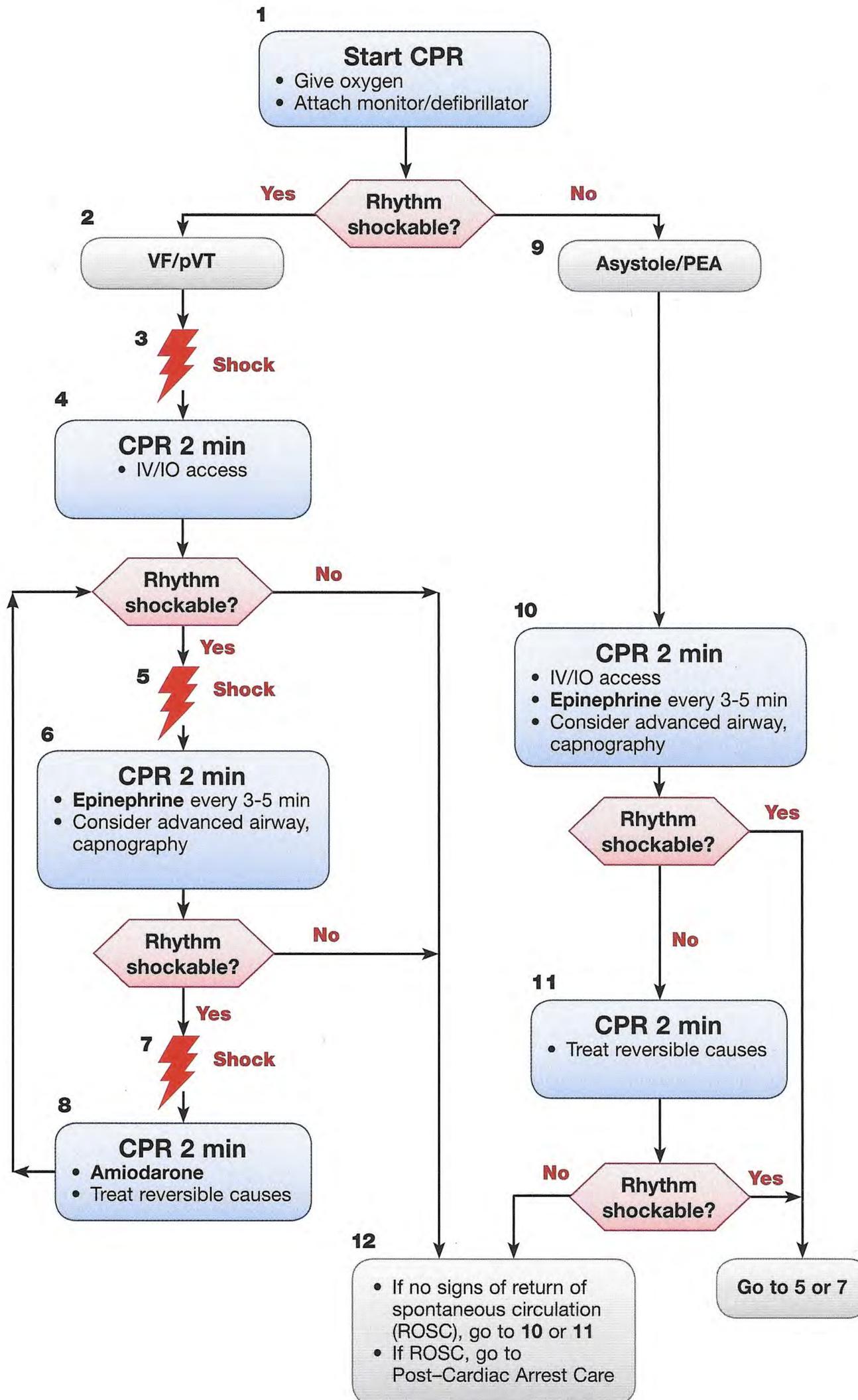


Adult Cardiac Arrest Algorithm – 2015 Update

Advanced Cardiovascular Life Support



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

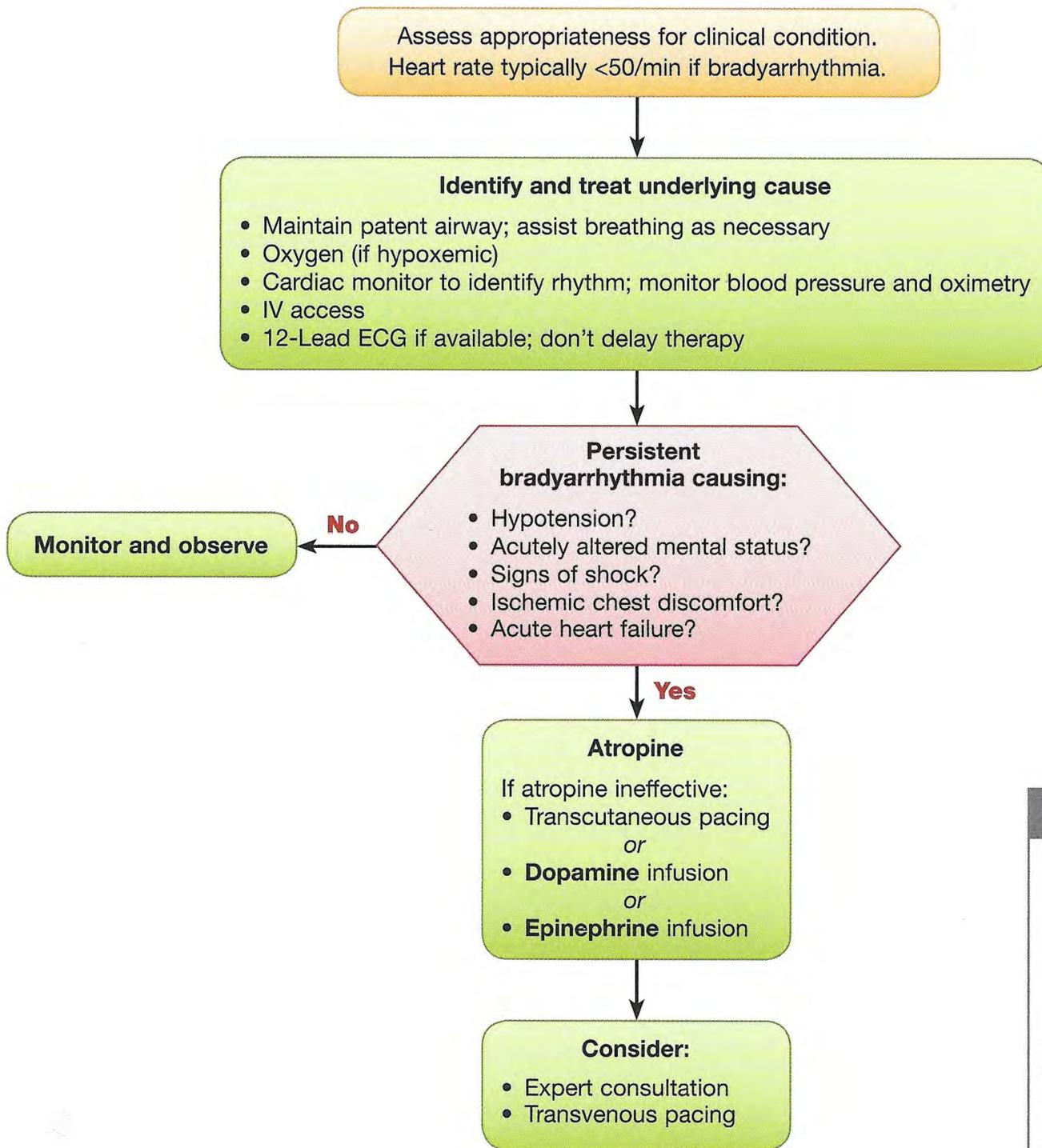
Reversible Causes

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



Adult Bradycardia With a Pulse Algorithm

Advanced Cardiovascular Life Support



Doses/Details

Atropine IV dose:

First dose: 0.5 mg bolus.
Repeat every 3-5 minutes.
Maximum: 3 mg.

