



CPR

محمدرضا بسطامی

CPR



Definition

Aim

Education



classification

- BLS
- ACLS
- PLS

Algorithms

- Out of hospital cardiac arrest (OHCA)
- BLS Algorithm



Adult IHCA Chain of Survival



Adult OHCA Chain of Survival

Basic life support

■ ارزیابی ایمنی محل یا صحنه:

■ بررسی وضعیت هوشیاری و پاسخدهی بیمار

- LOC
- Pulseless
- Mydriasis
- Apnea- Gasping
- pale or cyanotic skin

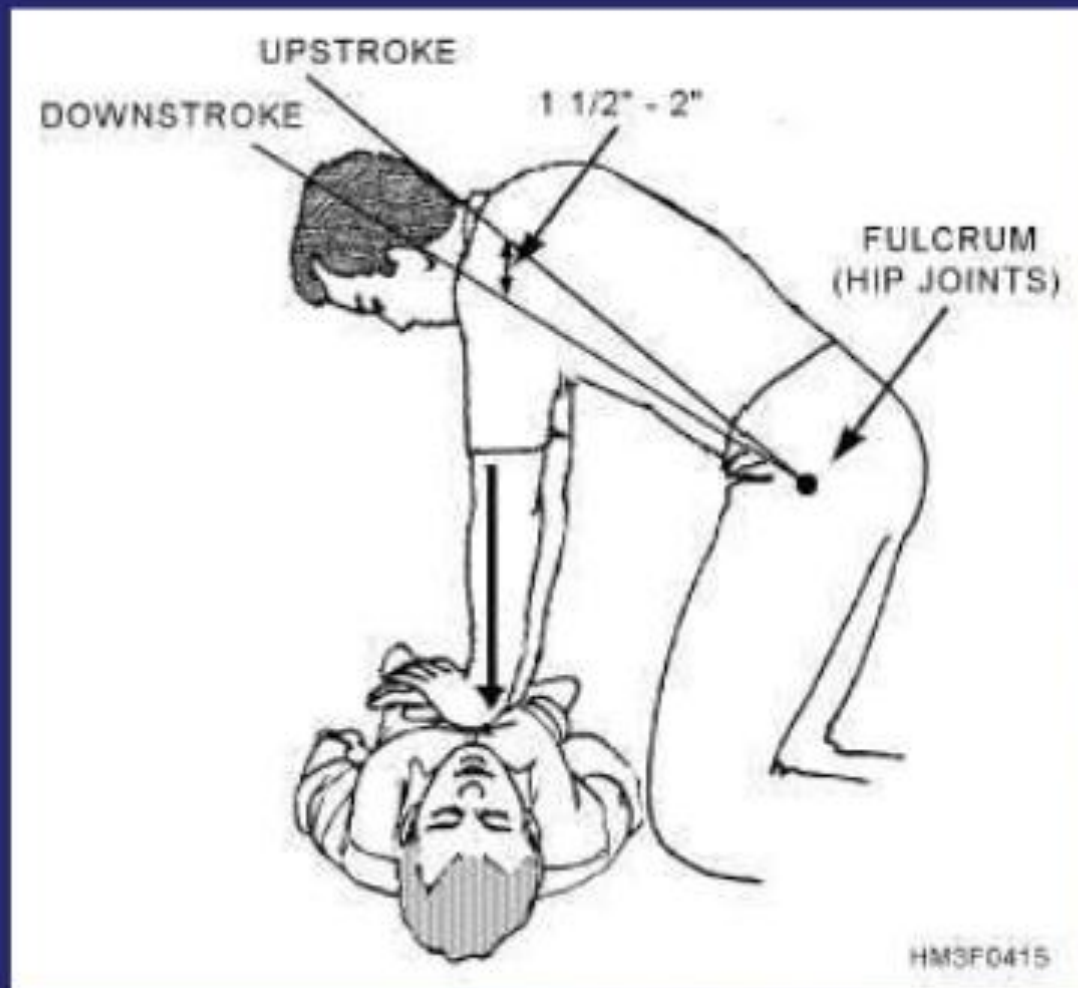
■ درخواست کمک

■ بررسی وضعیت تنفس و نبض بیمار به طور همزمان در طی 10 ثانیه

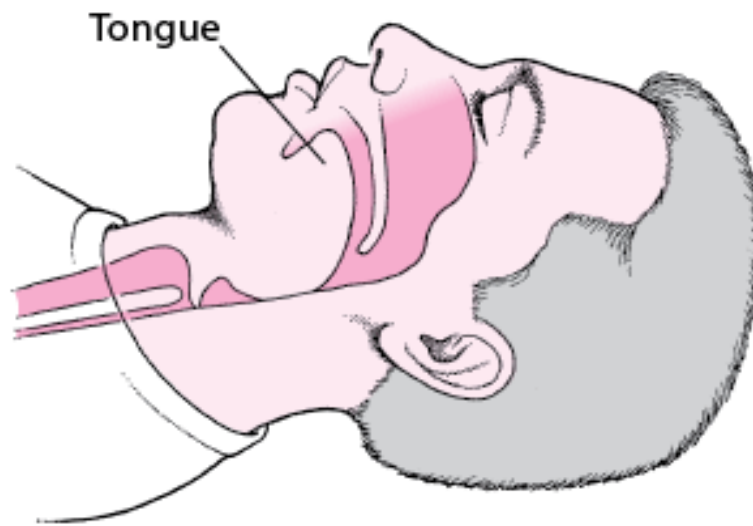
CHEST COMPRESSIONS

- Position
- location
- Rate
- Depth
- Chest recoil

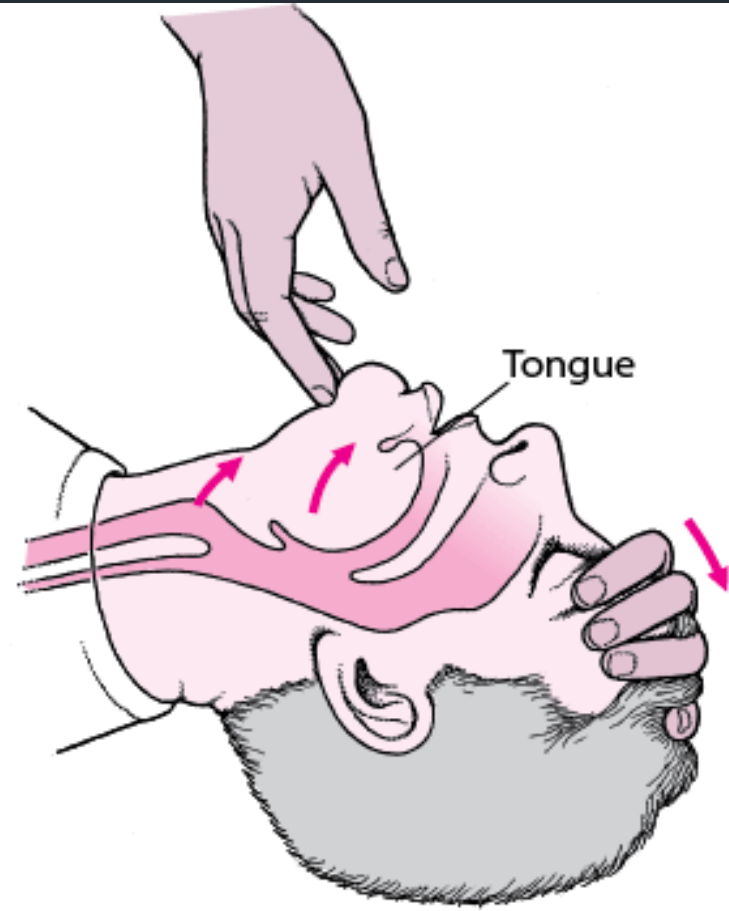
Excellent Chest Compressions are the Foundation of Survival!



