

# **BLS AND ACLS- 2020 GUIDELINES**

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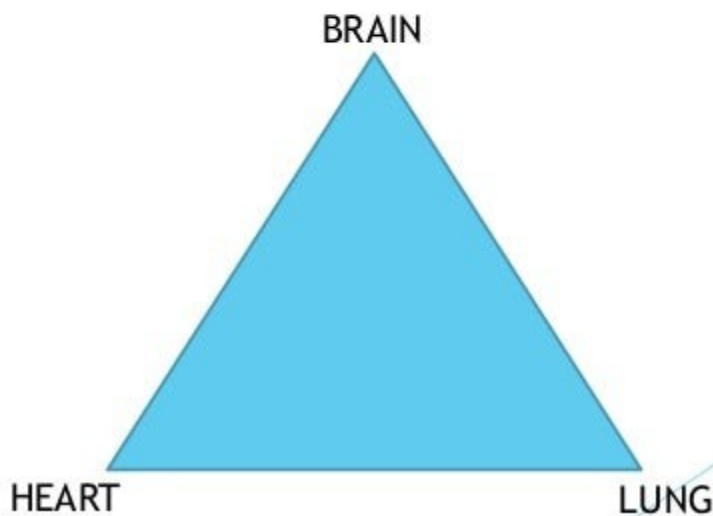
# CONTENTS

- BLS(BASIC LIFE SUPPORT) GUIDELINES
- CPR TECHNIQUE
- CHOKING
- ACLS(ADVANCE CARDIOVASCULAR LIFE SUPPORT) ALGORITHMS

# BASIC LIFE SUPPORT(BLS)

When a patient is unconscious or unresponsive with no pulse and no breathing then we have to start CPR and follow recent guidelines of BLS 2020

TRAID OF BLS:



# CHECKLIST OF BLS

- SCENE SAFETY
- CALL FOR HELP AND AED(AUTOMATED EXTERNAL DEFIBRILLATOR)
- ASSESS CAROTID PULSE
- IF PULSE ABSENT, START CPR(HIGH QUALITY)
- IF PULSE PRESENT, GO FOR RESCUE BREATHING
- AFTER CHEST COMPRESSION. ASSESS THE AIRWAY THEN VENTILATION
- AFTER 5 CYCLE OR 2 MIN, REASSESS CAROTID PULSE.

## Sudden Cardiac arrest Vs. Heart Attack

A heart attack is a “circulation” problem and sudden cardiac arrest is an “electrical” problem.

A heart attack is when blood flow to the heart is blocked which leads to ischemia, and sudden cardiac arrest is when the heart malfunctions due to conduction abnormality.

**IHCA is in hospital cardiac arrest**

**and**

**OHCA is out of hospital cardiac arrest**



## Adult IHCA Chain of Survival



## Adult OHCA Chain of Survival

## CPR(CARDIO-PULMONARY RESUSCITATION)

CPR is an emergency procedure that combines Rescue Breaths and Chest compression in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous Blood circulation and breathing.

