

PEDIATRIC BASIC AND ADVANCED LIFE SUPPORT: PBLS & PALS

احیا پایه و پیشرفته در کودکان

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Figure 10. AHA Chains of Survival for pediatric IHCA and OHCA.

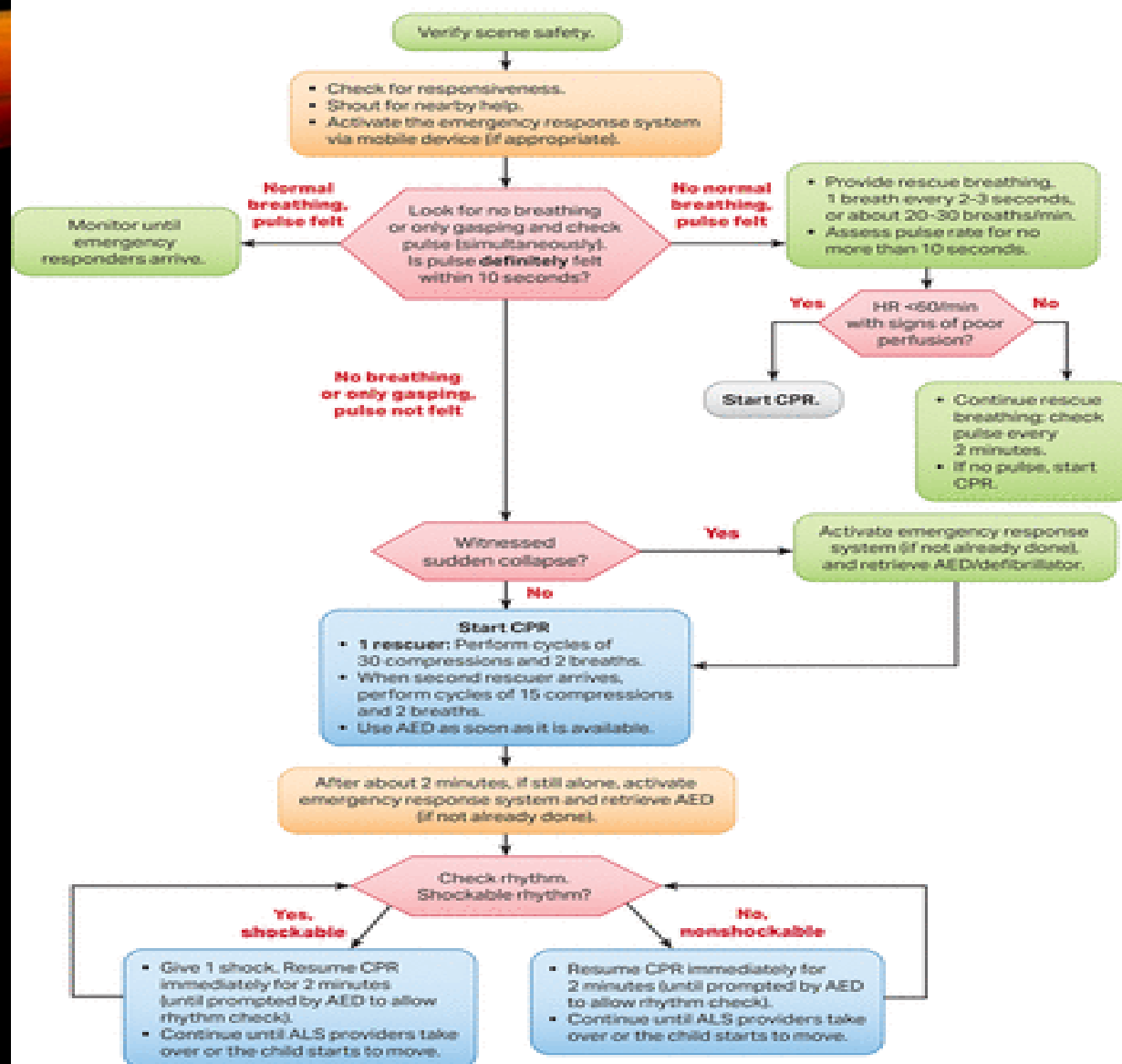
IHCA



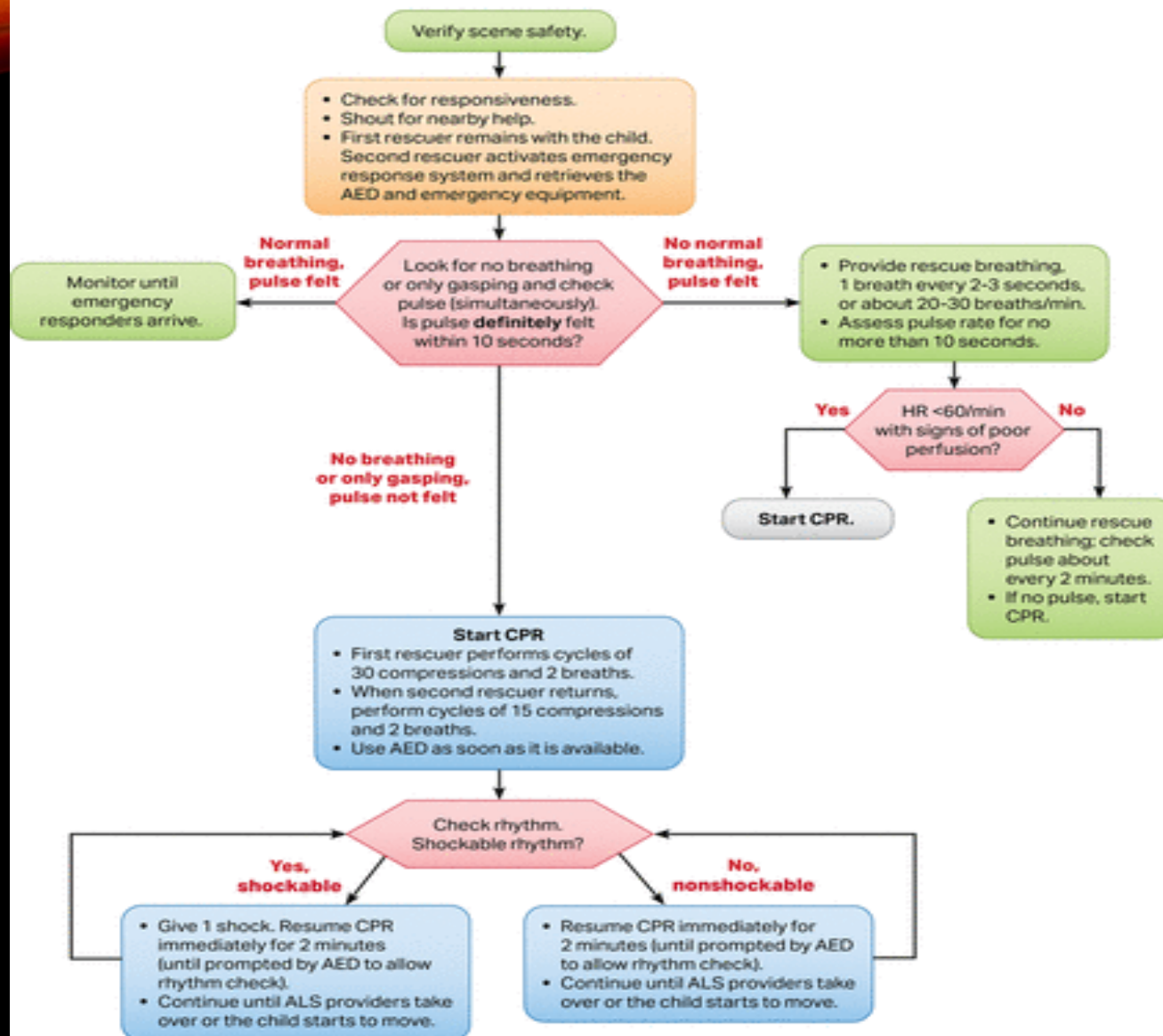
OHCA



Pediatric Basic Life Support Algorithm for Healthcare Providers—Single Rescuer



Pediatric Basic Life Support Algorithm for Healthcare Providers—2 or More Rescuers



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



Compressions