Airway



Blocked Airway



Open Airway

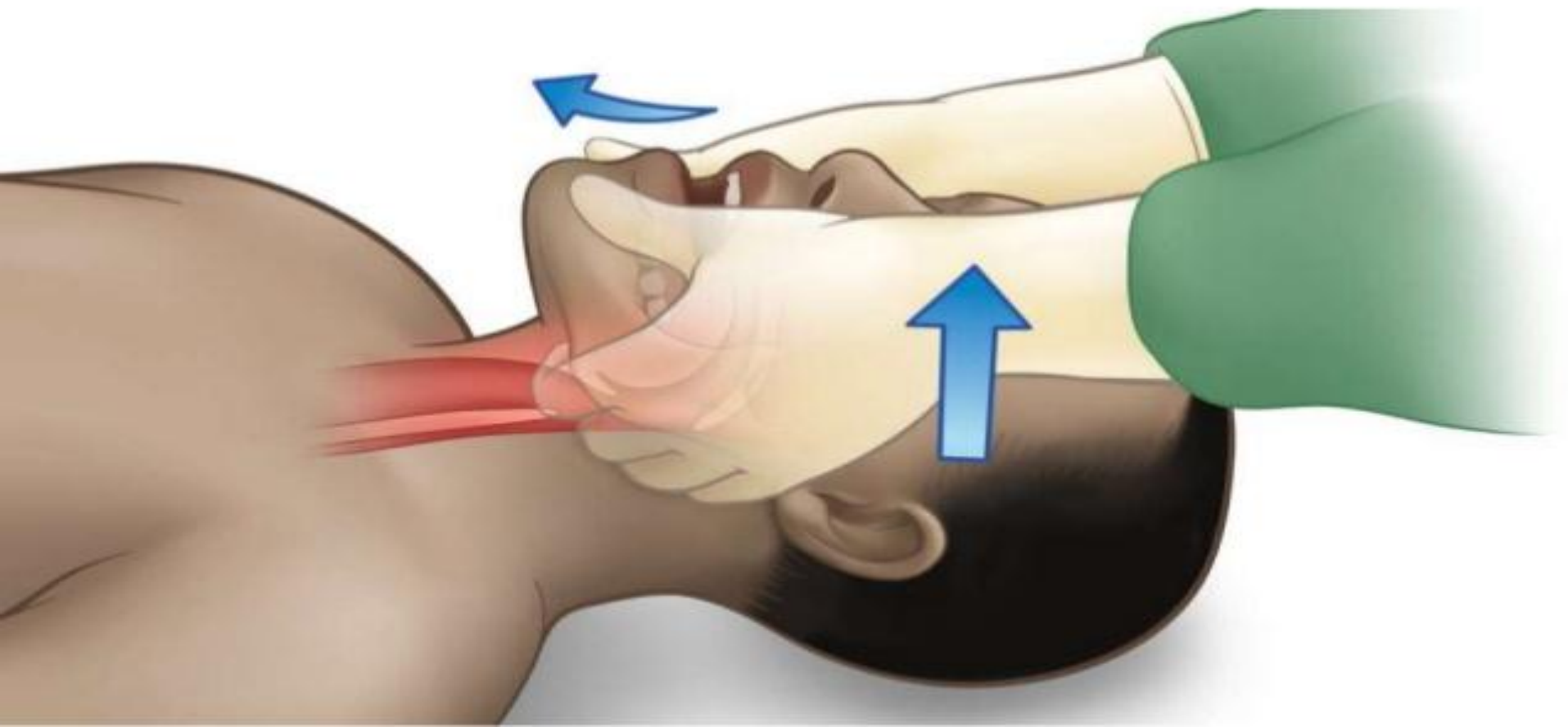
HEAD TILT CHIN LIFT

- IF TRAUMA IS NOT SUSPECTED



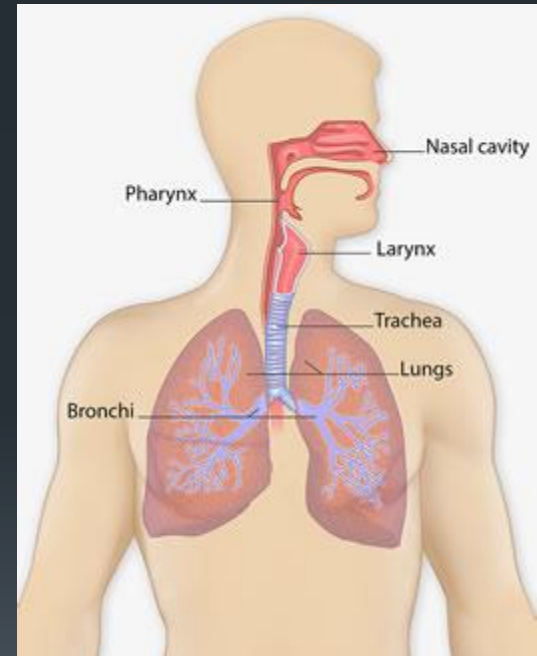
trauma

Jaw thrust



Breathing

- Position
- Rate
- Time







THE RECOVERY POSITION

If the victim starts to breath normally





attache

- Auto CPR
- C C C C C C C C C C C C C C C C
- DNR

Algorithms



- in-hospital cardiac arrest (IHCA)
- ACLS Algorithm

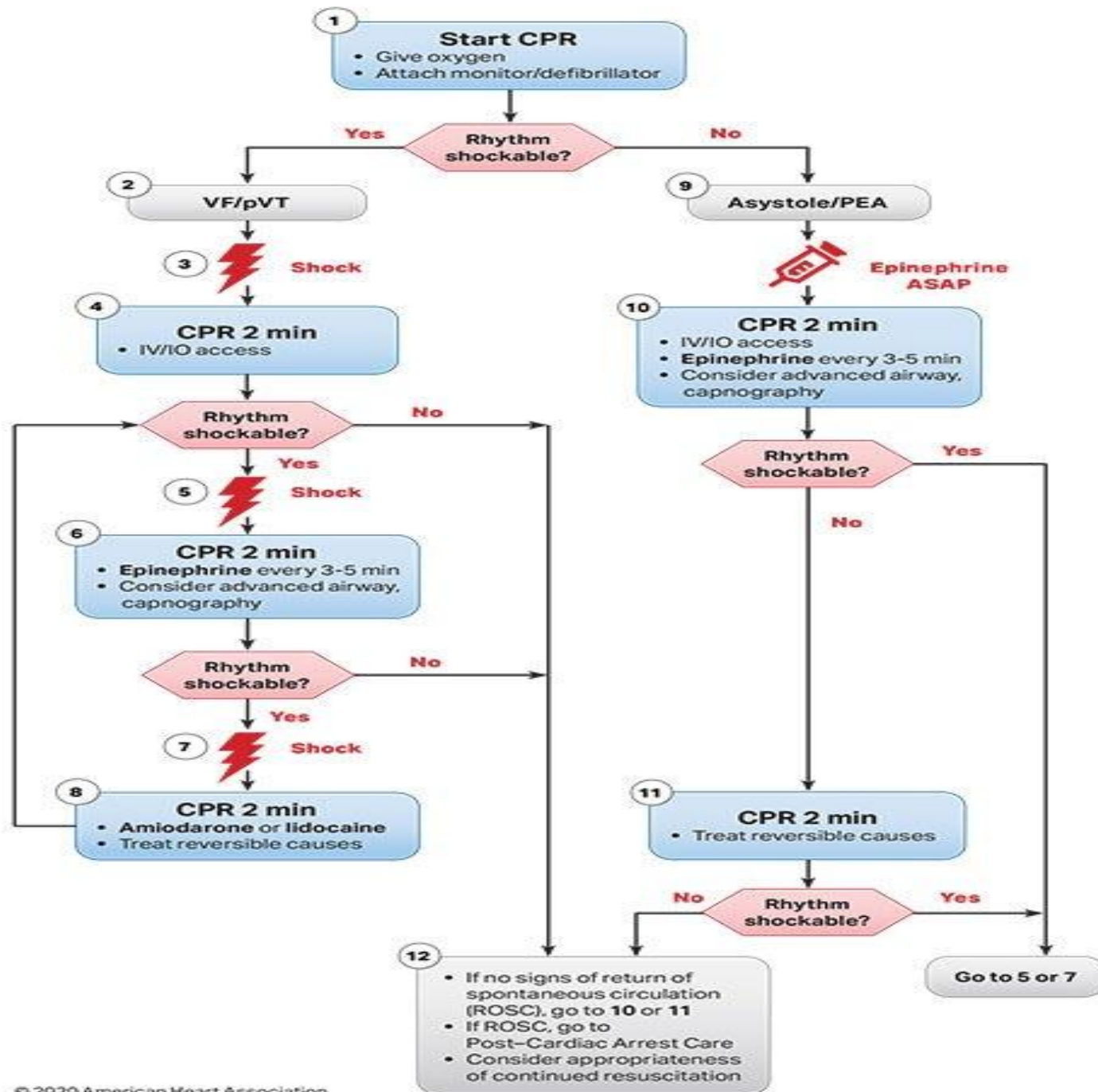


Adult IHCA Chain of Survival



Adult OHCA Chain of Survival

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



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.
- Change compressor every 2 minutes, or sooner if fatigued.
- If no advanced airway, 30:2 compression-ventilation ratio.
- Quantitative waveform capnography
 - If PETCO₂ is low or decreasing, reassess 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.
or
Lidocaine IV/IO dose:
First dose: 1-1.5 mg/kg.
Second dose: 0.5-0.75 mg/kg.