# CPR is as easy as **C - A - B**



**C**ompressions  
Push hard and fast  
on the center of  
the victim's chest



**A**irway  
Tilt the victim's head  
back and lift the chin  
to open the airway



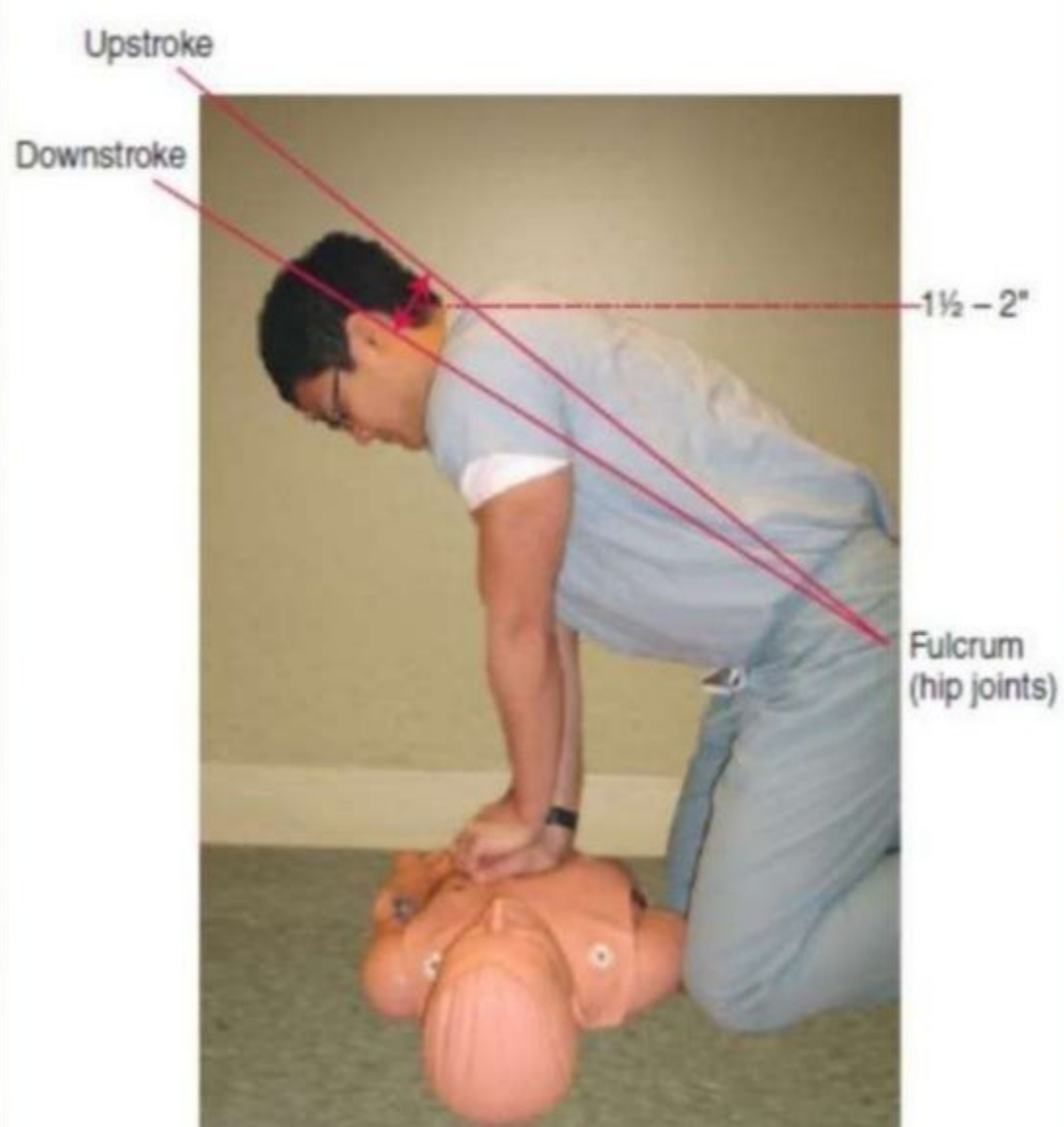
**B**reathing  
Give mouth-to-mouth  
rescue breaths

Early chest compression can immediately circulate oxygen that is still in the bloodstream. By changing the sequence, chest compressions are initiated sooner and the delay in ventilation should be minimal.

# HIGH QUALITY CPR



- Position patient on hard surface in supine position
- speed of compressions: 100-120/minute
- Adequate depth of compressions: 2-2.4" (5-6cm)
- Allow complete recoil of chest (avoid leaning on the chest between compressions)
- Ventilate adequately (2 breaths after 30 compressions, each breath delivered over 1 second, each causing chest rise)
- Do not over ventilate
- Minimal interruptions for ventilation (<10Sec)



