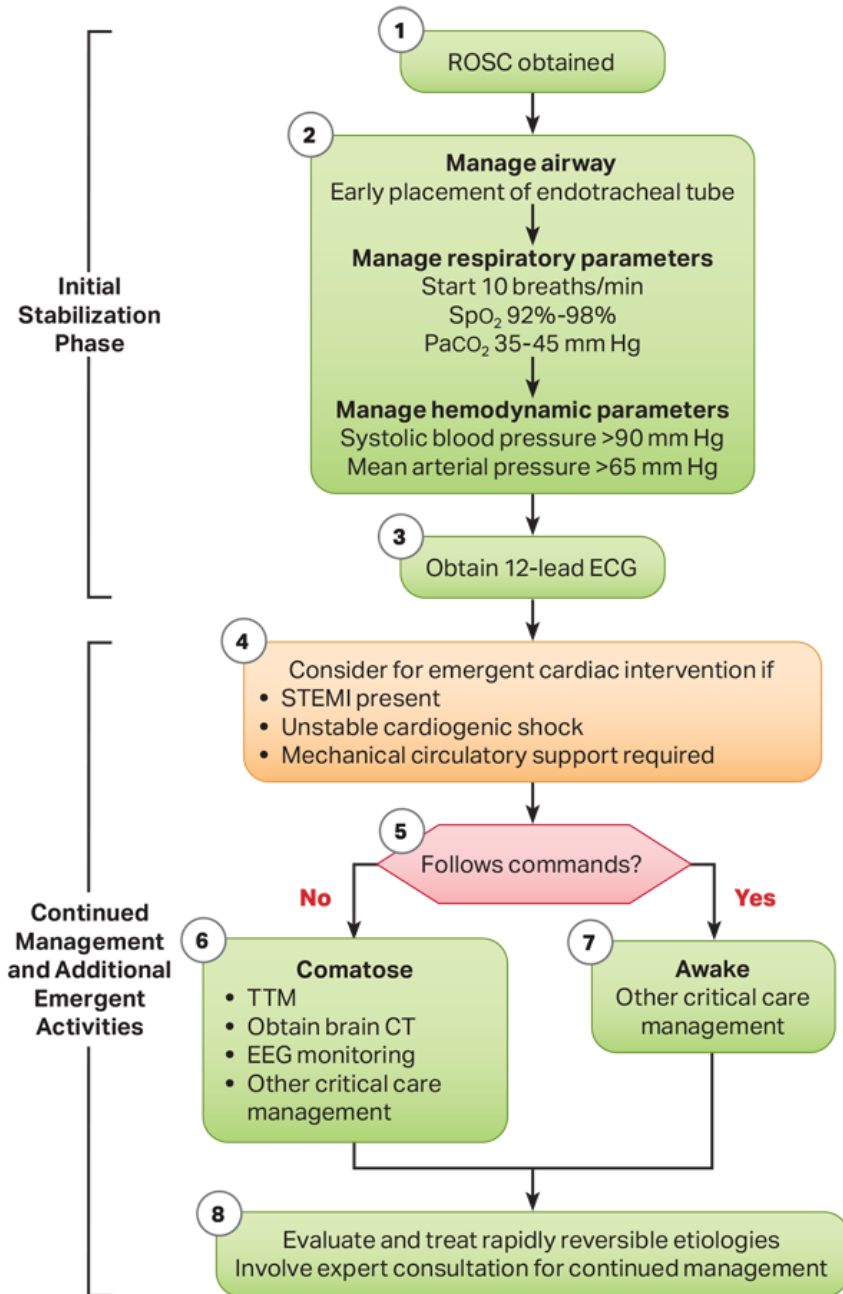


Adult Cardiac Arrest Algorithm



CPR Quality
<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> – If PETCO₂ is low or decreasing, reassess CPR quality.
Shock Energy for Defibrillation
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Epinephrine IV/IO dose: 1 mg every 3-5 minutes • Amiodarone IV/IO dose: First dose: 300 mg bolus. Second dose: 150 mg. or • Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.
Advanced Airway
<ul style="list-style-type: none"> • 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)
<ul style="list-style-type: none"> • Pulse and blood pressure • Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg) • Spontaneous arterial pressure waves with intra-arterial monitoring
Reversible Causes
<ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo-/hyperkalemia • Hypothermia • Tension pneumothorax • Tamponade, cardiac • Toxins • Thrombosis, pulmonary • Thrombosis, coronary

Adult Post-Cardiac Arrest Care Algorithm



Initial Stabilization Phase

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently. However, if prioritization is necessary, follow these steps:

- Airway management: Waveform capnography or capnometry to confirm and monitor endotracheal tube placement
- Manage respiratory parameters: Titrate FIO₂ for SpO₂ 92%-98%; start at 10 breaths/min; titrate to PaCO₂ of 35-45 mm Hg
- Manage hemodynamic parameters: Administer crystalloid and/or vasopressor or inotrope for goal systolic blood pressure >90 mm Hg or mean arterial pressure >65 mm Hg

Continued Management and Additional Emergent Activities

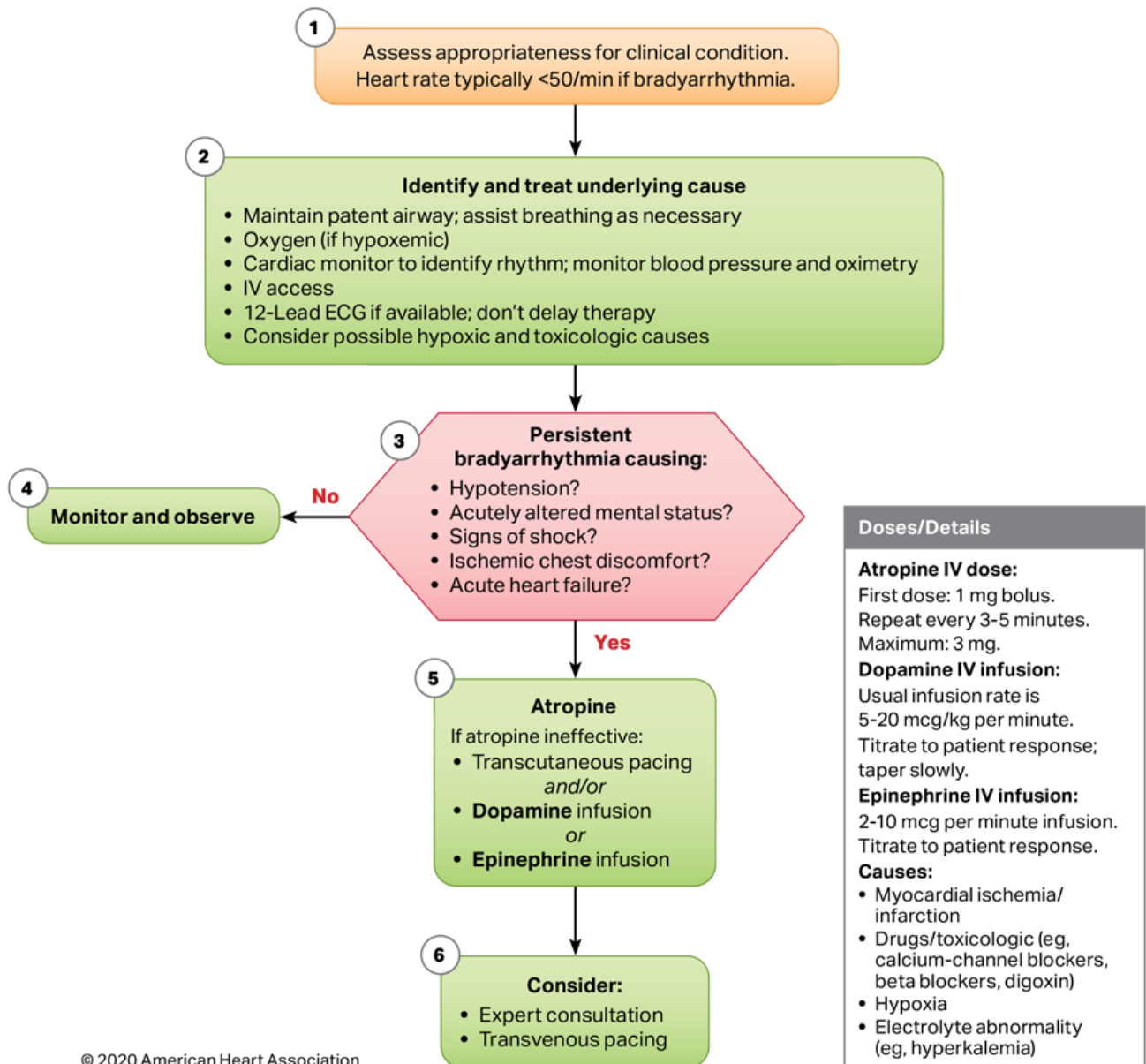
These evaluations should be done concurrently so that decisions on targeted temperature management (TTM) receive high priority as cardiac interventions.