Dopamine IV infusion:

Usual infusion rate is
2-20 mcg/kg per minute.
Titrate to patient response;
taper slowly.

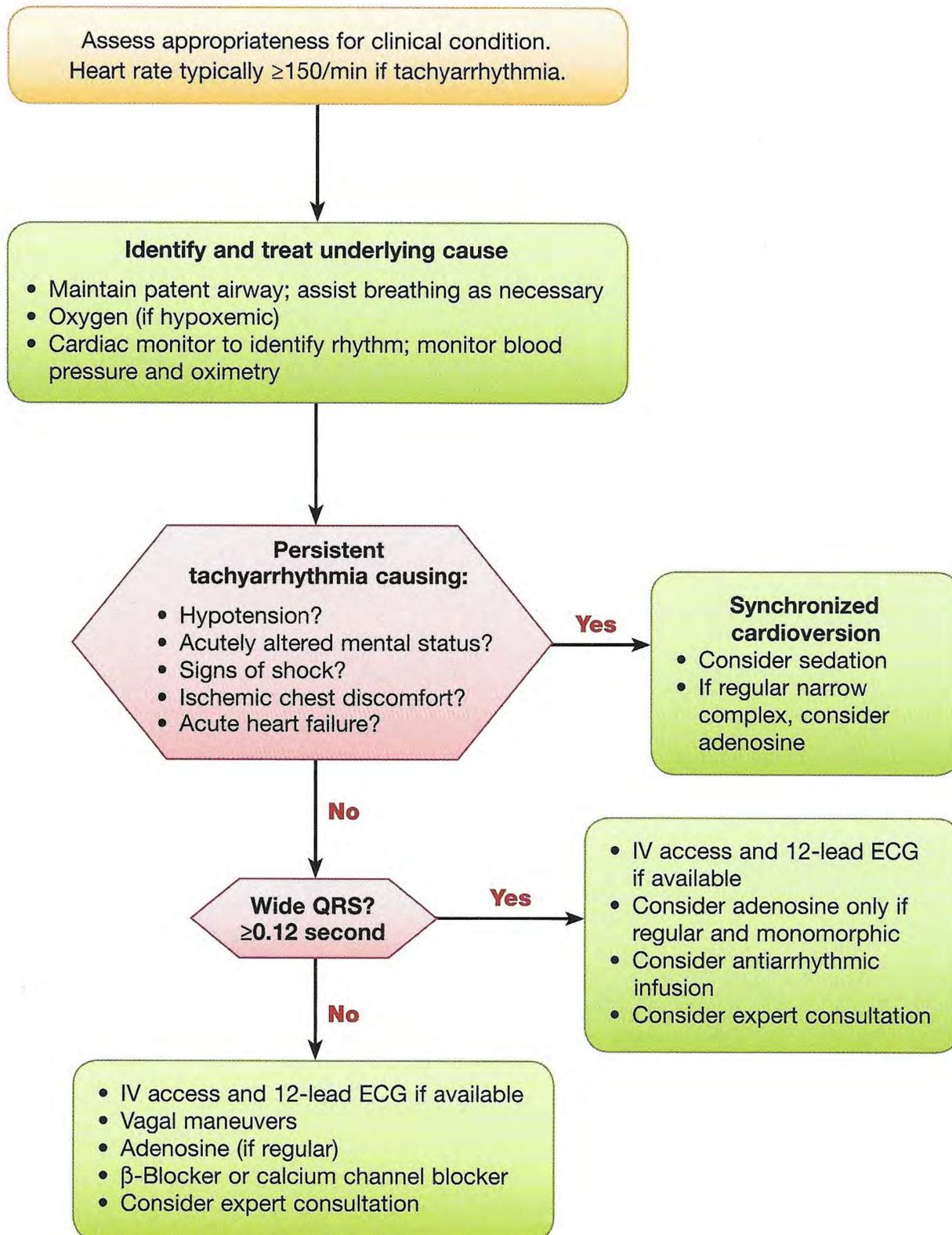
Epinephrine IV infusion:

2-10 mcg per minute
infusion. Titrate to patient
response.