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

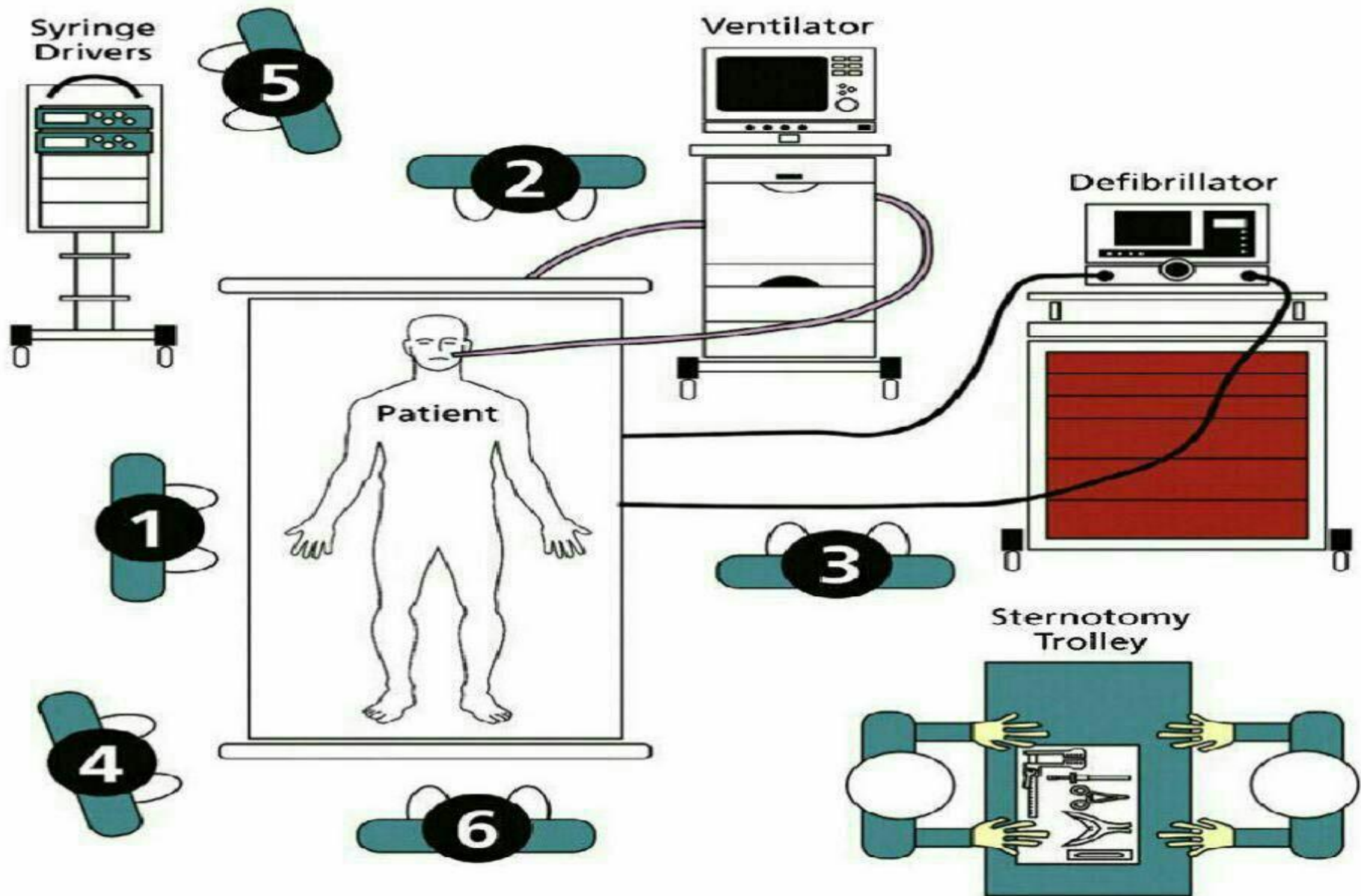
Reversible Causes

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

1 – 2 chain

- **C1-** Recognition of cardiac arrest
 - LOC
 - ECG
 - Pulseless
 - Heart sounds
 - Mydriasis
 - Apnea- Gasping
 - pale or cyanotic skin
- **C2-** activation of the emergency response system

Arrangement Roles in CPR



3 – 4 chain

- **C3-** Immediate high-quality CPR
- **C4-** Rapid defibrillation
- ACLS Algorithm

Step 1 (A – B- C)

- **A-** Start CPR

- precordial thump

- BLS



Step 1(A – B- C)

- **B-** give oxygen

Step 1(A – B- C):