- Emergent cardiac intervention: Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- TTM: If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- Other critical care management
 - Continuously monitor core temperature (esophageal, rectal, bladder)
 - Maintain normoxia, normocapnia, euglycemia
 - Provide continuous or intermittent electroencephalogram (EEG) monitoring
 - Provide lung-protective ventilation

H's and T's

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

Adult Bradycardia Algorithm



Adult Tachycardia With a Pulse Algorithm

1 Assess appropriateness for clinical condition. Heart rate typically $\geq 150/\text{min}$ if tachyarrhythmia.

2 **Identify and treat underlying cause**

- Maintain patent airway; assist breathing as necessary
- Oxygen (if hypoxemic)
- Cardiac monitor to identify rhythm; monitor blood pressure and oximetry
- IV access
- 12-lead ECG, if available

3 **Persistent tachyarrhythmia causing:**

- Hypotension?
- Acutely altered mental status?
- Signs of shock?
- Ischemic chest discomfort?
- Acute heart failure?

Yes

4 **Synchronized cardioversion**

- Consider sedation
- If regular narrow complex, consider adenosine

No

6 **Wide QRS? ≥ 0.12 second**

Yes

7 **Consider**

- Adenosine only if regular and monomorphic
- Antiarrhythmic infusion
- Expert consultation

No

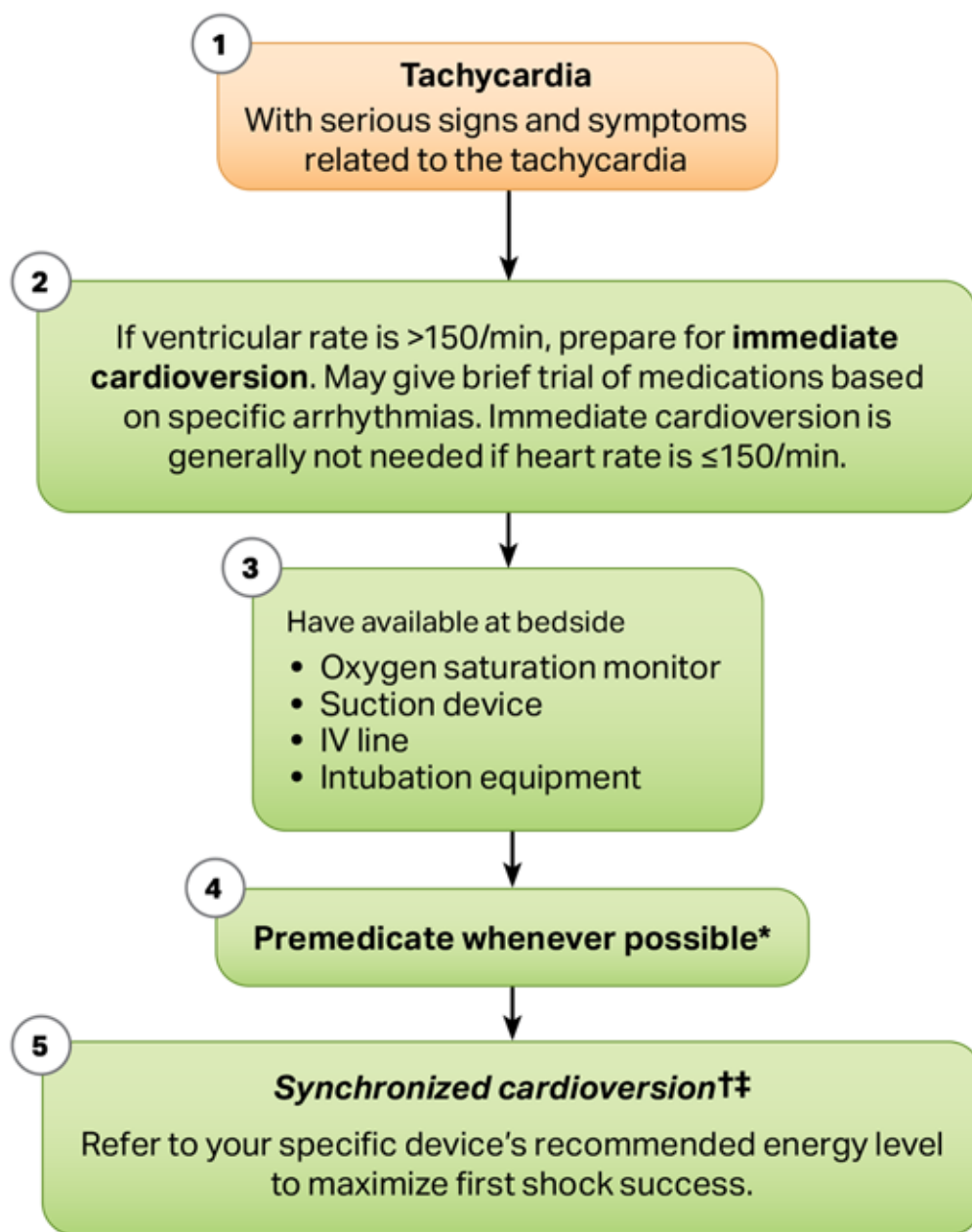
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- Vagal maneuvers (if regular)
- Adenosine (if regular)
- β -Blocker or calcium channel blocker
- Consider expert consultation