Adult Tachycardia With a Pulse Algorithm

Advanced Cardiovascular Life Support



Doses/Details

Synchronized cardioversion:

Initial recommended doses:

- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (*not* synchronized)

Adenosine IV dose:

First dose: 6 mg rapid IV push; follow with NS flush.
Second dose: 12 mg if required.

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia

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.

Amiodarone IV dose:

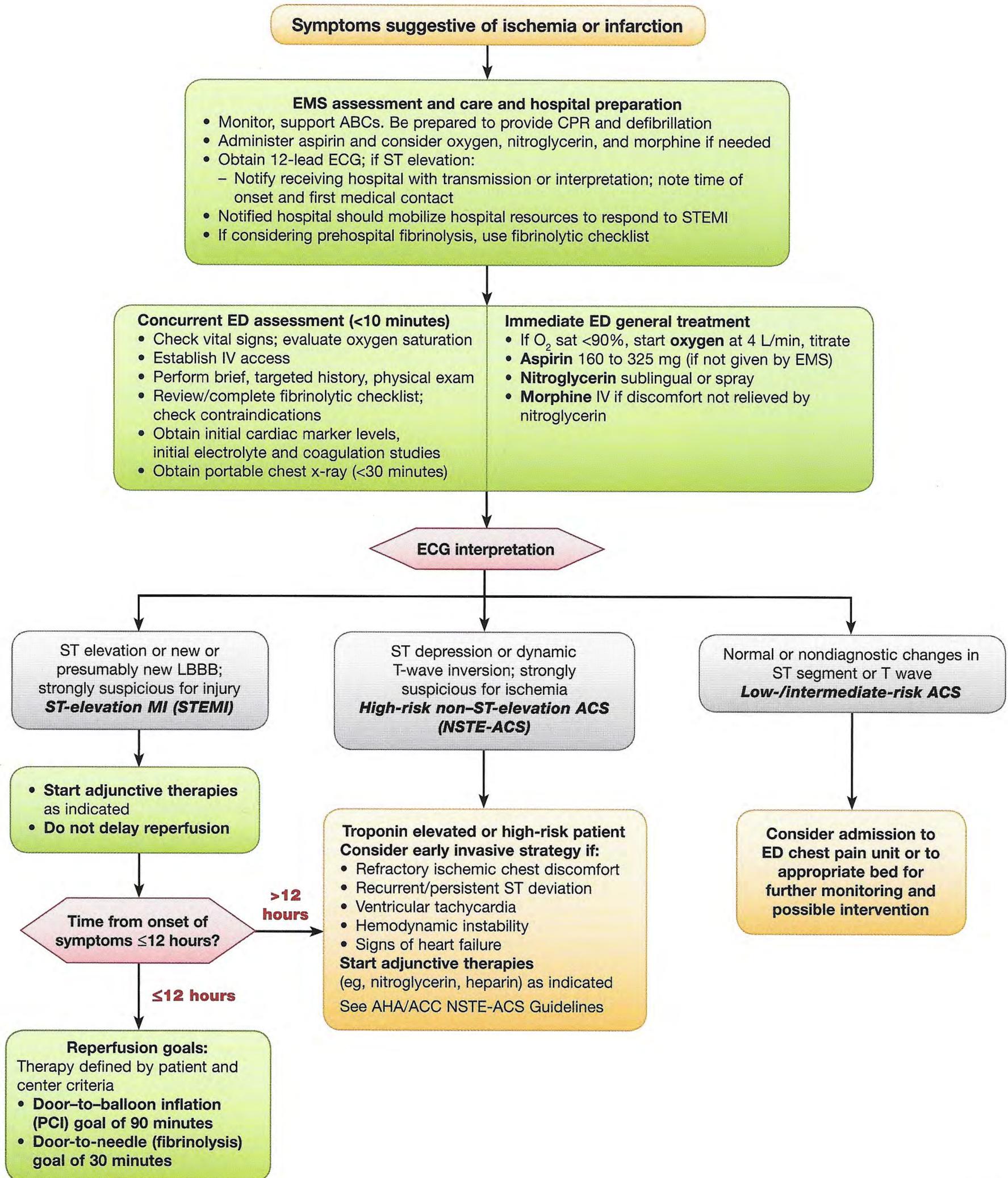
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