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



Airway

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



Breathing

Give mouth-to-mouth
rescue breaths

American Heart
Association



Learn and Live

توالی احیا

*حفظ سلامتی احیاگرو قربانی در صحنه حادثه،

*بررسی پاسخ بیمار : هشیاری: تو خوب هستی؟

*کمک خواستن

***در احیا دو نفره:** نفر دوم اورژانس را خبر کرده و
دفیبریلاتور را فعال میکند

*بررسی نفس کشیدن

*حداکثر طی 10 ثانیه : بررسی نبض

***شیرخوار:** نبض براکیال

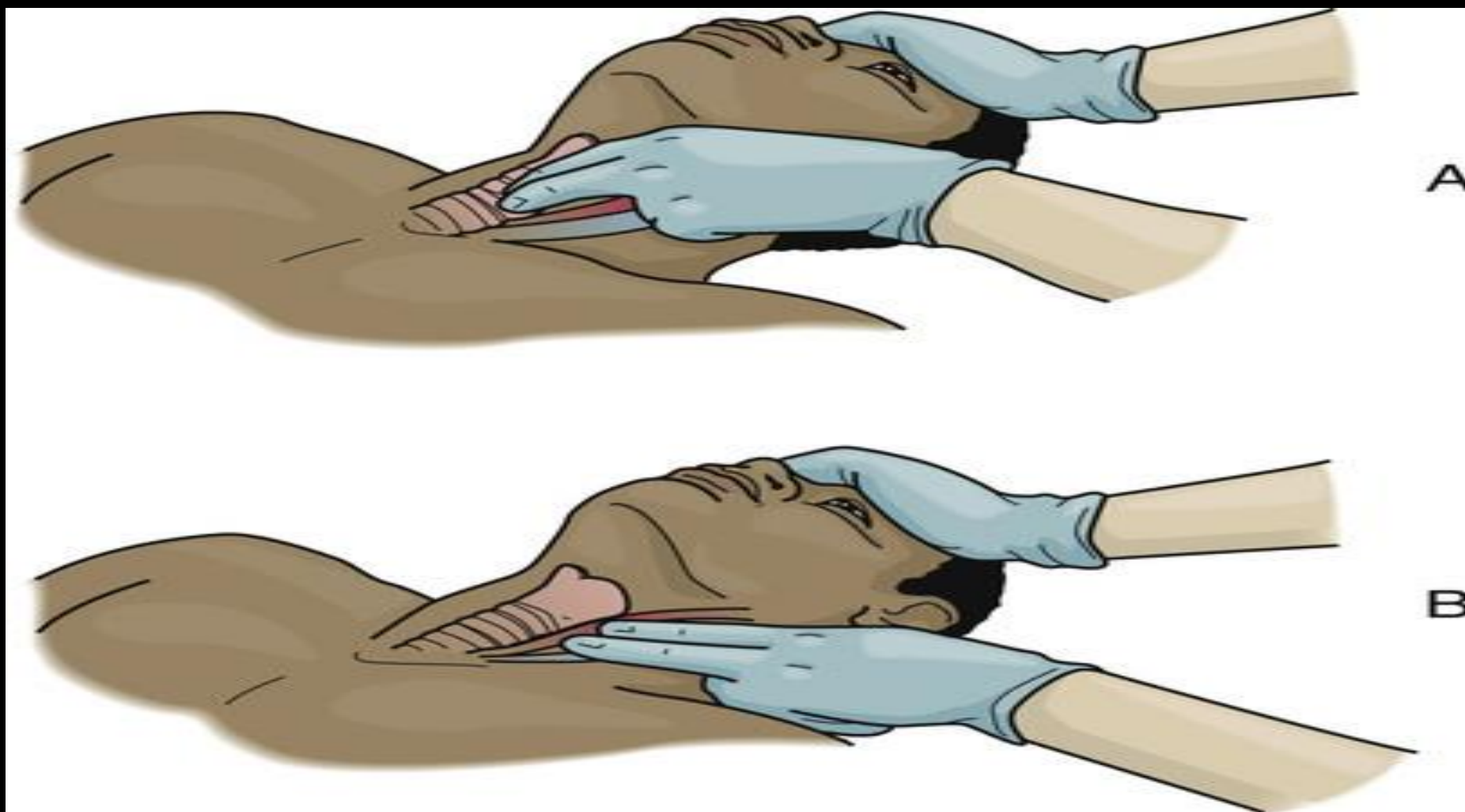
***کودک و نوجوان:** نبض کاروتید یا فمورال

