

HeartSmart Health Services LLC

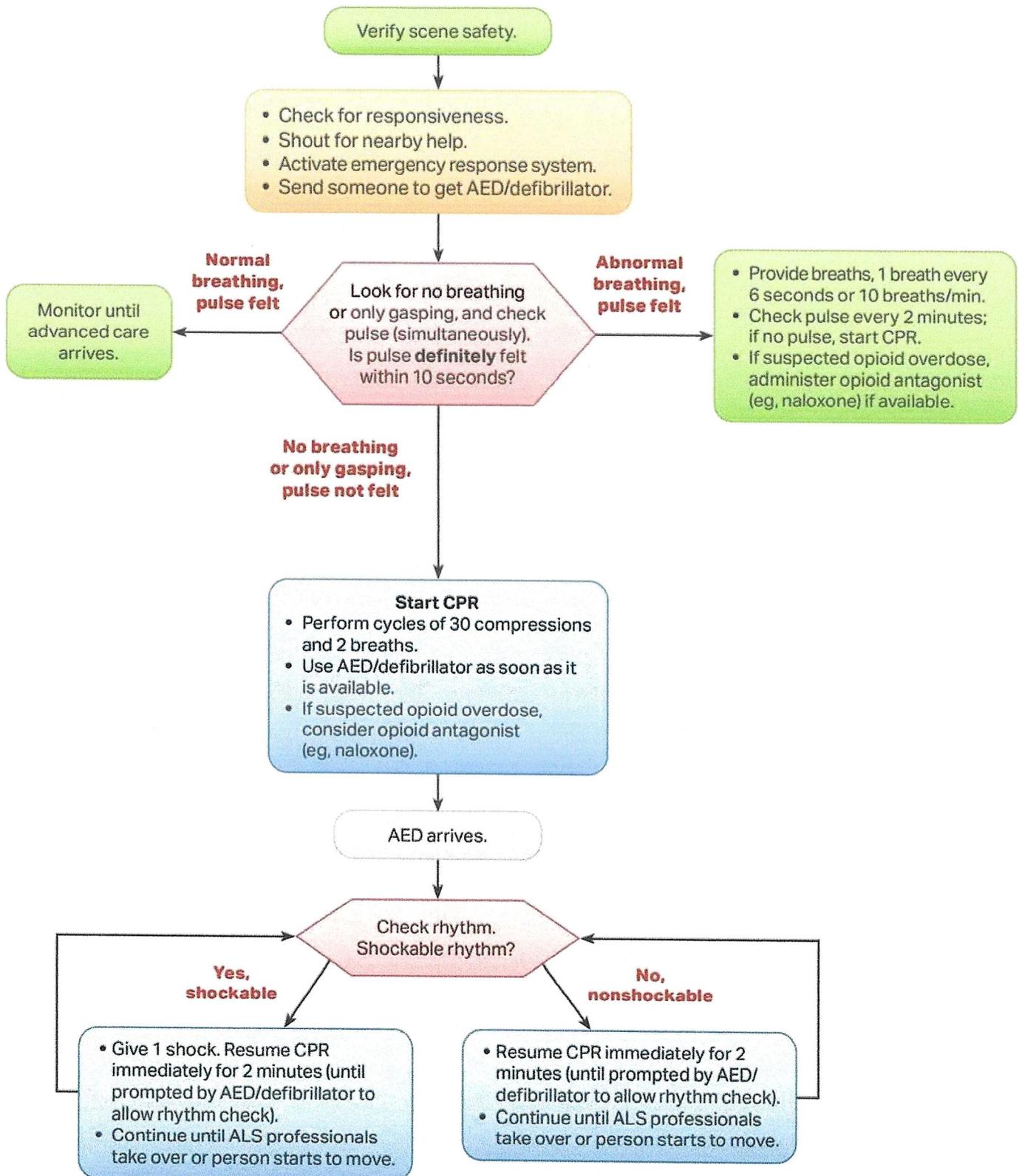
ACLS STUDY GUIDE

Offices in Pinellas Park and Ellenton FL

<https://HeartSmartACLS.com>

Visit the website for more study guides!