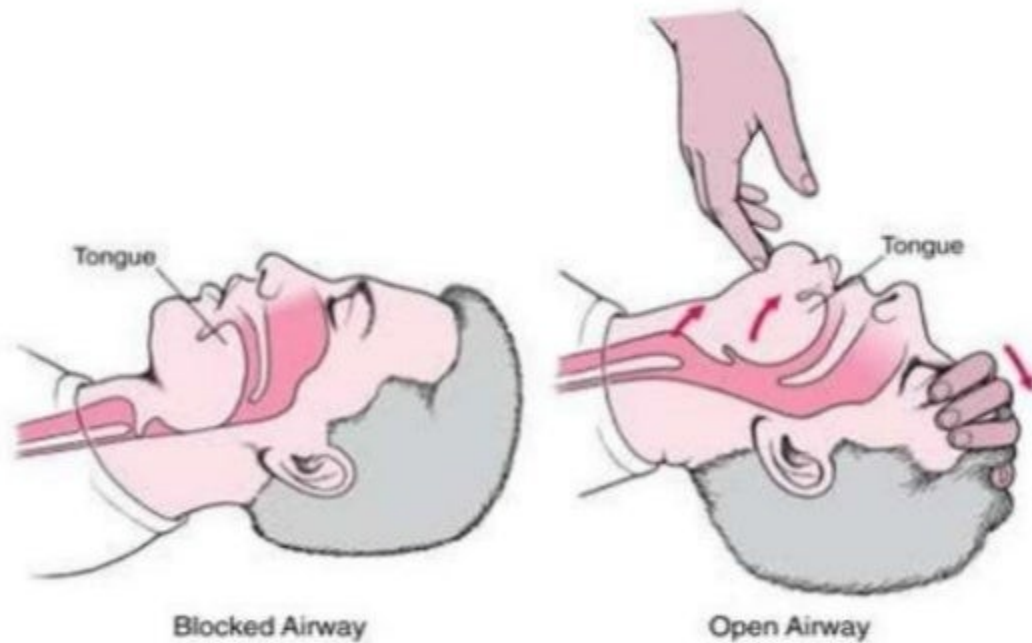
**Not too fast;  
Not too hard**



**100-120/min  
5-6cm deep**

# AIRWAY

## HEAD TILT – CHIN LIFT



## JAW THRUST



# Breathing

MOUTH TO MOUTH



# BREATHING : MOUTH TO MASK



# Breathing : AMBU BAG



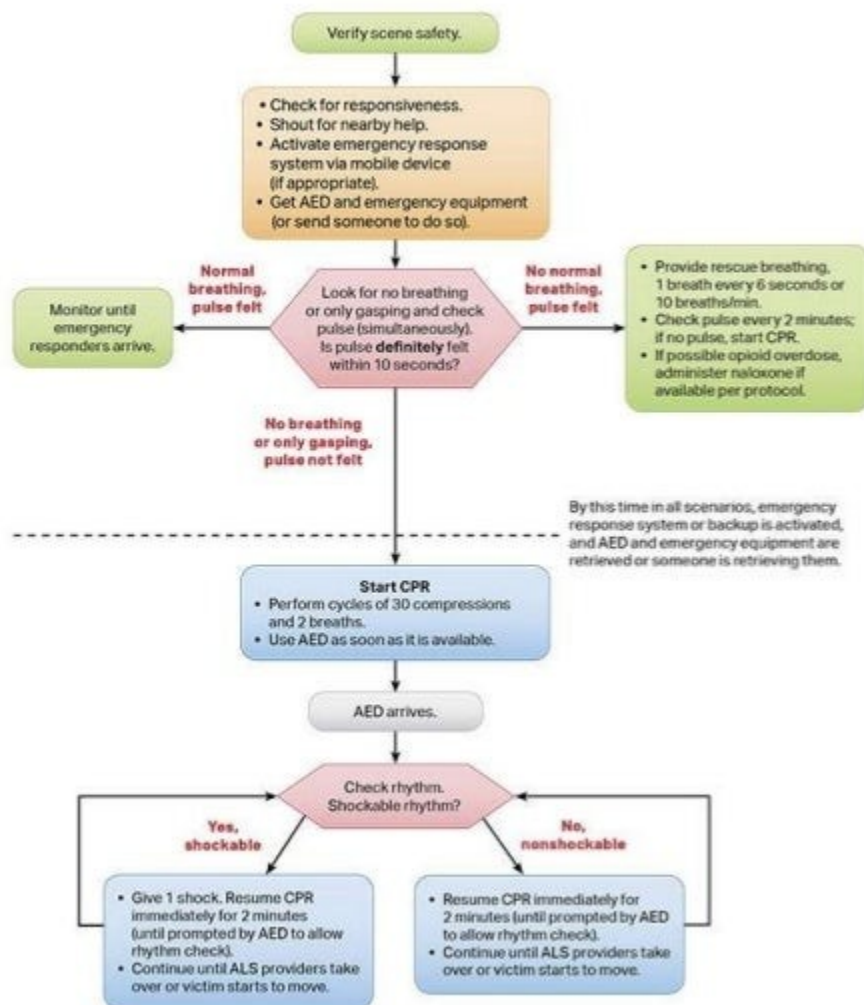
# Automated External Defibrillator



**Automated external defibrillator (AED)**  
(checks heart rhythm and can send electric shock to restore normal rhythm)

AED has written instructions and gives voice instructions

## Adult Basic Life Support Algorithm for Healthcare Providers



# ROSC(Return of spontaneous circulation)

When patient circulation returns and pulse palpable after CPR/AED

Once patient comes in ROSC then search for probable cause.

# CHOKING



Universal sign  
for choking

# The Heimlich Maneuver

- Position thumb side of fist 1" above naval and well below tip of sternum

- Thrust fist inward and upward

- Stop occasionally to check victim and your technique