Infant/Child
Brachial site



Basic Life Support
Femoral site





1-قربانی تنفس ونبض دارد

2-قربانی تنفس نرمال ندارد،نبض دارد

3-قربانی تنفس نرمال ندارد و نبض نیز ندارد:

*احیای تک نفره

*احیای دونفره

Normal Breathing –Present Pulse:

فرد تنفس طبیعی دارد ونبض لمس میشود

Single Rescuer: Activate ERS-Return To Patient-Monitor Until ER Arrives

***احیا تک نفره:** خبر کردن اورژانس ،بازگشت نزد بیمار وپایش تا زمان رسیدن اورژانس

Two or more Rescuers: Monitor Until ER Arrives

***احیا دونفره:** پایش تا زمان رسیدن اورژانس

فرد تنفس غیرطبیعی دارد نبض لمس می شود Abnormal Breathing Present Pulse

یک تنفس هر دو تا سه ثانیه می دهیم
30-20 تنفس در دقیقه

□1-Give Rescue Breath

اگر نبض کمتر و مساوی 60 عدد است و علائم اختلال
خونرسانی به ارگانها دیده میشود : **ماساژ قلبی**

□2- if PR<60 With Poor Perfusion:
Do Chest Compression!

هر دو دقیقه بررسی نبض، اگر نبض ندارد: **احیا**

□3-check pulse Q 2 min: If No
Pulse: CPR

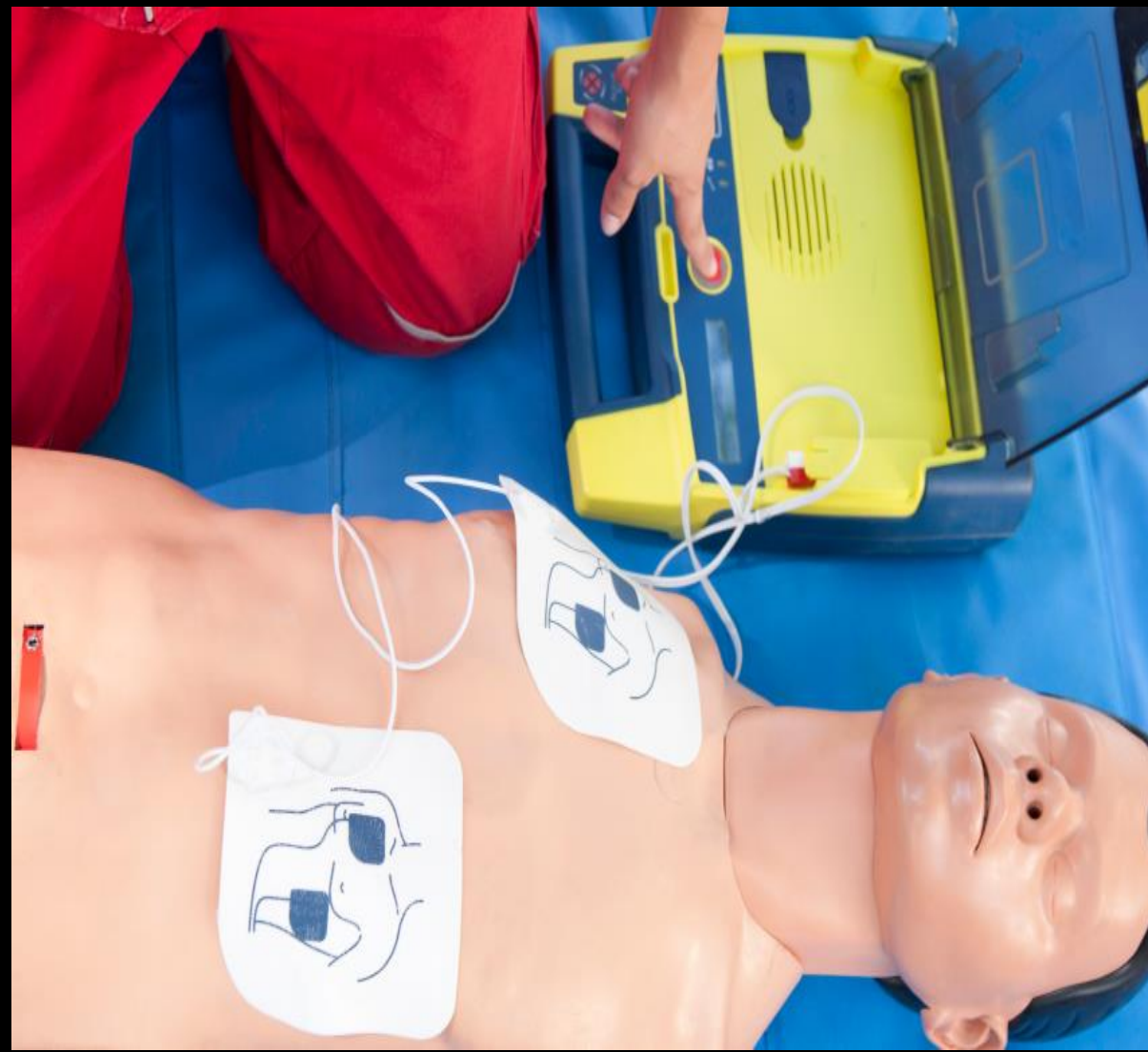
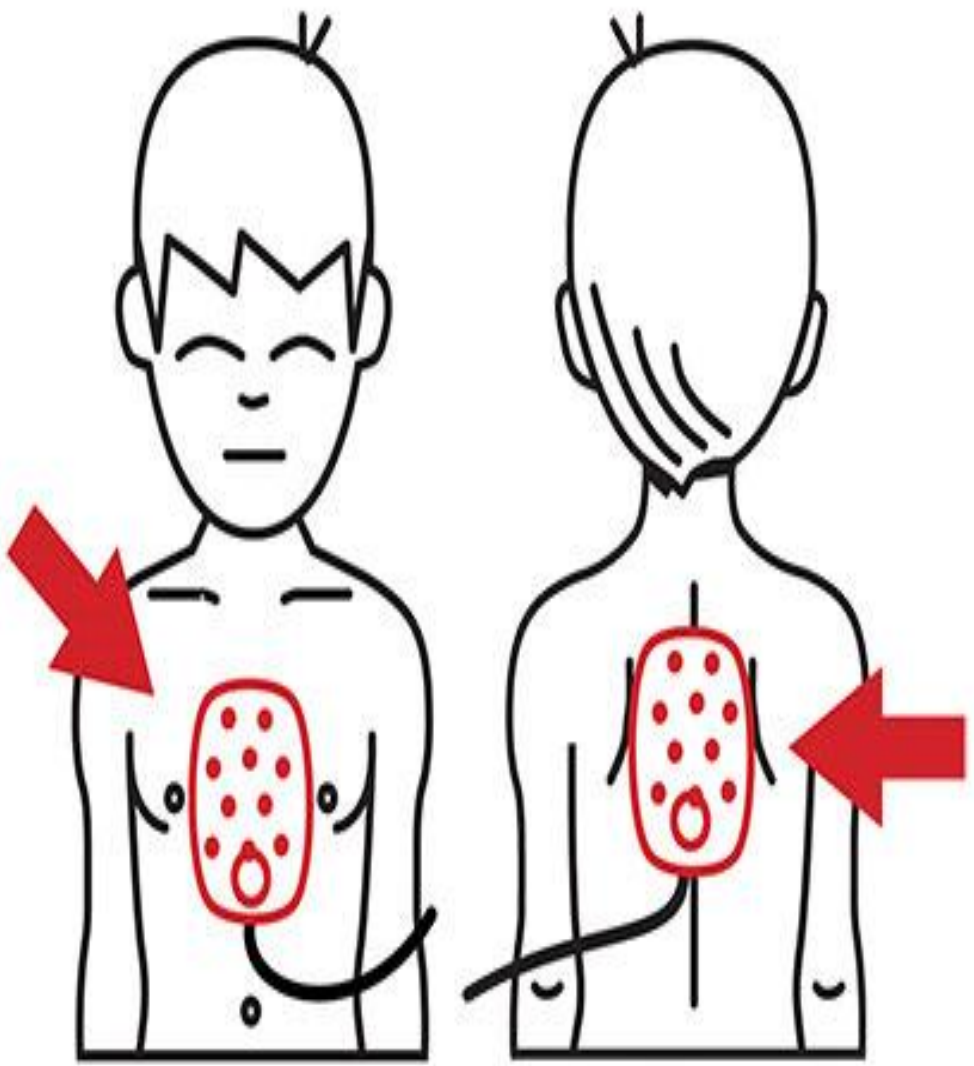
AED : AUTOMATED EXTERNAL DEFIBRILLATOR