Adult* Basic Life Support Algorithm for Health Care Professionals



*If signs of puberty, treat as adult.

Respiratory

Open airway with head tilt-chin lift

NPA – nare to earlobe

OPA – corner of mouth to angle of mandible

Rescue Breathing (with pulse) - **10** x minute

Excessive ventilation causes decreased cardiac output

Squeeze the BVM 1/3 to 1/2, enough to see chest rise

Advanced Airway - LMA/ETT

Uninterrupted chest compressions 100-120 pm

Rescue Breaths 10x per minute

Medications down the ET tube not recommended

Continuous Waveform Capnography

Measures the quality of compressions for CPR

During Cardiac Arrest should **at least 10**

Goal after **ROSC** is **35-45** mmHg

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Transition to ALS

Follow **M.O.V.E** on all stable patients prior to treatment

M – Monitor	get the vital signs
O – Oxygen	titrate to 90-99%
V – Veinous Access	large bore IV
E – EKG 12lead	identify STEMI's

Peripheral IV (large bore - AC) - I.O. if unable to establish IV access

EMS/Rapid Response Teams for early clinical deterioration

Team Dynamics

Roles and Responsibilities **CPR coach**, Leader, Compressor, Airway, Meds, Scribe

Know your limitations ask for a new task

Use **clear messages** to the team

Verbalize completion of a task for a **Closed Loop Communication**

Constructive Intervention to stop mistakes / instruct proper technique

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A.C.S.

M.O.V.E.

- 1 - Aspirin 162 - 325mg
- 2- Nitro Sublingual
- 3- Oxygen 90-99% least amount of O2 required
- 4 - Fentanyl / Morphine for pain