- **C** – Attach monitor / defibrillator

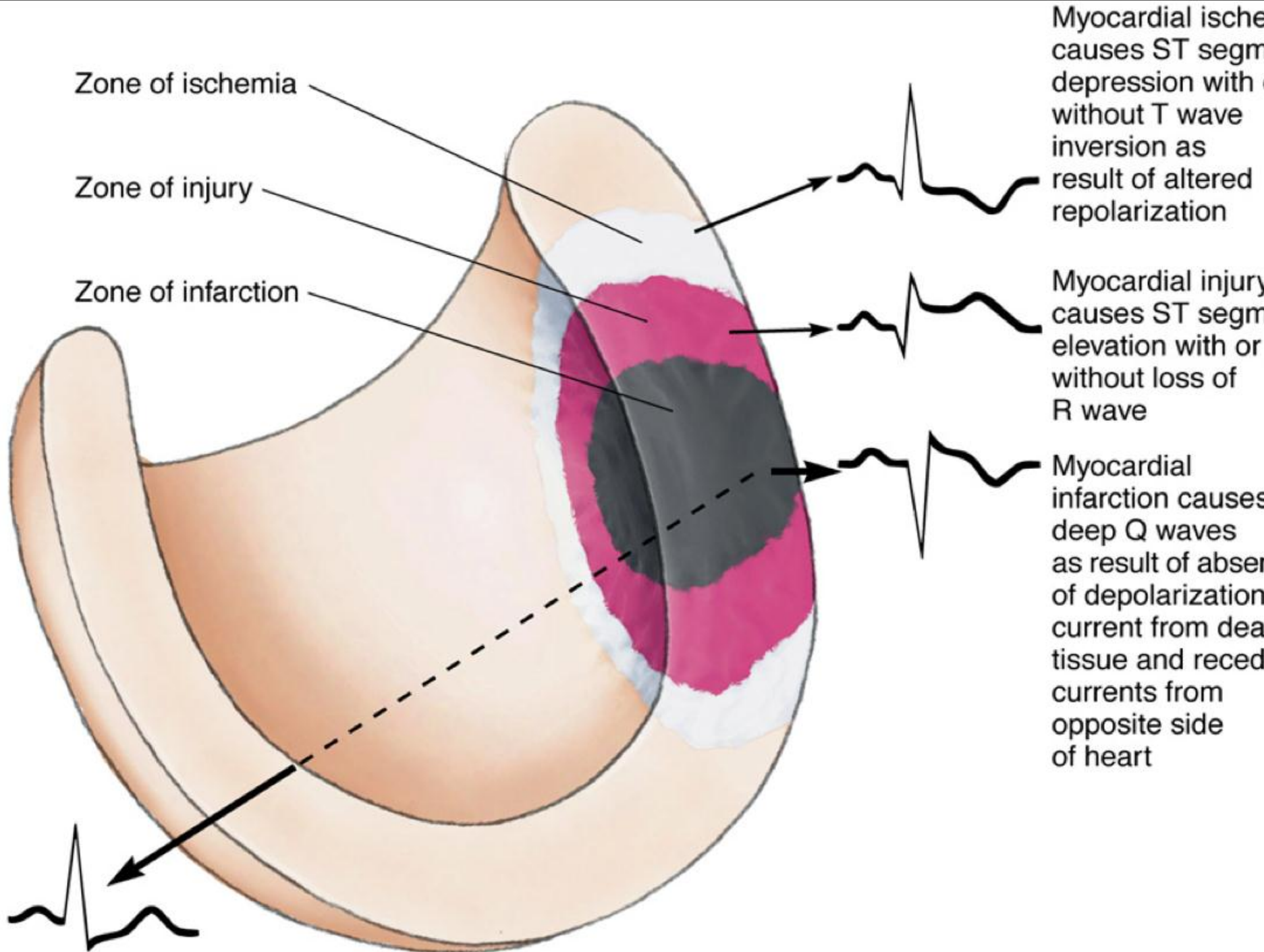


rhythm check- 1



PCA rhythms

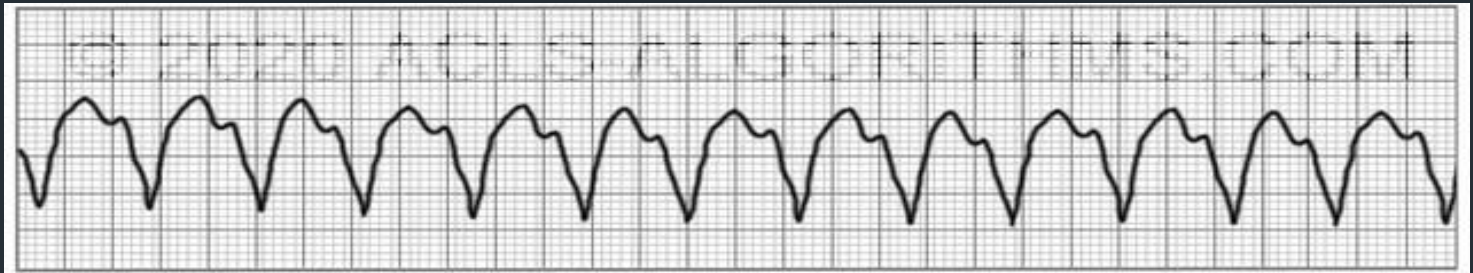
- V.T
- V.F
- Asys
- PEA