Victims > 8 Years

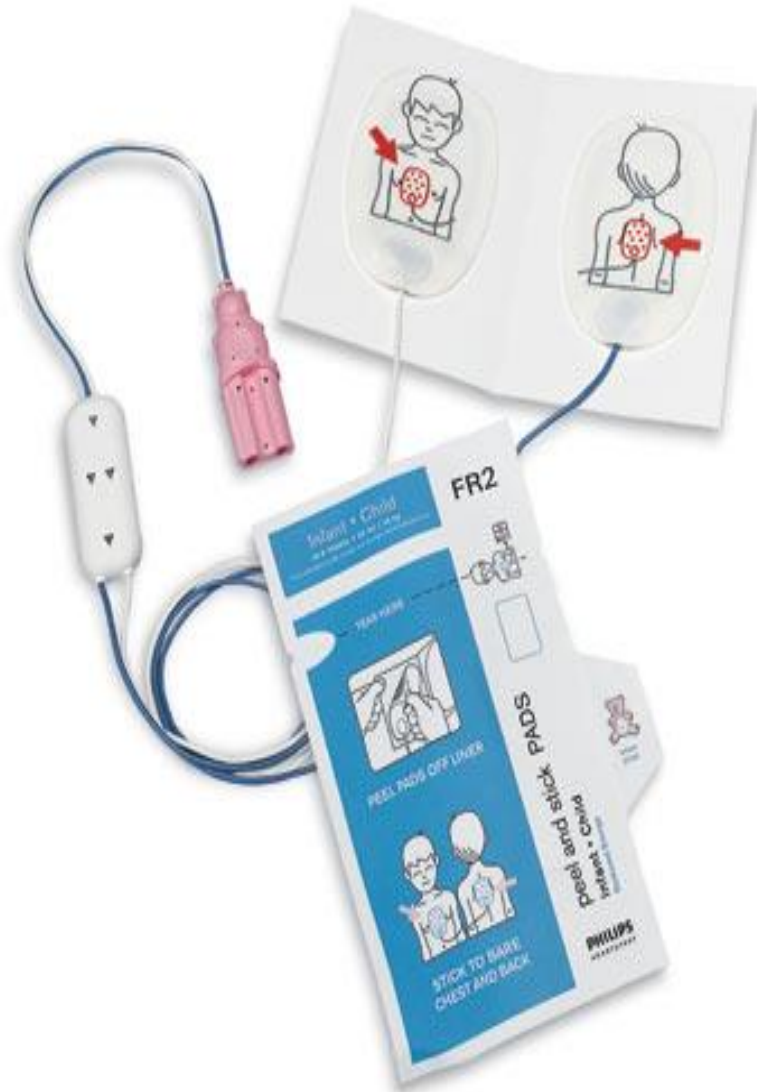
- ☐ Use AED As Soon As It Is Available
- ☐ Only Use Adult Pads
- ☐ Place The Pads As Illustrated On The Pads

Victims < 8 Years

- ☐ Use AED As Soon As It Is Available
- ☐ Use Pediatric Pads
- ☐ Place The Pads As Illustrated On The Pads
- ☐ If You Don't Have Pediatric Pads: Use Adult Pads : Not Covering Each Other
- ☐ If AED Has A Key or Switch That Will Deliver A Child Dose, Turn The Key Or Switch



AED : AUTOMATED EXTERNAL DEFIBRILLATOR



NOT BREATHING- ABSENT PULSE

تنفس ندارد و نبض لمس
نمیشود

!احیای تک نفره:

□ احیاگرخودش شاهد این اتفاق (کلیس) بوده:
خبرکردن اورژانس و آوردن دفیبریلاتور

□ احیاگرخودش شاهد
این کلیس نبوده:

احیای دو نفره ← انجام احیا برای دو دقیقه

CPR: احیای قلبی ریوی

□ Chest Compression (ماساژ قلبی) / Breaths (تنفس):