Nitro Contraindications

Right sided ischemia or infarction

Hypotension – Syst <90 **MAP <65**

Viagra/Cialis <48 hours

Goal for PCI <90 min from medical contact

Notify! EMS or Rapid Response

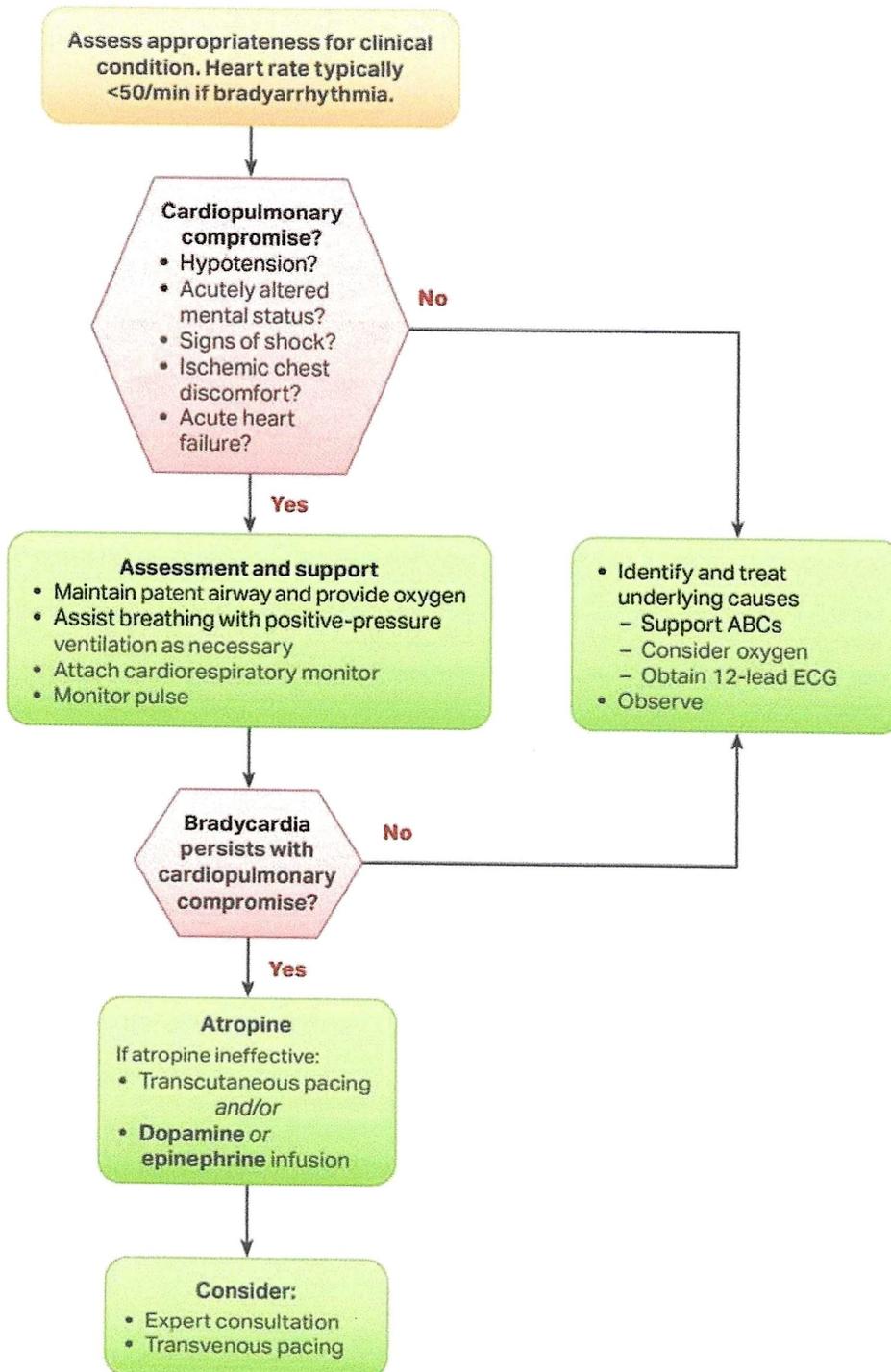
LBBB no longer STEMI criteria

Clopidogrel no longer the primary anti coagulant

Enoxaparin or Fondaparinux preferred anti coagulant

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Adult Bradycardia With a Pulse Algorithm



Doses/Details

Atropine IV dose:

First dose: 1 mg bolus.
Repeat every 3-5 minutes.
Maximum total dose: 3 mg.

Dopamine IV infusion:

Usual infusion rate is 5-20 mcg/kg per minute.
Titrate to patient response; taper slowly.

Epinephrine IV infusion:

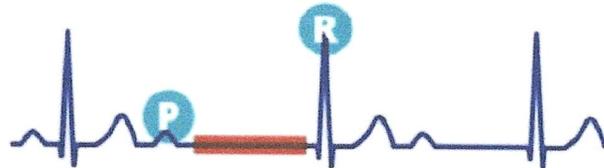
2-10 mcg per minute infusion.
Titrate to patient response.

Possible Causes

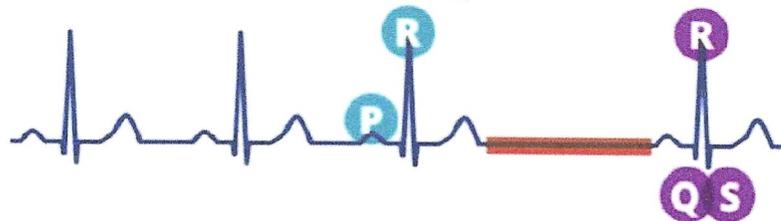
- Myocardial ischemia/infarction
- Drugs/toxicologic (eg, calcium-channel blockers, β -blockers, digoxin)
- Hypoxia
- Electrolyte abnormality (eg, hyperkalemia)

Heart Blocks

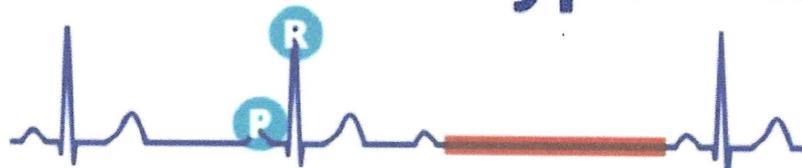
If the R is far from the P,
then it must be a **First Degree**