5 **If refractory, consider**

- Underlying cause
- Need to increase energy level for next cardioversion
- Addition of antiarrhythmic drug
- Expert consultation

Doses/Details
<p>Synchronized cardioversion: Refer to your specific device's recommended energy level to maximize first shock success.</p> <p>Adenosine IV dose: First dose: 6 mg rapid IV push; follow with NS flush. Second dose: 12 mg if required.</p>
<p>Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia</p> <p>Procainamide IV dose: 20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases $>50\%$, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.</p> <p>Amiodarone IV dose: First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.</p> <p>Sotalol IV dose: 100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.</p>



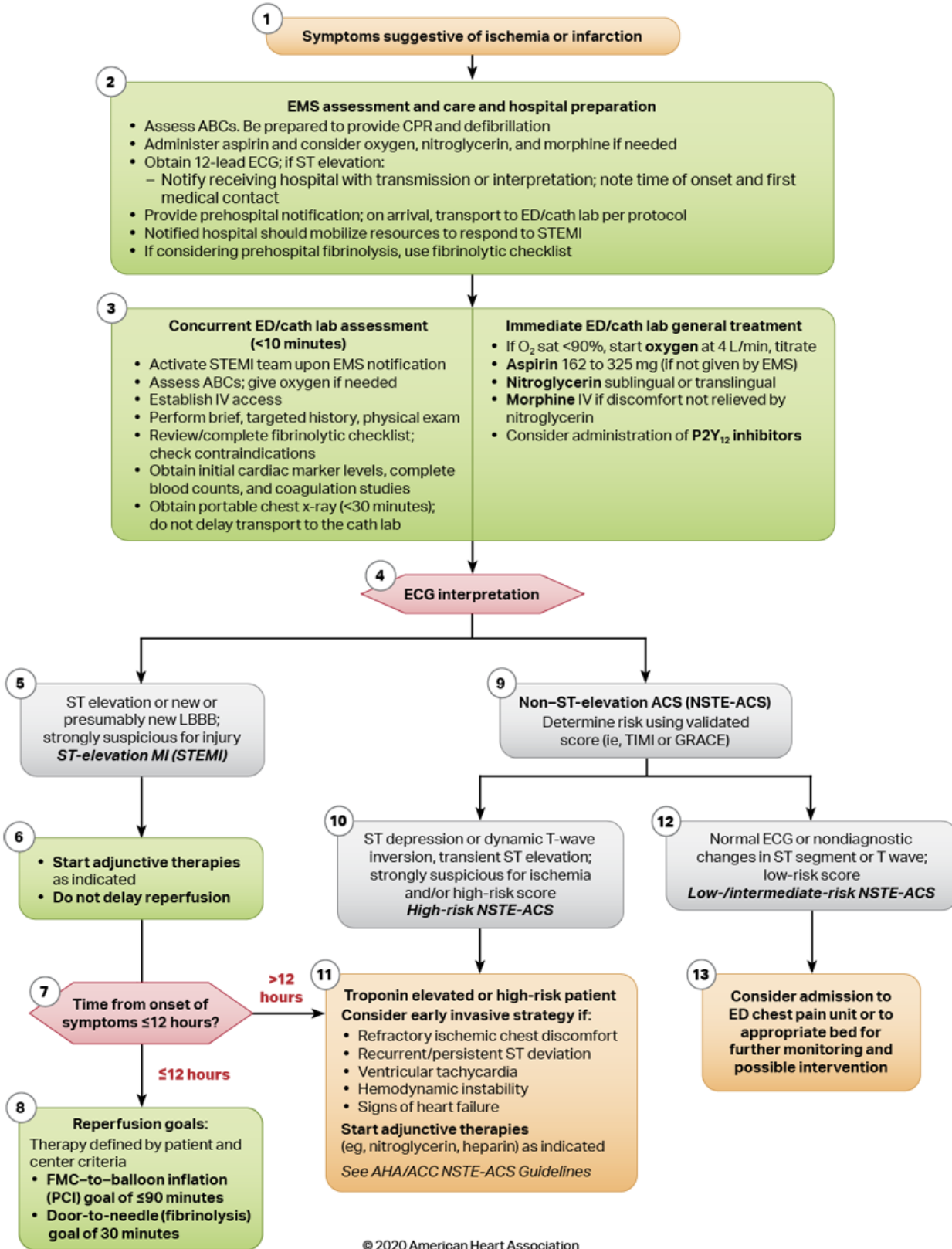
Notes

*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.