*Single Rescuer: 30/2

*Two Or More : 15/2

Changing Their Place Q 2 min

□ Breaths: Advanced Airway Is In Place (Intubated) : Q
2-3 sec

□ After 5 Cycles Of CPR (2 min) : AED

CHEST COMPRESSIONS: ماساژ قلبی

- ❑ **Place:** Lower Half Of The Sternum
- ❑ **Push Fast :** 100-120 Beats/min : All Ages
- ❑ **Push Hard:** 1/3 Chest AP Diameter: Allow Complete Chest **Recoil** After Each Compression
- ❑ **Minimize Interruptions** : Only For : Ventilation, Rhythm Check, Shock Delivery
- ❑ Once Advanced Airway (**Intubation**,...) Fixed: **Continuous** Chest Compressions

- ❑ **Single Rescuer:**
 - *Infant 
 - *Child 
 - ❑ **Two Or More :**
 - *Child 
 - *Infant 
- 2 Finger Technique
1-2 Hands
Thumb Encircling

AFTER 2 MIN CPR(5 CYCLES): USE **AED**

Shockable Rhythm

☐ Give 1 Shock

☐ Immediately Resume CPR for 2 mins

☐ Continue By Retriving AED After 2min CPR

☐ Continue Until ALS Providers Take Over
OR The Victim Starts To Move

Non-Shockable Rhythm

☐ Immediately Resume CPR for 2 mins

☐ Continue By Retriving AED After 2min CPR

☐ Continue Until ALS Providers Take Over OR The Victim Starts To Move

BREATHS: تنفس

****برای مفید واقع شدن تنفس: راه هوایی ابتدا باید باز باشد که راههای زیر مطرح است:**

□ Opening The Airway Methods:

1-Head Tilt-Chin Lift (HT-CL)

2-Jaw Thrust: Suspicious Neck Trauma: If This Maneuver Didn't Help In Neck Trauma : use HT-CL

□ Neutral –Sniffing Head Position:

External Auditory Canal At The Level Or Anterior To Infants Shoulder

تهویه: VENTILATION

□ **With A Mouth to Barrier Device(eg Pocket Mask) :Single Rescuer**

□ **With Bag And Mask Ventilation: Two Rescuers**

***Proper Mask Size**

****Sniffing(Neutral) Position-Head Tilt Chin Lift**

*****E-C Clamp Technique**

******Give Each Breath Over 1 sec**

*******One Person-Two person**

Bag Mask Ventilation: Opening Airway

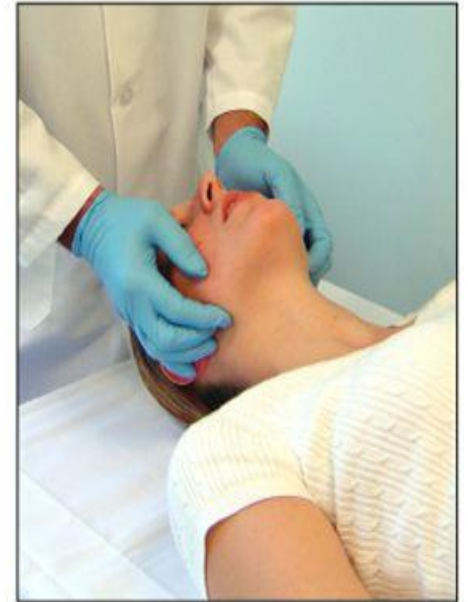


Head Tilt and Chin Lift



- One hand applies downward pressure to forehead and index and middle finger of the second hand lift at chin.
- Lifts tongue from posterior pharynx

Jaw Thrust



- For unstable cervical spine
- Place heels of hands on parieto-occipital area
- Grasp angles of mandible with fingers, and displace jaw anteriorly.

Figure 62-2 Opening the airway with the head-tilt/chin-lift maneuver. One hand is used to tilt the head, extending the neck. The index finger of the rescuer's other hand lifts the mandible outward by lifting the chin. Head-tilt should not be performed if a cervical spine injury is suspected.

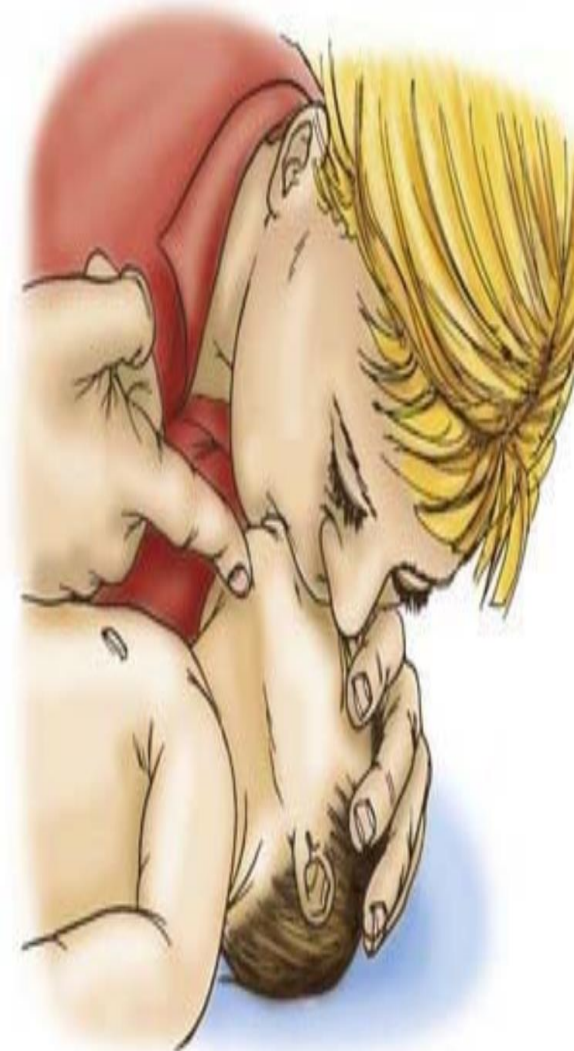


Figure 62-4 Rescue breathing in a child. The rescuer's mouth covers the child's mouth, creating a mouth-to-mouth seal.

One hand maintains the head-tilt; the thumb and forefinger of the same hand are used to pinch the child's nose.

Figure 62-3 Rescue breathing in an infant. The rescuer's mouth covers the infant's nose and mouth, creating a seal. One

hand performs the head-tilt while the other hand lifts the infant's jaw. Avoid head-tilt if the infant has sustained head or neck trauma.