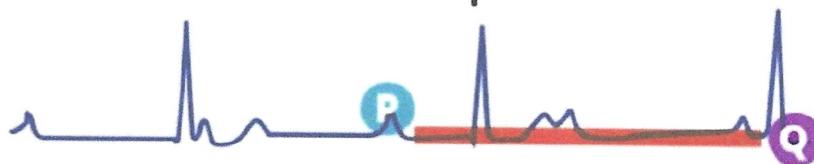
If PR gets longer then a QRS drop,
then it must be a **Type I Wenckebach**



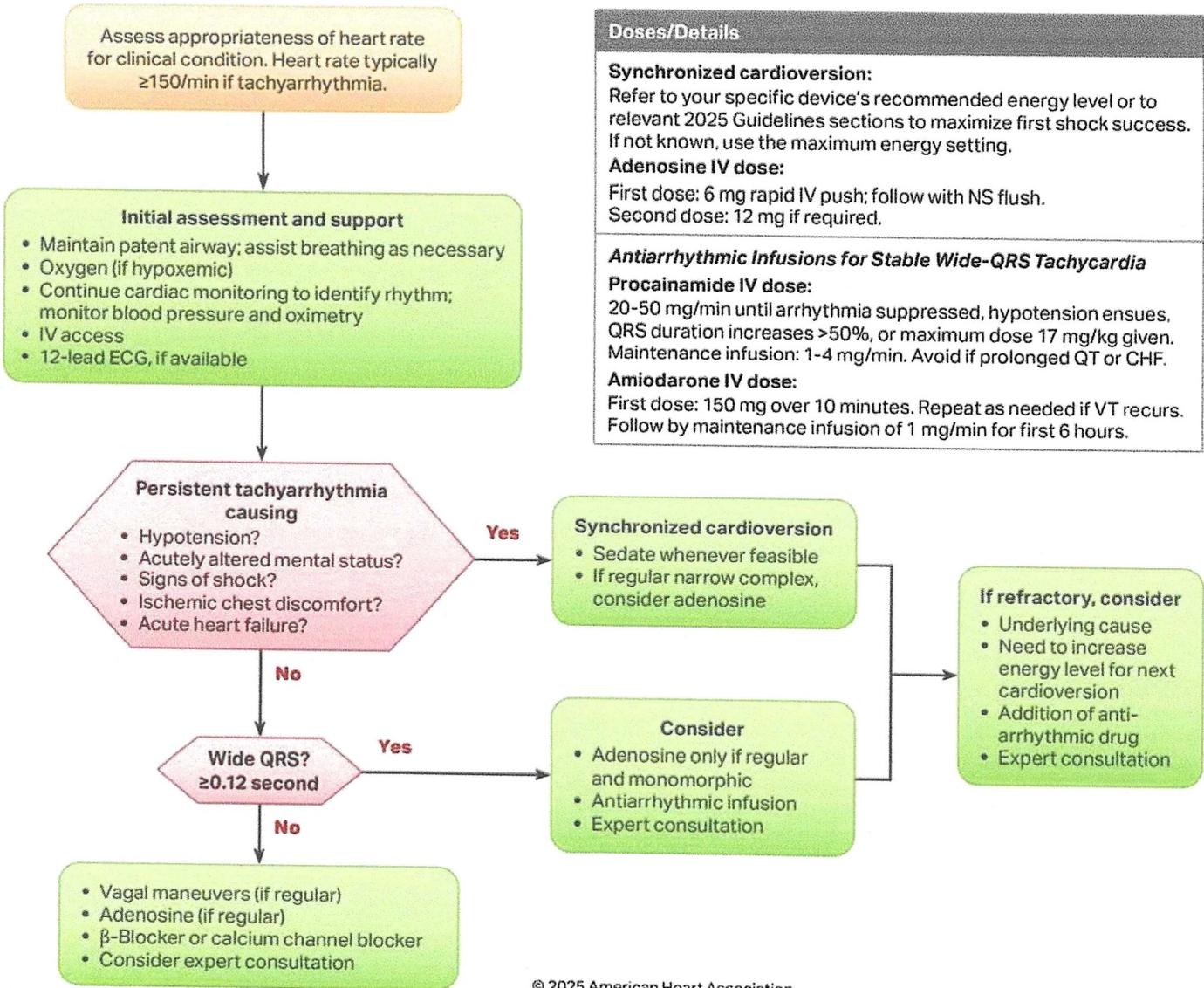
If PR stays normal and QRS quits,
then it must be a **Type II Mobitz**