The motion of the Heimlich maneuver raises the **diaphragm**, causing the **lungs** to compress.

This compression forces air out of the lungs at a high enough pressure to expel the object.



# ACLS(ADULT CARDIOVASCULAR LIFE SUPPORT)

- ADULT CARDIAC ARREST ALGORITHM
- ADULT POST CARDIAC ARREST CARE ALGORITHM
- ADULT TACHYCARDIA ALGORITHM
- ADULT BRADYCARDIA ALGORITHM

# ADULT CARDIAC ARREST ALGORITHM

Cardiac arrest is a sudden loss of blood flow resulting from the failure of the heart to pump effectively.

Signs include loss of consciousness and abnormal or absent breathing.

Patient becomes **unstable**.

# HOW TO IDENTIFY UNSTABLE PATIENT ? (HASIA)

H: HYPOTENSION

A: ALTERED MENTAL STATUS

S: SIGNS OF SHOCK

I: ISCHEMIC CHEST DISCOMFORT

A: ACUTE HEART FAILURE

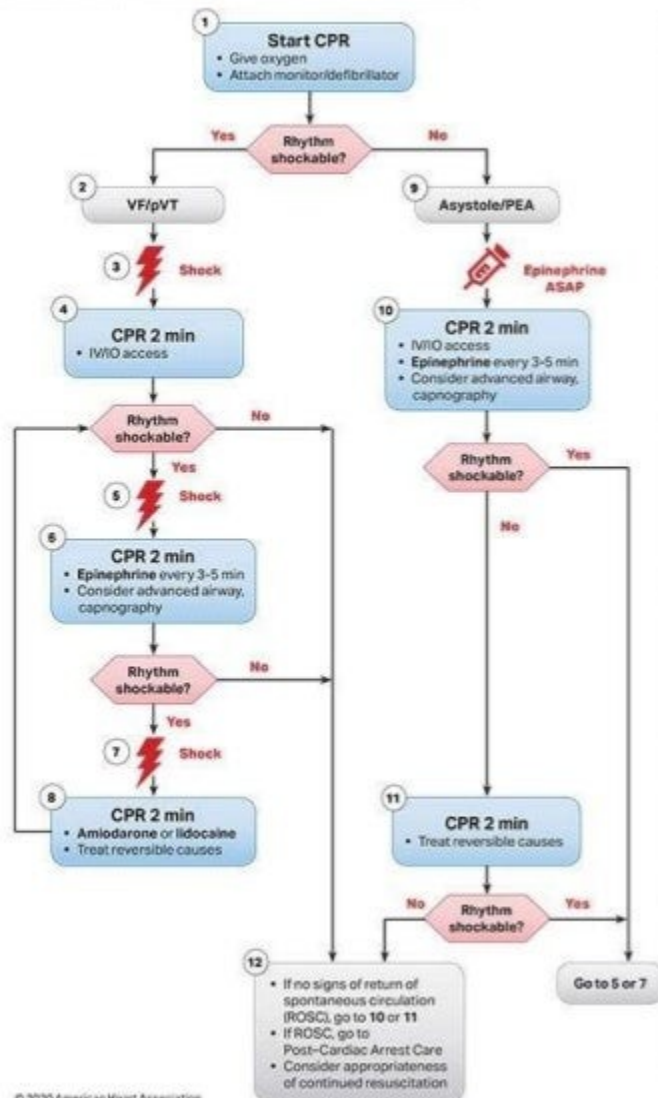
If any of the above conditions are there, then it is an unstable patient then think for 5H and 5T and start CPR.