Correct
Covers mouth, nose, and
chin but not eyes



Incorrect
Too large: covers eyes
and extends over chin



Incorrect
Too small: does not cover
nose and mouth well



BAG-MASK VENTILATION: 1&2 PERSON



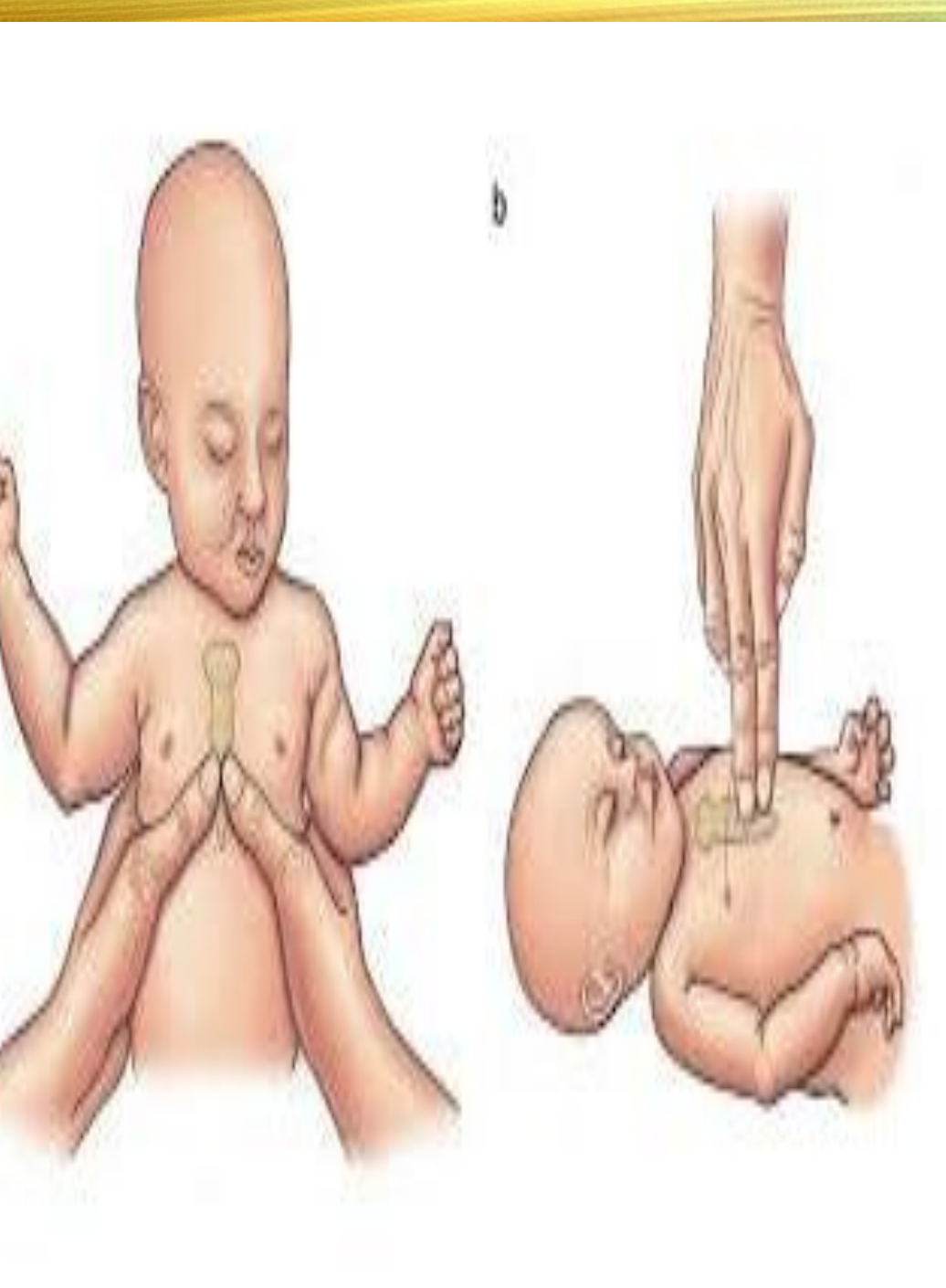
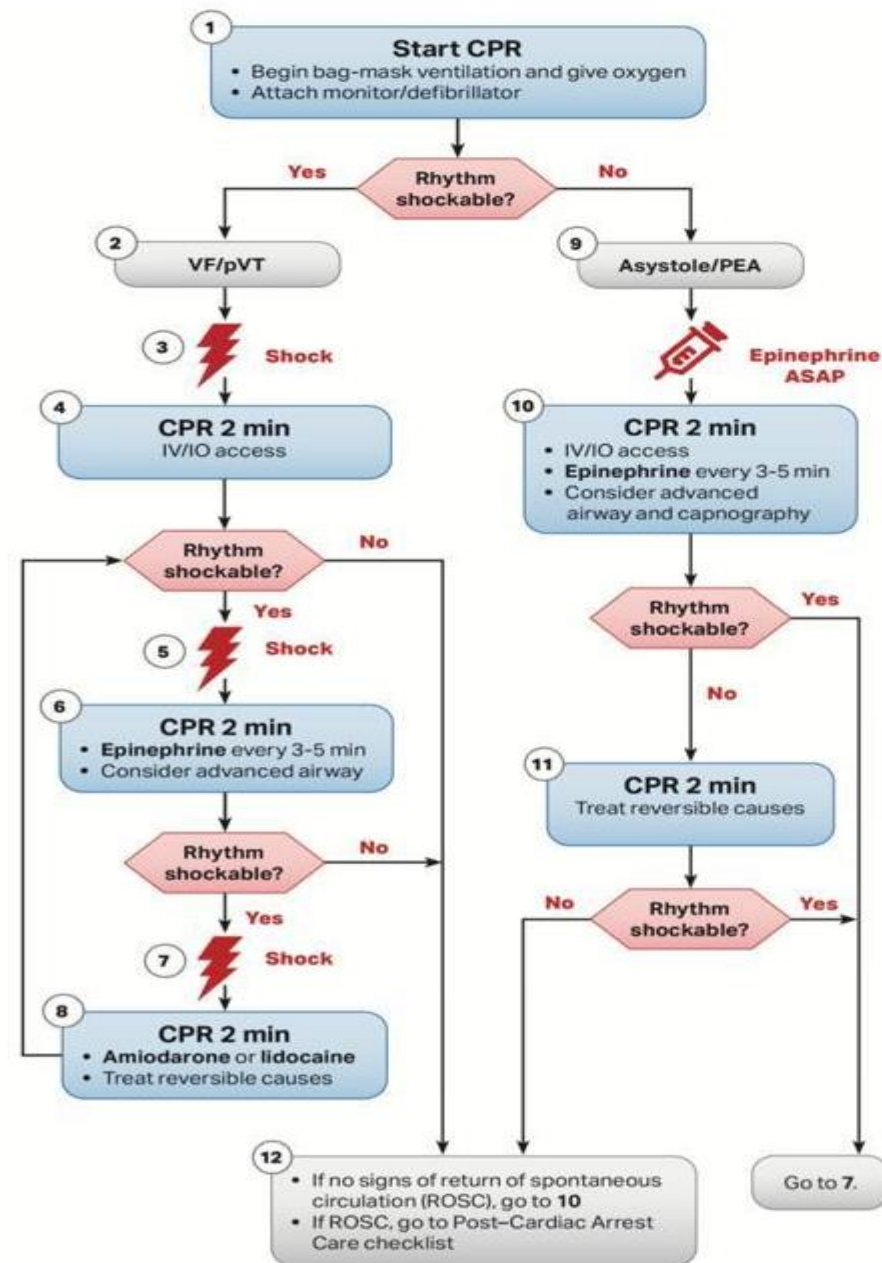