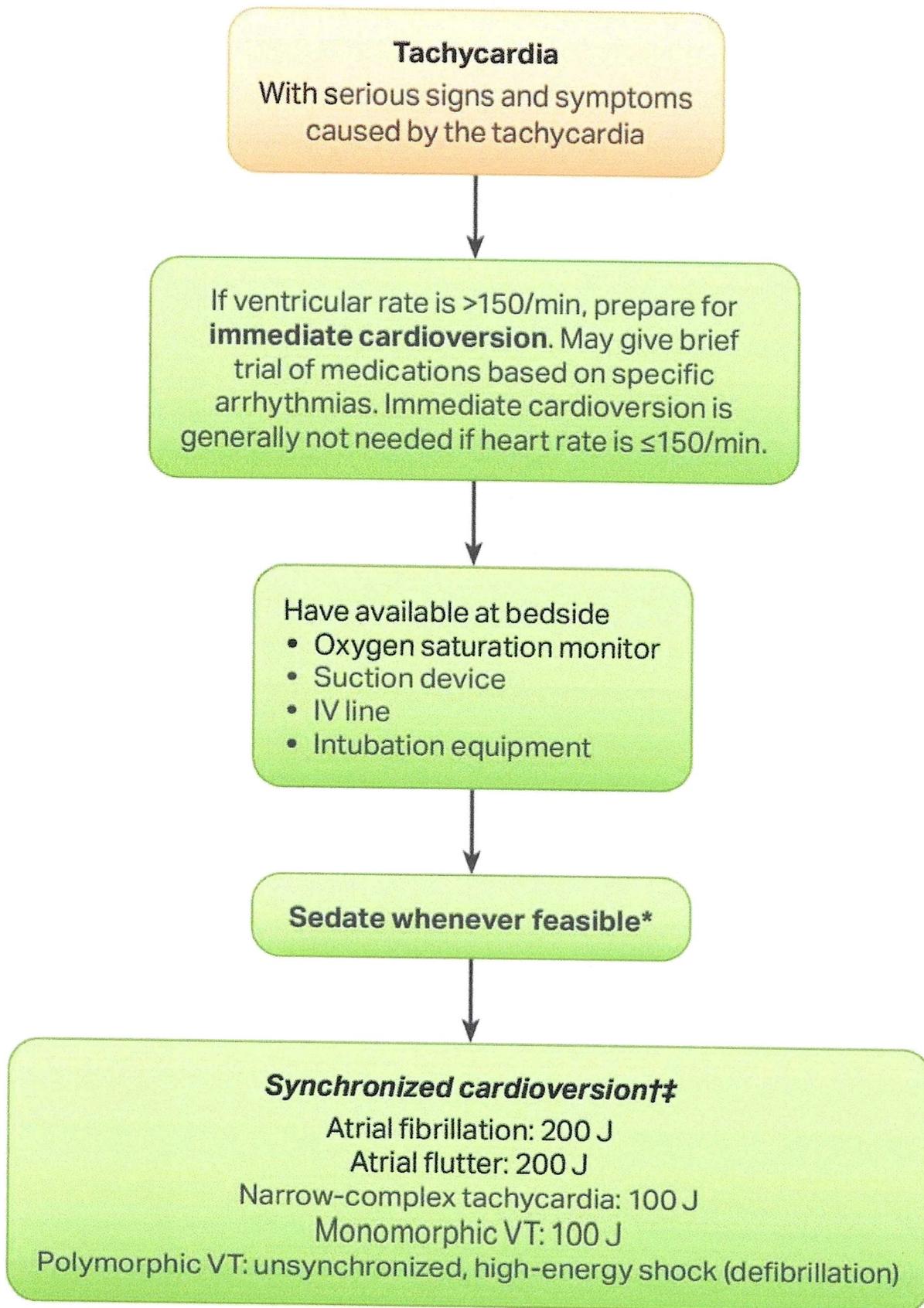
If P and QRS beat independently,
then it must be a complete **Third Degree**