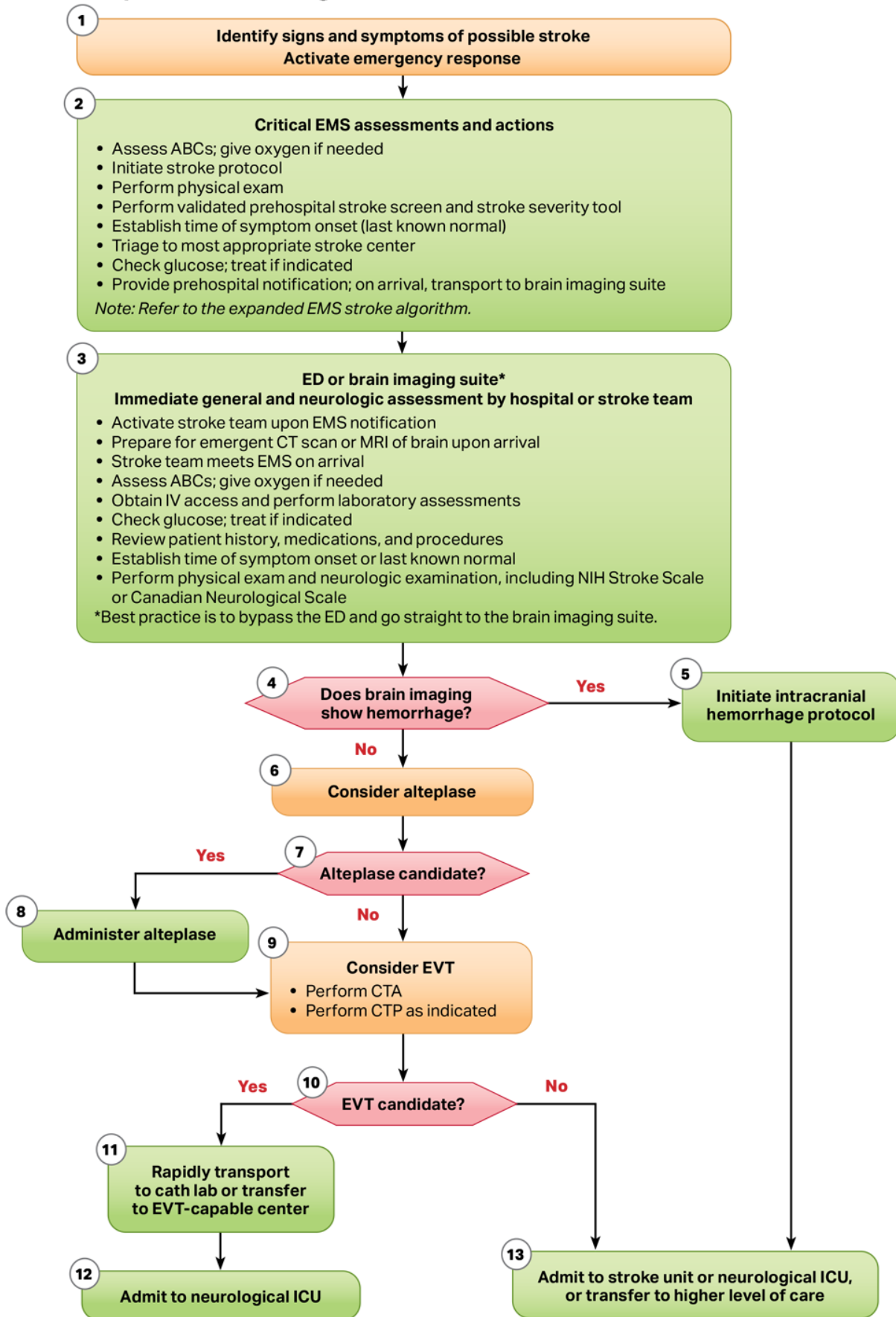
†Note possible need to resynchronize after each cardioversion.

‡If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.

Acute Coronary Syndromes Algorithm



Adult Suspected Stroke Algorithm



Expanded Systematic Approach Algorithm