Sotalol IV dose:

100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

Acute Coronary Syndromes Algorithm – 2015 Update

Advanced Cardiovascular Life Support



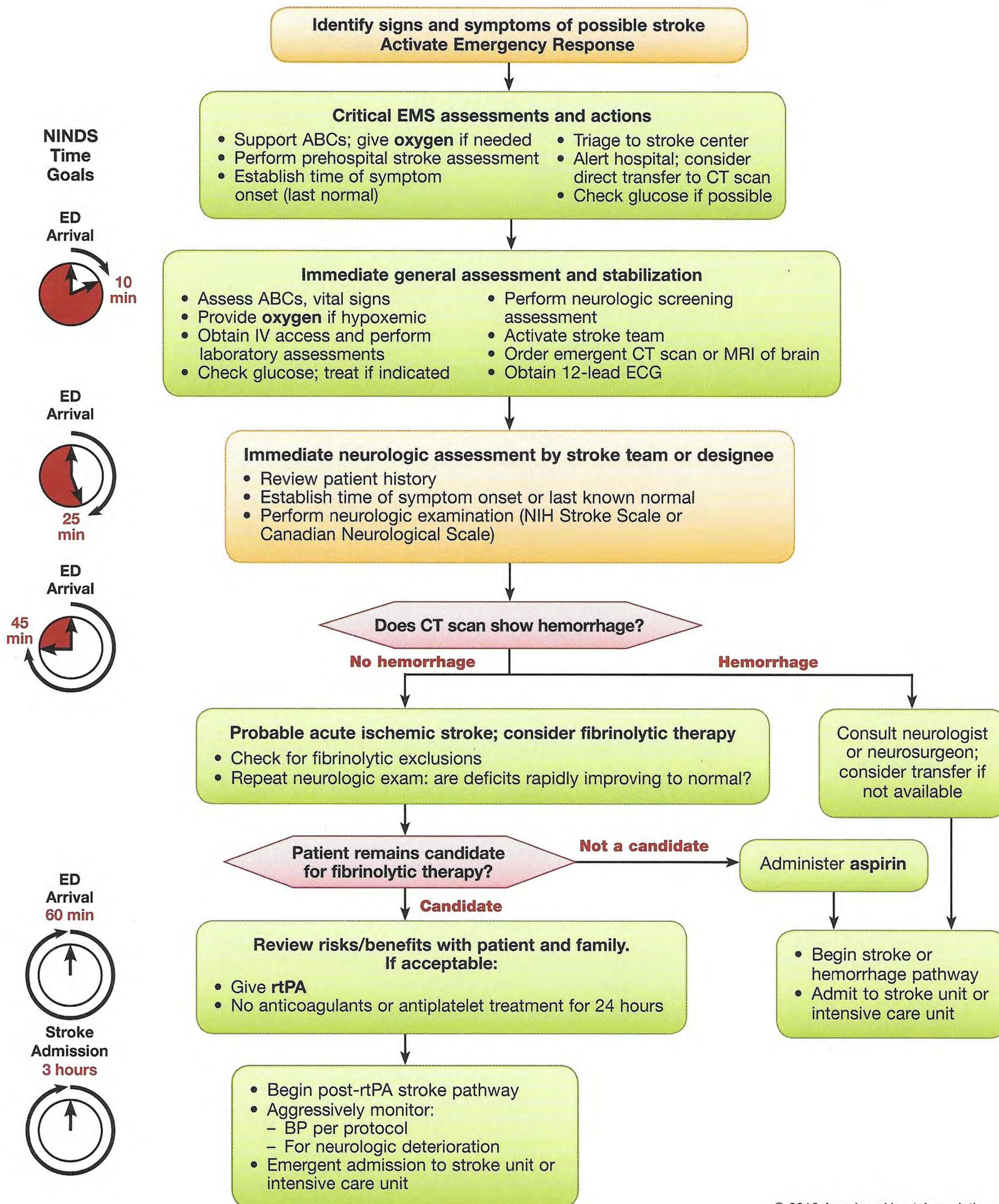
Adult Suspected Stroke Algorithm



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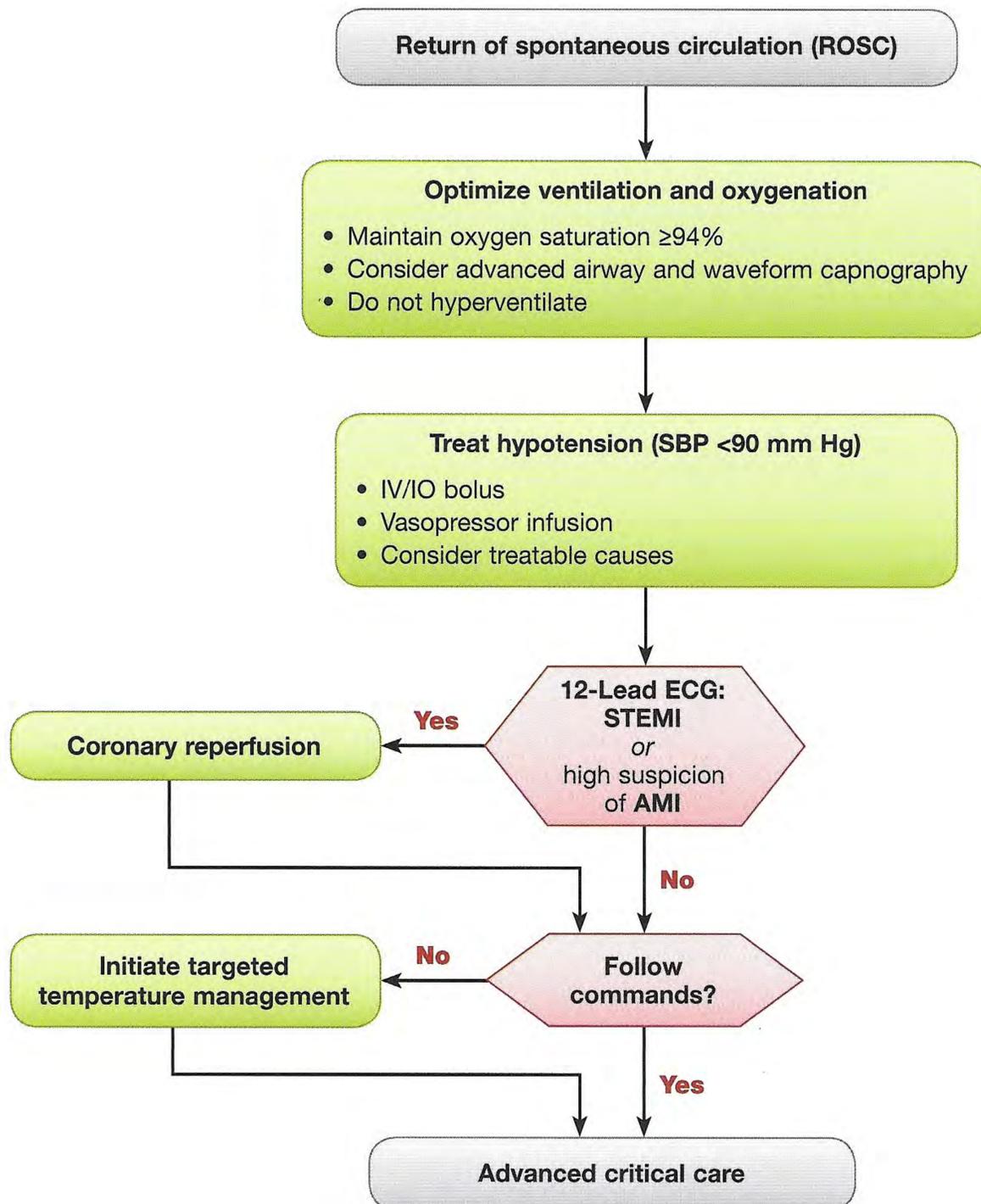
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Adult Immediate Post-Cardiac Arrest Care Algorithm – 2015 Update

Advanced Cardiovascular Life Support



Doses/Details

Ventilation/oxygenation:
Avoid excessive ventilation. Start at 10 breaths/min and titrate to target PETCO₂ of 35-40 mm Hg. When feasible, titrate FIO₂ to minimum necessary to achieve SpO₂ ≥94%.