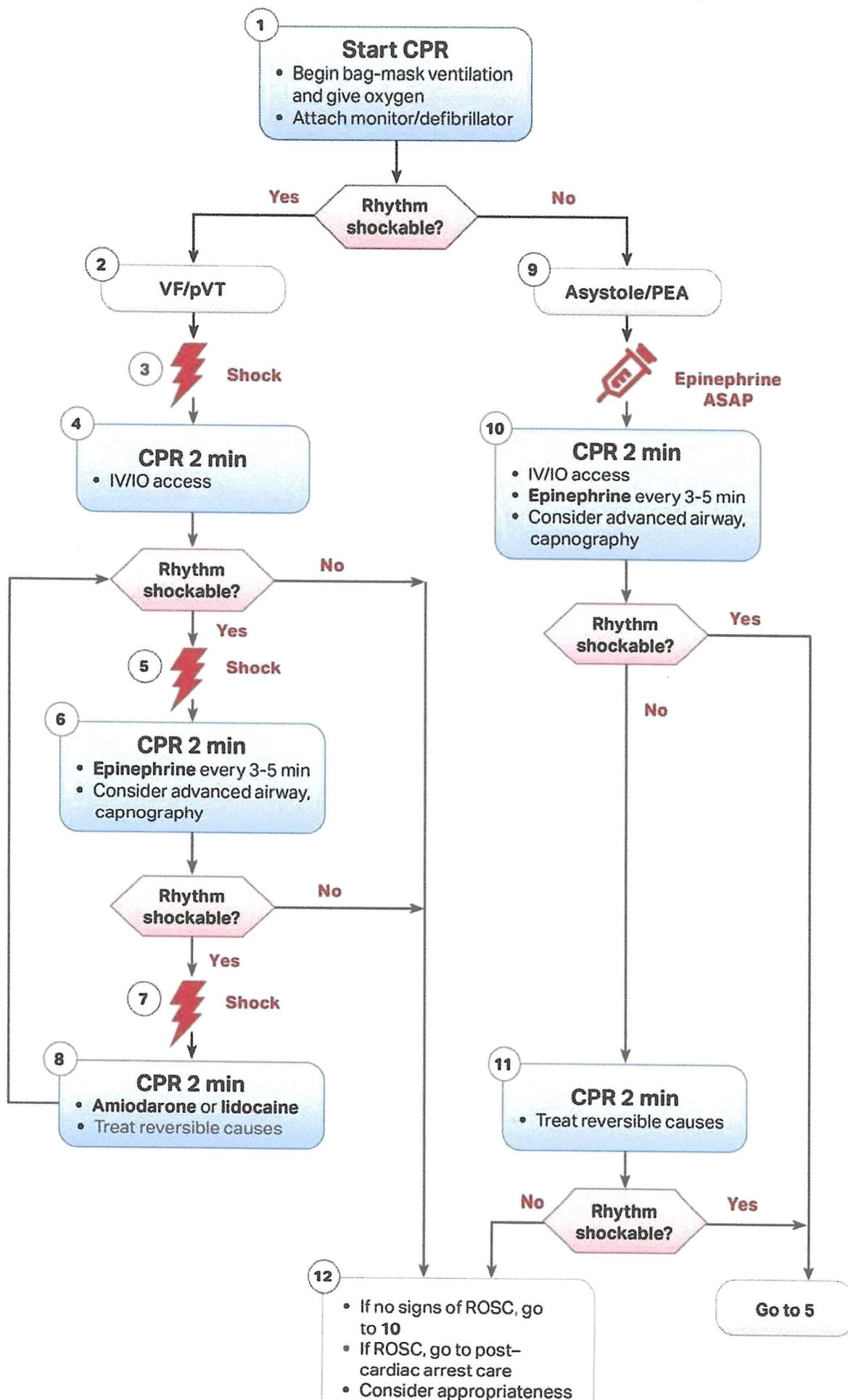
Adult Tachyarrhythmia With a Pulse Algorithm