### **H's**

- HYPOVOLEMIA
- HYPOXIA
- HYDROGEN IONS(ACIDOSIS)
- HYPO/HYPERKALEMIA
- HYPOTHERMIA

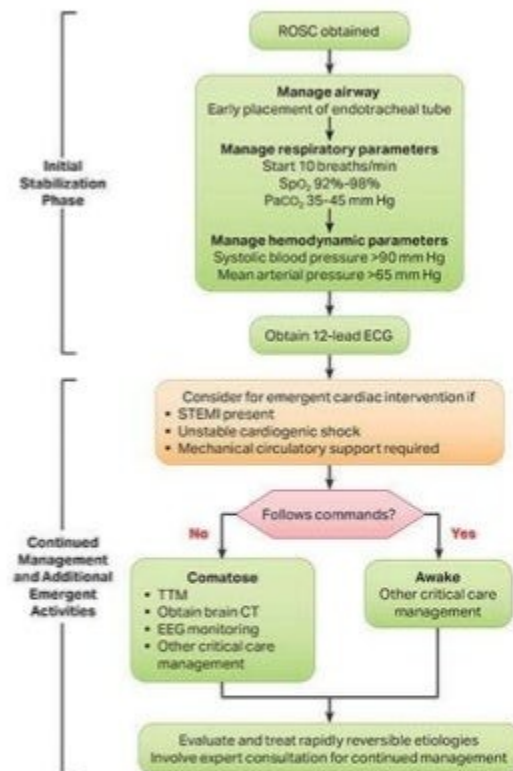
### **T's**

- TENSION PNEUMOTHORAX
- TAMPONADE
- TOXINS
- THROMBOSIS, PULMONARY
- THROMBOSIS, CORONARY



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CPR Quality</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil.</li> <li>Minimize interruptions in compressions.</li> <li>Avoid excessive ventilation.</li> <li>Change compressor every 2 minutes, or sooner if fatigued.</li> <li>If no advanced airway, 30:2 compression-ventilation ratio.</li> <li>Quantitative waveform capnography               <ul style="list-style-type: none"> <li>If PETCO<sub>2</sub> is low or decreasing, reassess CPR quality.</li> </ul> </li> </ul> |
| <b>Shock Energy for Defibrillation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li><b>Biphasic:</b> 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.</li> <li><b>Monophasic:</b> 360 J</li> </ul>                                                                                                                                                                                                                                                                |
| <b>Drug Therapy</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li><b>Epinephrine I/IO dose:</b> 1 mg every 3-5 minutes</li> <li><b>Amlodarone I/IO dose:</b> First dose: 300 mg bolus. Second dose: 150 mg.</li> <li><b>Lidocaine I/IO dose:</b> First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.</li> </ul>                                                                                                                                                                                                                                                                    |
| <b>Advanced Airway</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <ul style="list-style-type: none"> <li>Endotracheal intubation or supraglottic advanced airway</li> <li>Waveform capnography or capnometry to confirm and monitor ET tube placement</li> <li>Once advanced airway in place, give 1 breath every 6 seconds (10 breath/min) with continuous chest compressions</li> </ul>                                                                                                                                                                                                                                   |
| <b>Return of Spontaneous Circulation (ROSC)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>Pulse and blood pressure</li> <li>Abrupt sustained increase in PETCO<sub>2</sub> (typically &gt;40 mm Hg)</li> <li>Spontaneous arterial pressure waves with intra-arterial monitoring</li> </ul>                                                                                                                                                                                                                                                                                                                   |
| <b>Reversible Causes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>Hypovolemia</li> <li>Hypoxia</li> <li>Hydrogen ion (acidosis)</li> <li>Hypo-/hyperkalemia</li> <li>Hypothermia</li> <li>Tension pneumothorax</li> <li>Tamponade, cardiac</li> <li>Toxins</li> <li>Thrombosis, pulmonary</li> <li>Thrombosis, coronary</li> </ul>                                                                                                                                                                                                                                                   |

# 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 FiO<sub>2</sub> for SpO<sub>2</sub> 92%-98%; start at 10 breaths/min; titrate to PaCO<sub>2</sub> 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.