Figure 11. Pediatric Cardiac Arrest Algorithm.



CPR Quality

- Push hard ($\geq \frac{1}{2}$ of anteroposterior diameter of chest) and fast (100-120/min) and allow complete chest recoil
- Minimize interruptions in compressions
- Change compressor every 2 minutes, or sooner if fatigued
- If no advanced airway, 15:2 compression-ventilation ratio
- If advanced airway, provide continuous compressions and give a breath every 2-3 seconds

Shock Energy for Defibrillation

- First shock 2 J/kg
- Second shock 4 J/kg
- Subsequent shocks ≥ 4 J/kg, maximum 10 J/kg or adult dose

Drug Therapy

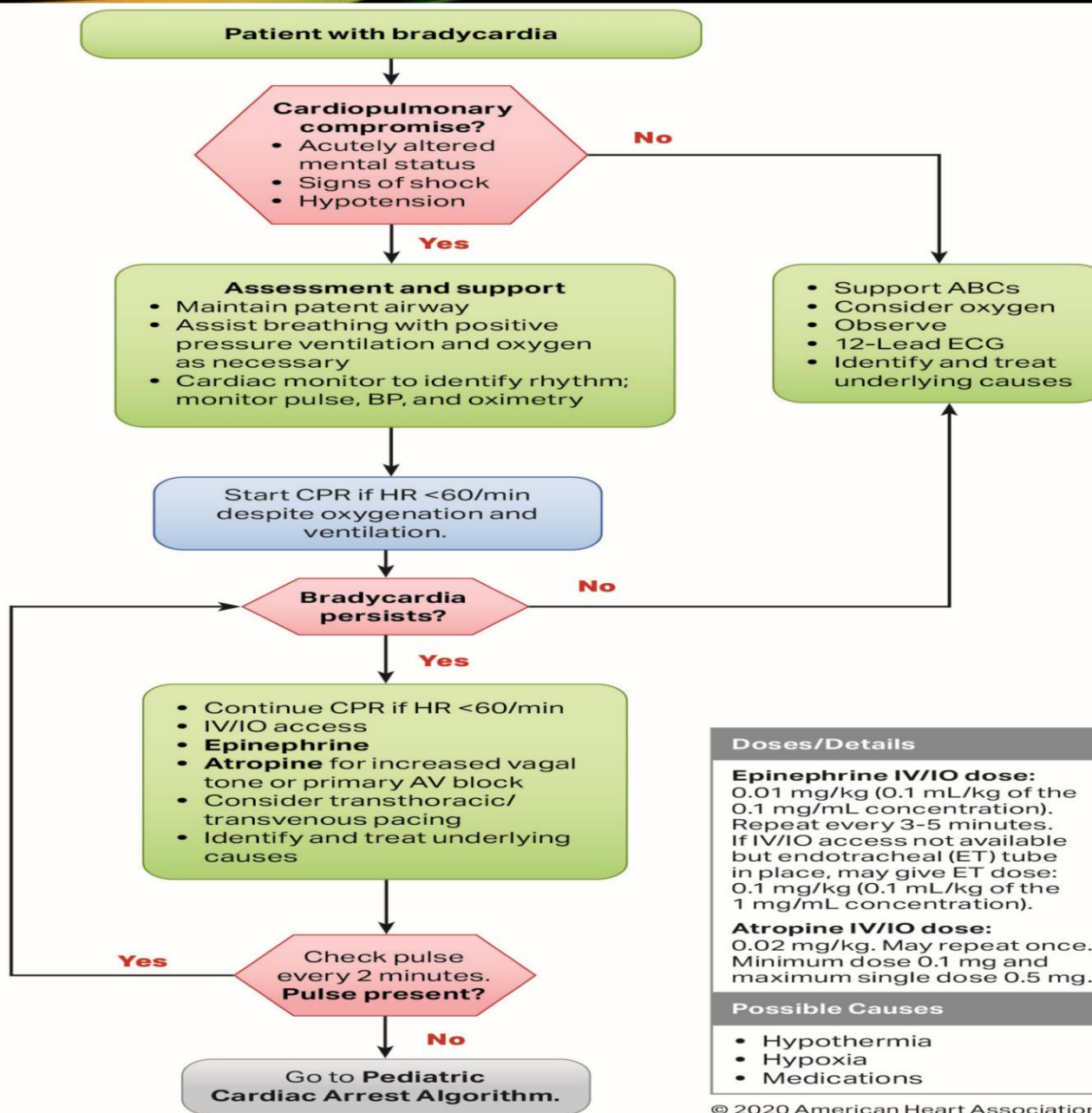
- **Epinephrine IV/IO dose:** 0.01 mg/kg (0.1 mL/kg of the 0.1 mg/mL concentration). Max dose 1 mg. Repeat every 3-5 minutes. If no IV/IO access, may give endotracheal dose: 0.1 mg/kg (0.1 mL/kg of the 1 mg/mL concentration).
- **Amiodarone IV/IO dose:** 5 mg/kg bolus during cardiac arrest. May repeat up to 3 total doses for refractory VF/pulseless VT or
- **Lidocaine IV/IO dose:** Initial: 1 mg/kg loading dose