Electrical Cardioversion Algorithm



Adult Cardiac Arrest Algorithm (VF/pVT/Asystole/PEA)



High-Quality CPR
<ul style="list-style-type: none"> • Push hard (at least 2 inches [5 cm]). • Push 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, use 30:2 compression-ventilation ratio. • If advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions. • Continuous waveform capnography <ul style="list-style-type: none"> - If ET_{CO}₂ 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"> • ET intubation or supraglottic advanced airway • Continuous waveform capnography or capnometry to confirm and monitor ET tube placement
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

Mechanical compression devices not for routine use

Hypovolemia and Tension pneumo can cause cardiac arrest H&Ts

Universal Termination of Resuscitation Rules

EMS - Arrest not witnessed, No bystander CPR,

No shock prior to transport, No ROSC prior to transport

If all criteria present, consider termination

Return of Spontaneous Circulation (ROSC)

M.O.V.E.

M – Monitor Vital Signs

O – oxygen SpO₂ 90-98 PETCO₂ 35-45

V – IV fluids KVO or Bolus

E – EKG 12 lead - STEMI?

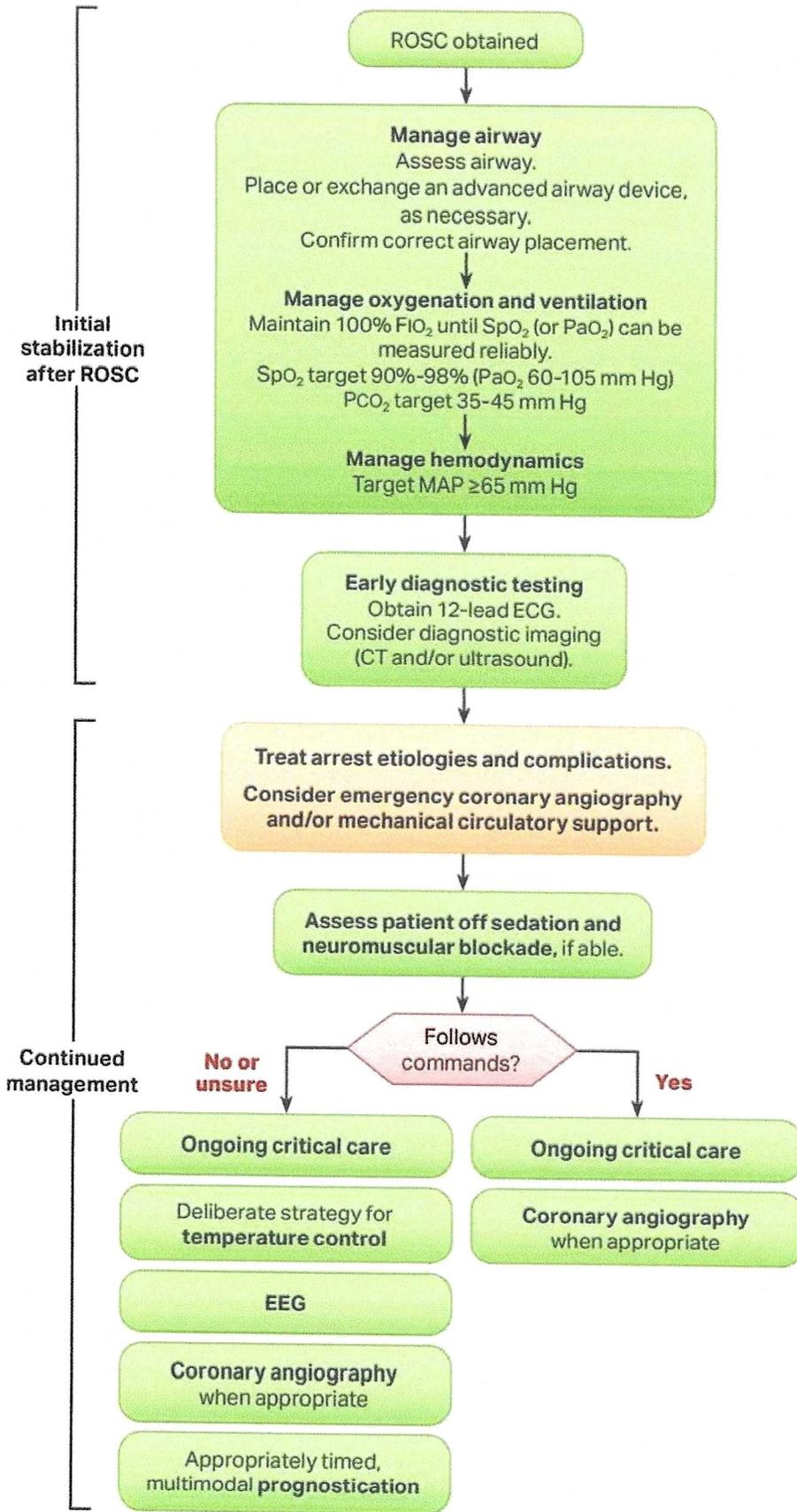
Treat hypotension - <90s or MAP <65

Temperature Control is 32-37.5c (99.5f) 36 hours

CT Scans / Cardiac US imaging to look for possible causes

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Adult Post-Cardiac Arrest Care Algorithm



Initial Stabilization After ROSC

Resuscitation is ongoing during the post-ROSC phase, and many of these activities can occur concurrently.

Manage airway: Assess and consider placement or exchange of an advanced airway device (usually endotracheal tube or supraglottic device). Confirm correct placement of an advanced airway. This generally includes the use of waveform capnography or capnometry.