IV bolus:
Approximately 1-2 L normal saline or lactated Ringer's

Epinephrine IV infusion:
0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Dopamine IV infusion:
5-10 mcg/kg per minute

Norepinephrine IV infusion:
0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Reversible Causes

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



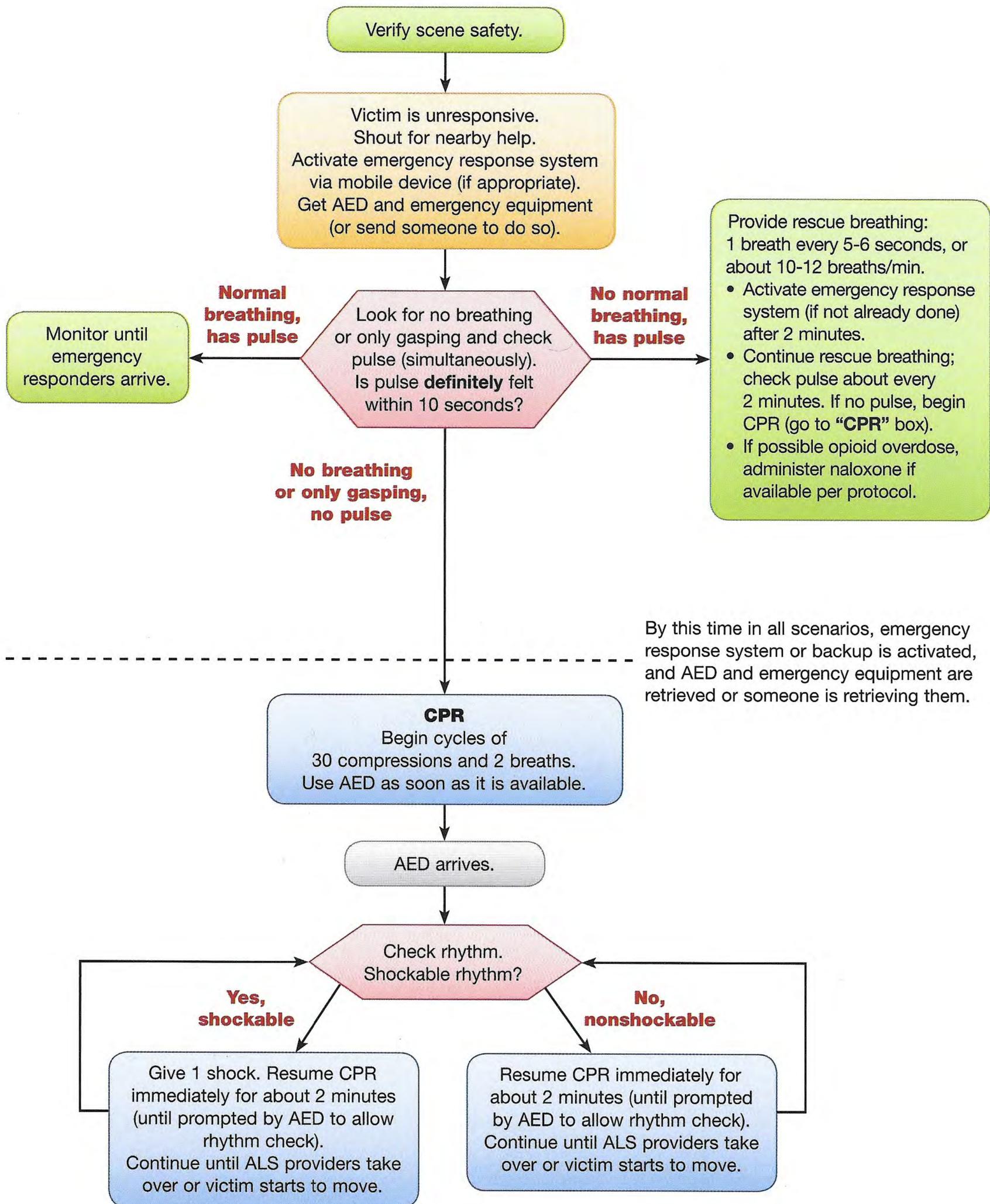
BLS Healthcare Provider Adult Cardiac Arrest Algorithm – 2015 Update