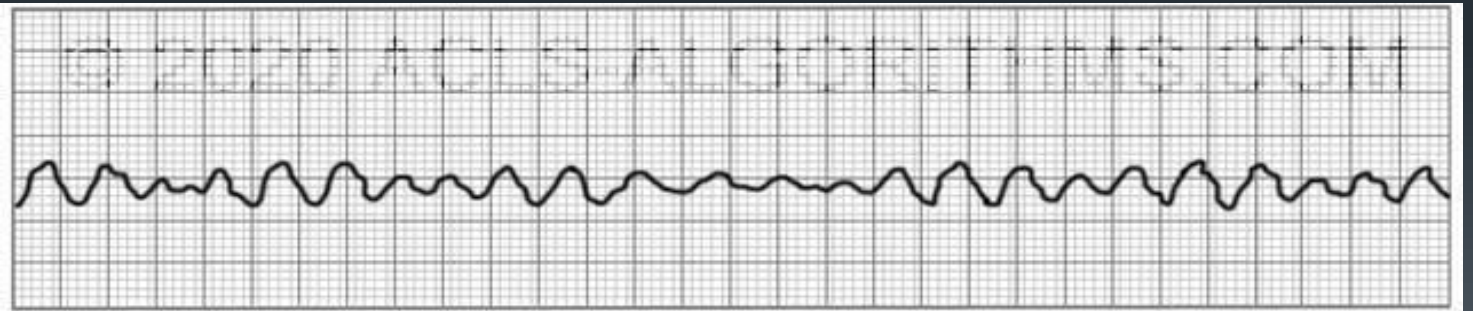
Step 2 , 3

- 2-Rhythm shock able ? Yes (VF /VTp)

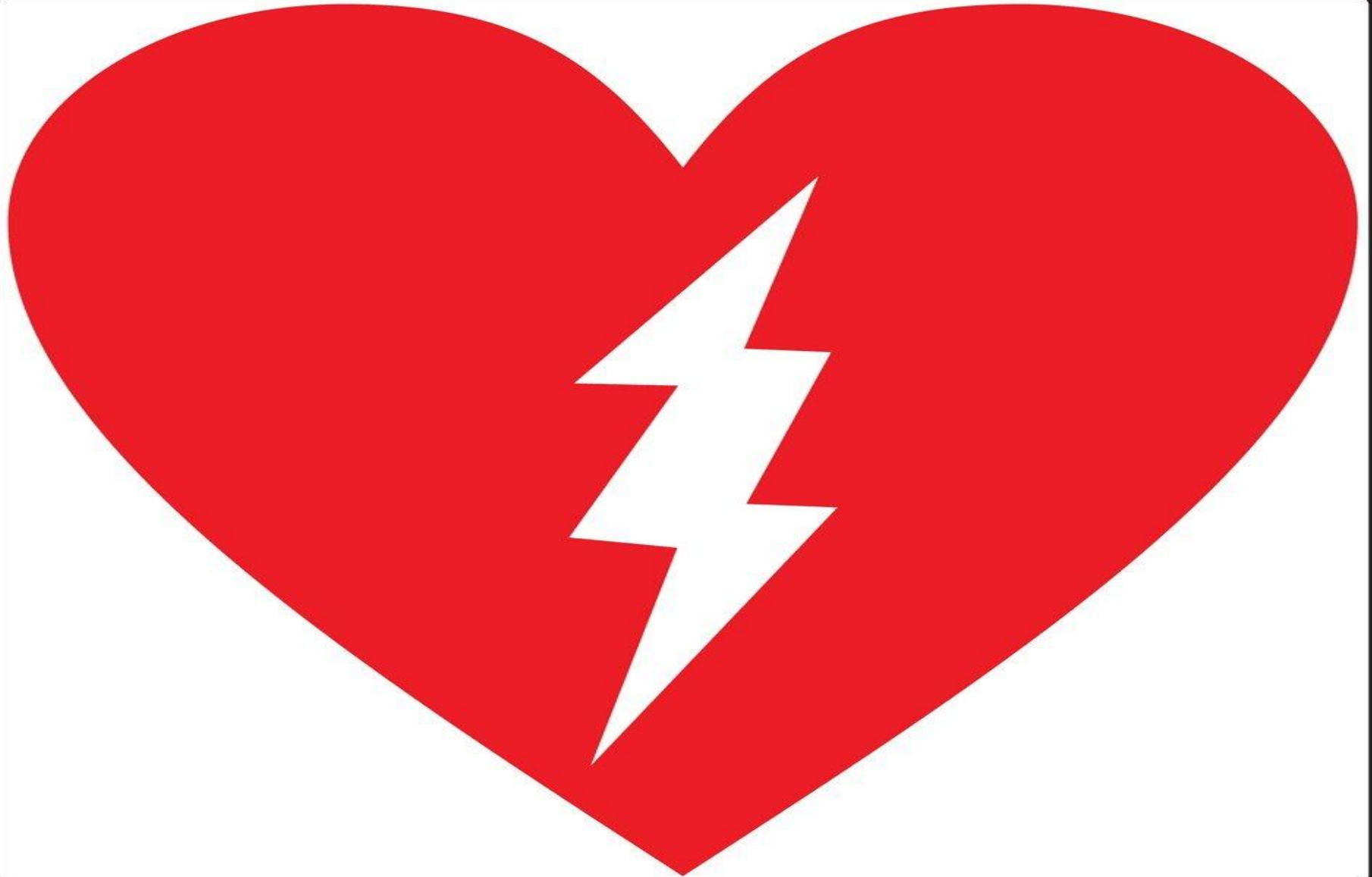
■ V.T



■ V.F



Shock - 1



Step 4(A – B)