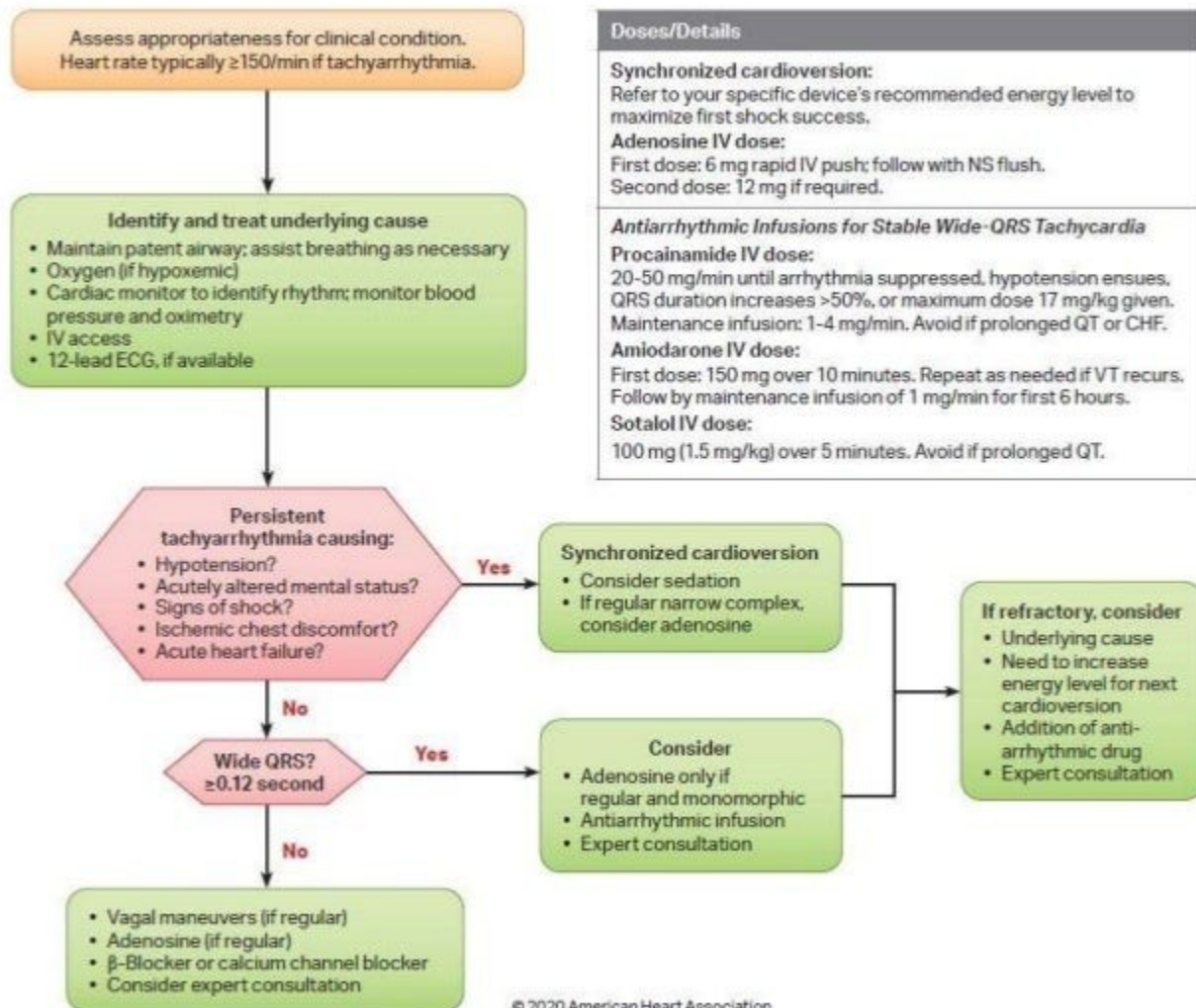
- **Emergent cardiac intervention:** Early evaluation of 12-lead electrocardiogram (ECG); consider hemodynamics for decision on cardiac intervention
- **TTM:** If patient is not following commands, start TTM as soon as possible; begin at 32-36°C for 24 hours by using a cooling device with feedback loop
- **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