Manage oxygenation and ventilation: Titrate FIO₂ for SpO₂ 90%-98% (or PaO₂ 60-105 mm Hg). Adjust minute ventilation to target PCO₂ 35-45 mm Hg in the absence of severe acidemia.

Manage hemodynamics: Initiate or adjust vasopressors and/or fluid resuscitation as necessary for goal MAP ≥65 mm Hg.

Early diagnostic testing: Obtain 12-lead ECG to assess for ischemia or arrhythmia. Consider CT head, chest, abdomen, and/or pelvis to determine cause of arrest or assess for injuries sustained during resuscitation. Point-of-care ultrasound or echocardiography may be reasonable to identify clinically significant diagnoses requiring intervention.

Continued Management

Treat arrest etiologies and complications.

Consider emergency cardiac intervention:

- Persistent ST-segment elevation present
- Cardiogenic shock
- Recurrent or refractory ventricular arrhythmias
- Severe myocardial ischemia

Temperature control: If patient is not following commands off sedation and neuromuscular blockade or is unable to assess, initiate a deliberate strategy of temperature control with goal 32°C-37.5°C as soon as possible.

Evaluate for seizure: Evaluate for clinical seizure and obtain EEG to evaluate for seizure in patients not following commands.

Prognostication: Multimodal approach with delayed impressions (≥72 hours from ROSC or achieving normothermia).

Ongoing critical care includes the following:

- Target PaO₂ 60-105 mm Hg, PCO₂ 35-45 mm Hg (unless severe acidemia); avoid hypoglycemia (glucose <70 mg/dL) and hyperglycemia (glucose >180 mg/dL); target MAP ≥65 mm Hg.
- Consider antibiotics.