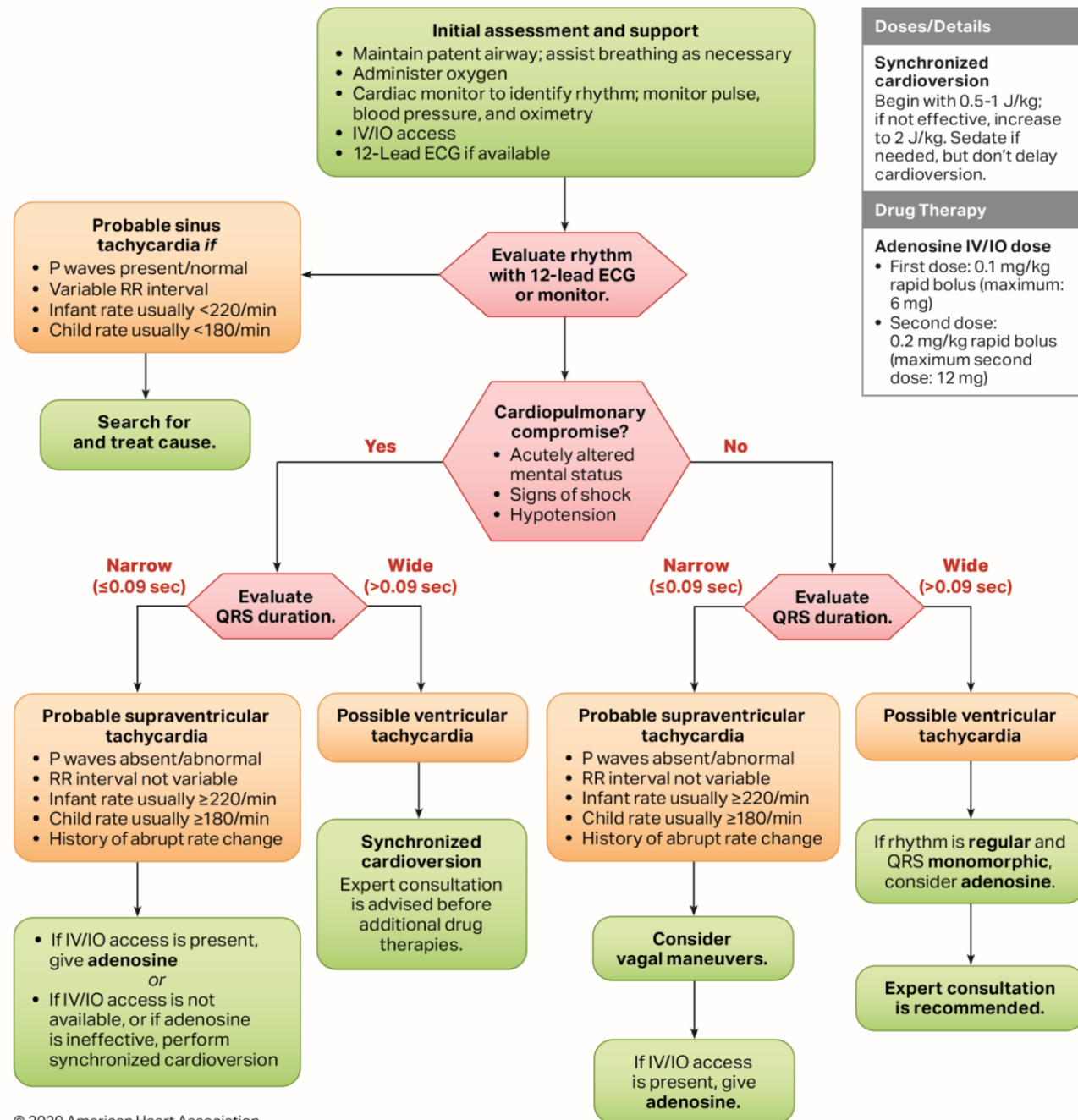
Advanced Airway

- Endotracheal intubation or supraglottic advanced airway
- Waveform capnography or capnometry to confirm and monitor ET tube placement

Reversible Causes

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





Components of Post–Cardiac Arrest Care		Check
Oxygenation and ventilation		
Measure oxygenation and target normoxemia 94%-99% (or child's normal/appropriate oxygen saturation).		☐
Measure and target Paco_2 appropriate to the patient's underlying condition and limit exposure to severe hypercapnia or hypocapnia.		☐
Hemodynamic monitoring		
Set specific hemodynamic goals during post–cardiac arrest care and review daily.		☐
Monitor with cardiac telemetry.		☐
Monitor arterial blood pressure.		☐
Monitor serum lactate, urine output, and central venous oxygen saturation to help guide therapies.		☐
Use parenteral fluid bolus with or without inotropes or vasopressors to maintain a systolic blood pressure greater than the fifth percentile for age and sex.		☐
Targeted temperature management (TTM)		
Measure and continuously monitor core temperature.		☐
Prevent and treat fever immediately after arrest and during rewarming.		☐
If patient is comatose apply TTM (32°C–34°C) followed by (36°C–37.5°C) or only TTM (36°C–37.5°C).		☐
Prevent shivering.		☐
Monitor blood pressure and treat hypotension during rewarming.		☐
Neuromonitoring		
If patient has encephalopathy and resources are available, monitor with continuous electroencephalogram.		☐
Treat seizures.		☐
Consider early brain imaging to diagnose treatable causes of cardiac arrest.		☐
Electrolytes and glucose		
Measure blood glucose and avoid hypoglycemia.		☐
Maintain electrolytes within normal ranges to avoid possible life-threatening arrhythmias.		☐
Sedation		
Treat with sedatives and anxiolytics.		☐
Prognosis		
Always consider multiple modalities (clinical and other) over any single predictive factor.		☐
Remember that assessments may be modified by TTM or induced hypothermia.		☐
Consider electroencephalogram in conjunction with other factors within the first 7 days after cardiac arrest.		☐
Consider neuroimaging such as magnetic resonance imaging during the first 7 days.		☐

After learning *Basic Life support*
from Online classes :