- **A** – CPR-2 min
- **B** – IV/IO access



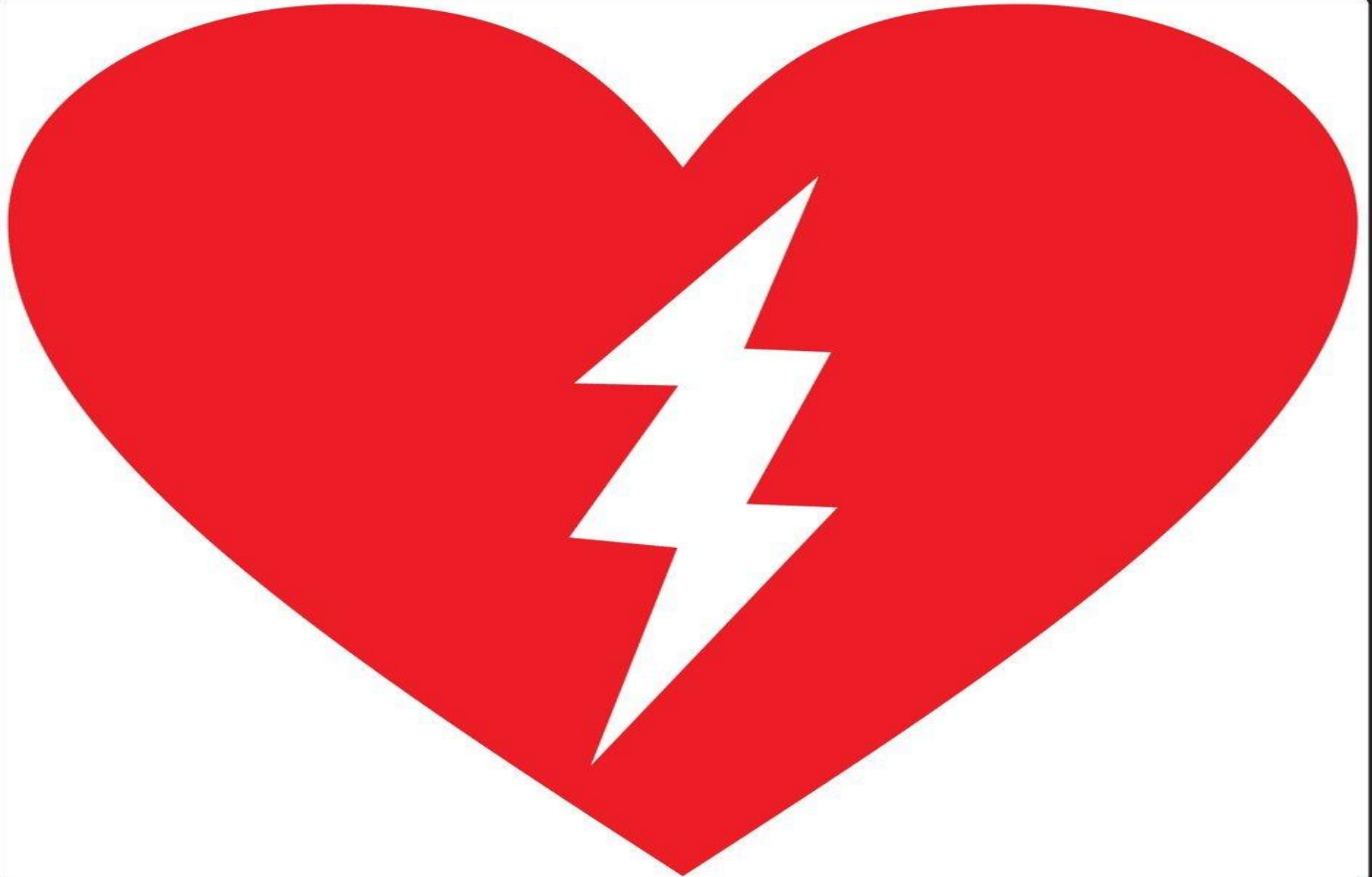
rhythm check- 2



Step 5

- Rhythm shock able ? **yes**
- **VF /V.Tp**

Shock - 2



Step 6(A –B-C)

- **A-** CPR 2min
- **B-** Epinephrine every 3-5 min
 - Epinephrine

Step 6(A –B-C)

- **C**- consider advance airway , capnography
- **Advanced airway management**



Bag – mask ventilation

- Indications
- Contraindications
- Aim
- Technique (airway)
- Difficult BMV







Tracheal Intubation

- Indication
- Equipment
- 6P
 - 1- Preparation (Airway equipment)
 - Difficult intubation
 - Mallampati classification

Tracheal Intubation



Tracheal Intubation

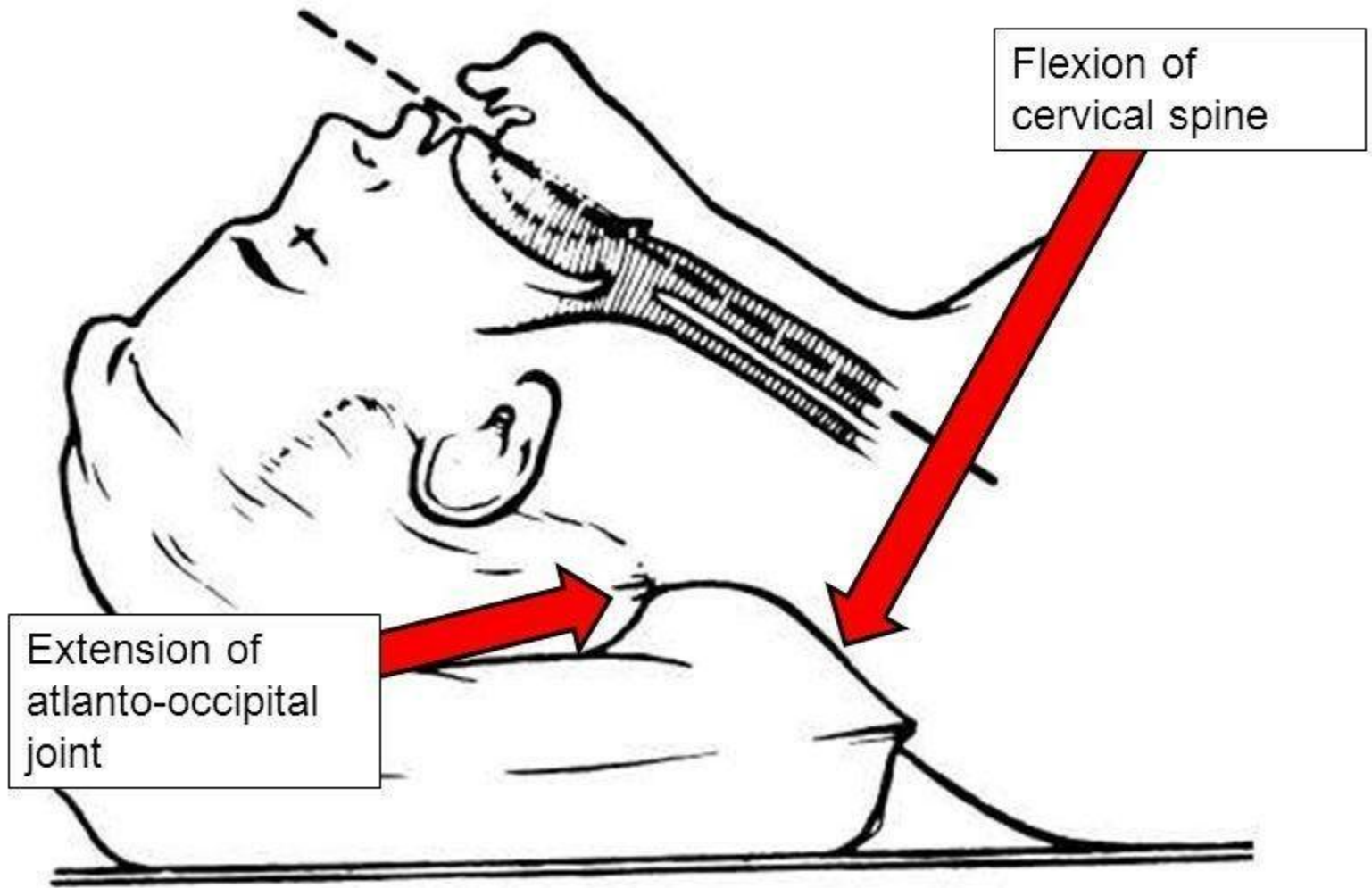
- 2- Pre oxygenation
- 3- Pretreatment
- 4- Paralysis
- 5- Position