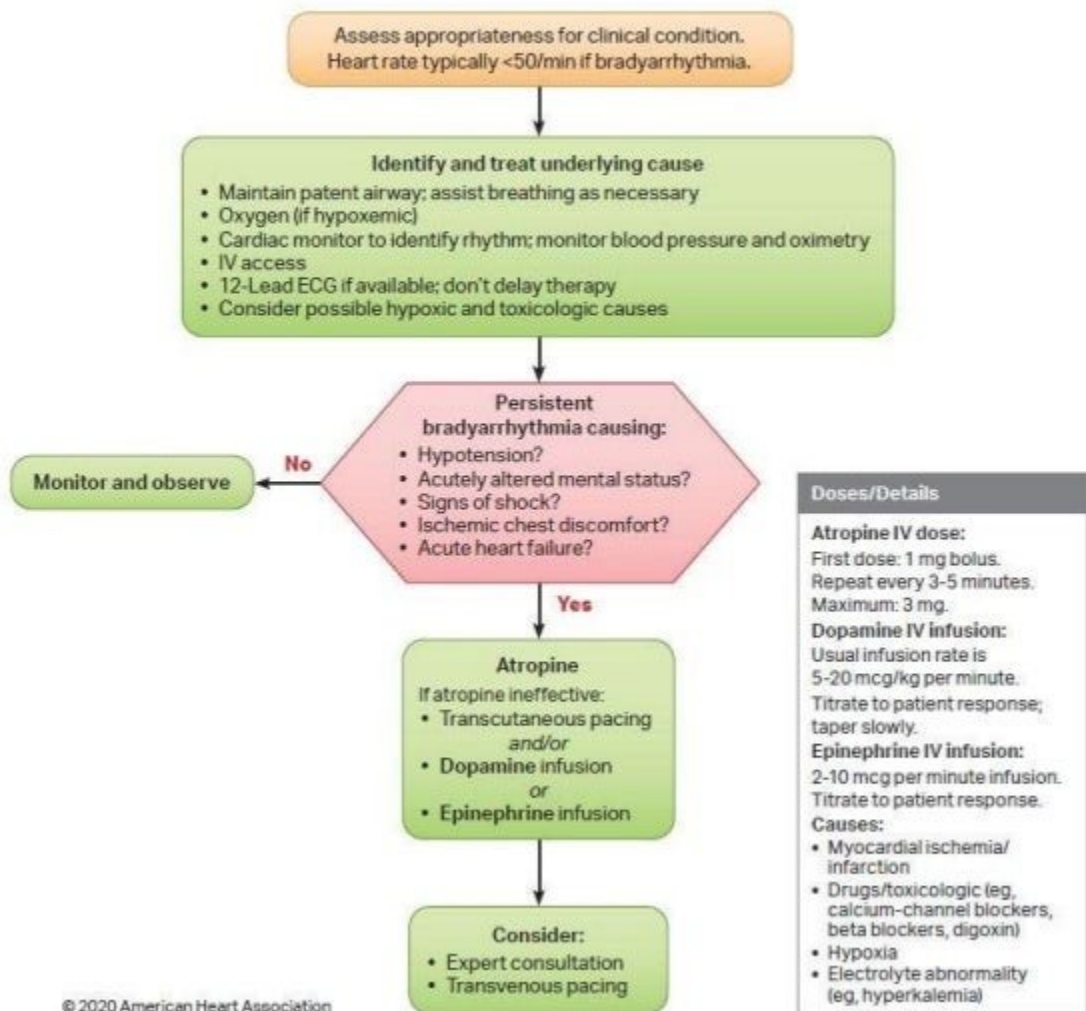
## ADULT TACHYCARDIA WITH A PULSE ALGORITHM

## Adult Tachycardia With a Pulse Algorithm



## ADULT BRADYCARDIA WITH A PULSE ALGORITHM

## Adult Bradycardia Algorithm



Action in time can save a life!!!

THANK YOU