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ACLS Code Drugs – 2015 Guidelines

Drug	Indications	Dosage	Administration
Adenosine/ Adenocard	Narrow PSVT/VT Wide QRS Tachy of Uncertain cardiac origin	6 mg followed by 12mg in 1-2 min.	Rapid IV push close to the hub followed by a saline bolus.
Amiodarone	Vfib/pulseless VT, VT with a pulse. May be used for rate control of WPW or atrial tachycasrdias.	300mg IVP for cardiac arrest. Consider repeating with 150mg in 3-5 min. 150mg over 10 min for stable VT, may repeat 150mg every 10 min as needed. Cumulative dose of 2.2 IV in 24 hrs. Slow infusion 360mg IV over 6 hrs, maintenance 540mg over 18 hrs. (0.5mg/min)	Draw up with filtered needle. Administer drip with filtered tubing. Gtt infusion mixed 900mg/500 D5W. 1mg/min = 33.3cc/hr .5mg/min = 16.6cc/hr Half life is up to 40 days.
Atropine	Symptomatic sinus bradycardia.	0.5mg IV every 3-5 min for bradycardia, not to exceed 3 mg	Do not give less than 0.5mg IV. May be given IV, or IO. Does not work with heart transplant patients due to denervation.
Calcium Chloride	Known or suspected hyperkalemia (renal fx). Hypocalcemia after multiple blood tx. Antidote for calcium channel blockers or beta blocker overdose	8-16mg/kg IV for hyperkalemia and calcium channel blocker overdose.	Do not mix with sodium bicarbonate.
Dopamine	Used for hypotension with signs and symptoms of shock or bradycardia	Mixed 400mg/250D5W 2-20mcg/kg/min.	IV line must be a good one. Will cause extravasation with infiltration Do not mix with sodium bicarbonate.
Epinephrine	Cardiac arrest, VF, pulseless VT, asystole, PEA Symptomatic bradycardia, severe hypotension, anaphylaxis	Cardiac arrest: 1mg of the 1:10,000 administered q 3-5 min follow each dose with IV flush. Bradycardia or hypotension use a gtt.	1 mg/250cc: 1mcg/min = 15 ml/hr. May be given IV, IO.
Lidocaine	Secondary to Amiodarone in Cardiac Arrest	1 1.5 mg/kg repeat in 5 min @ ½ initial dose	IV push – max dose 3mg/kg

Drug	Indications	Dosage	Administration
Magnesium Sulfate	Torsades de pointes or suspected hypomagnesemia. Life threatening arrhythmias due to dig toxicity.	1-2 gm diluted in 10 cc D5W IVP if in cardiac arrest. If not in cardiac arrest mix 1-2 gm in; 50 to 100 cc D5W to infuse over 5 to 60 min.	May cause fall in BP with rapid administration. Use with caution if renal failure is present.
Morphine Sulfate	Used for treatment of ischemic chest pain, acute cardiogenic pulmonary edema, anxiety, Decreases the myocardial preload and causes peripheral venous pooling.	2-4 mg q 10 min	Given slow IV over 1-2 min Precautions: respiratory depression and hypotension
Narcan/Naloxone	Used to reverse respiratory depression that results from narcotics Also used for coma of unknown etiology	Dosage – 0.4 mg to 2 mg IV or IO	IV or IO meds should be given over 1 min. Precautions: If given rapidly IV/IO can cause projectile vomiting Patient may become agitated or violent
Sotalol	Hemodynamically Stable Monomorphic Ventricular Tachycardia 3 rd Line Anti-Arrhythmic	100 mg over 5 min or 1.5 mg/kg over 5 min	Avoid if prolonged QT
Sodium Bicarbonate	Preexisting hyperkalemia, metabolic acidosis, prolonged resuscitation.	1 meq/kg IV bolus. Repeat half dose q 10 min	Not recommended for routine use in cardiac arrest patients.

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