Position

- Sniffing position

Sniffing Position

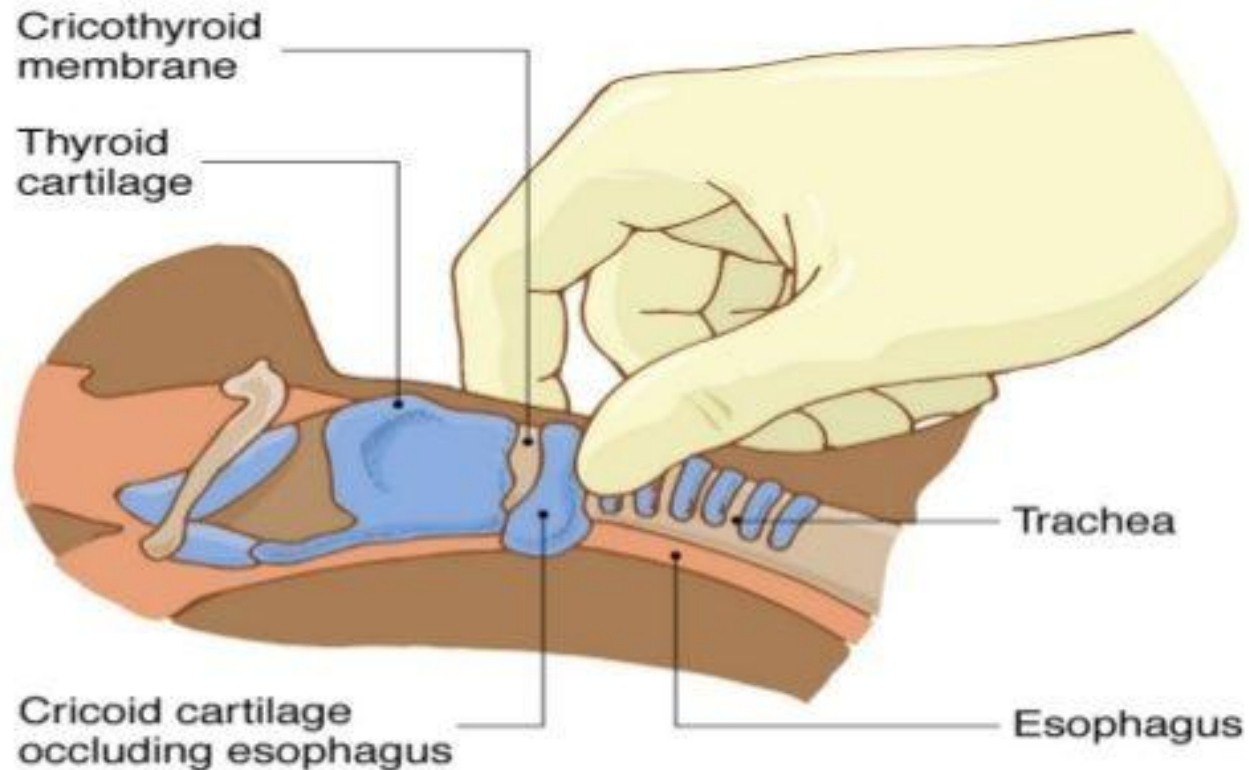




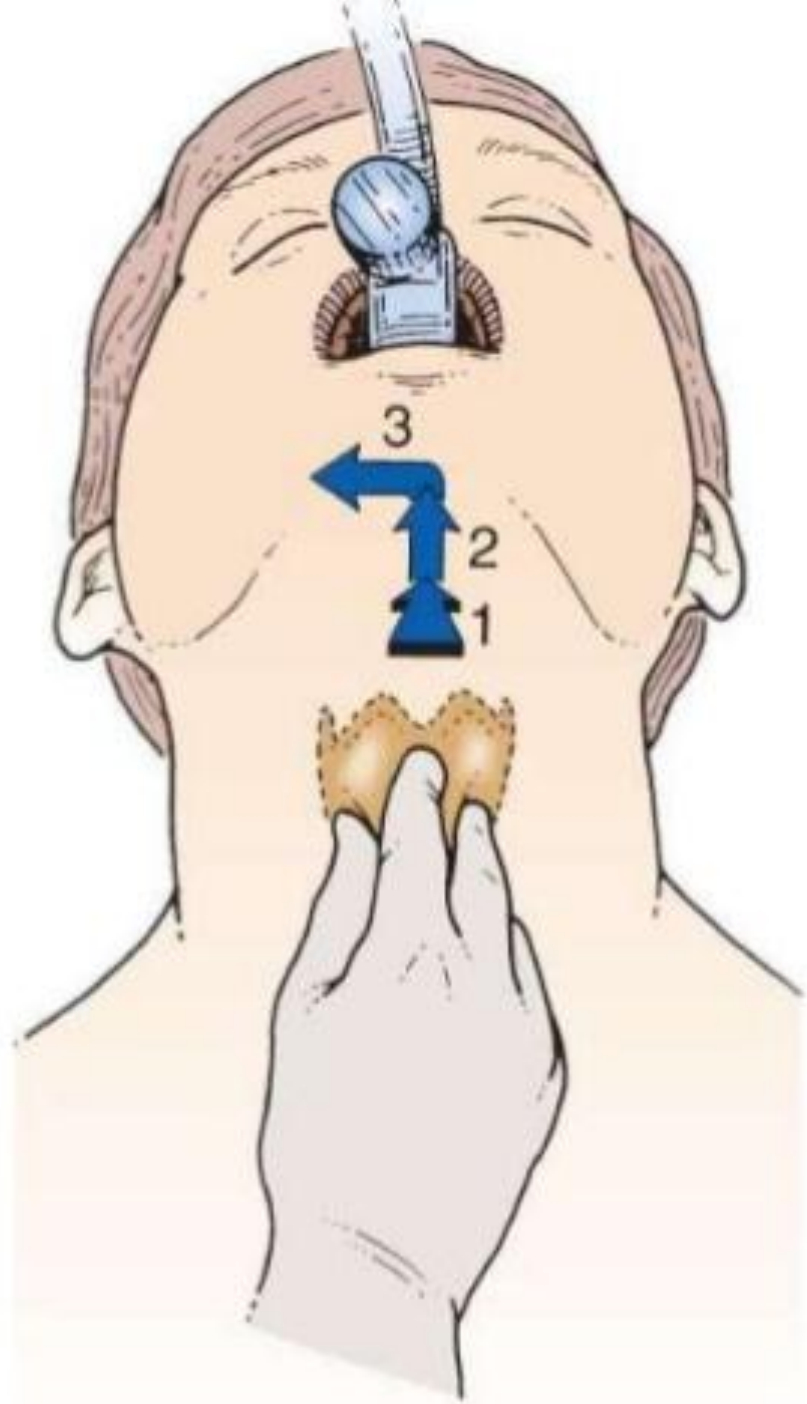
Tracheal Intubation

- 6- Placement of tube (time)
- Maneuvers:
 - Sellick man
 - BURP man
 - OELM man

In Sellick's maneuver, pressure is placed on the cricoid cartilage, compressing the esophagus, which reduces regurgitation and helps bring the vocal cords into view.



BURP







Tracheal Intubation

- Post intubation management

LMA

- Indication
- Contraindications
- Placement



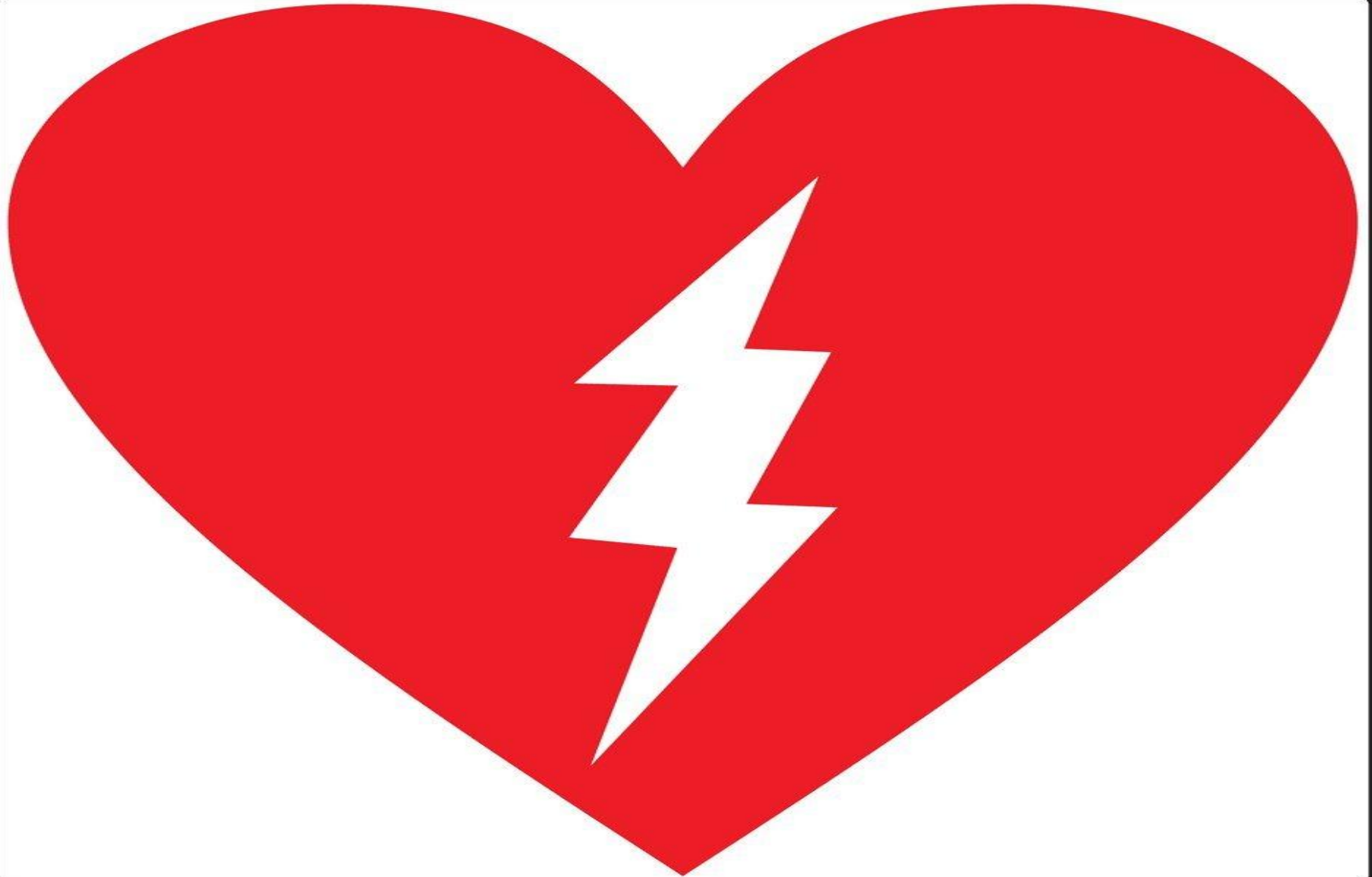
rhythm check- 3



Step 7

- Rhythm shock able ? Yes

Shock - 3



Step 8(A –B-C)

- **A-** CPR 2min
- **B-** Amiodarone or lidocaine
 - Amiodarone
 - lidocaine

Step 8(A –B-C)

■ C- Treat reversible cause

■ 5H

- Hypovolemia
- Hypoxia
- Hydrogenion
- Hypo/Hyper Kalemia
- Hypothermia

■ 5T

- Tension pneumothorax
- Tamponade cardiac
- Toxic
- Thrombosis pulmonary
- Thrombosis coronary



■ Step 5



پیام های بازار گانی

Step 1(A – B- C):

- **C** – Attach monitor / defibrillator

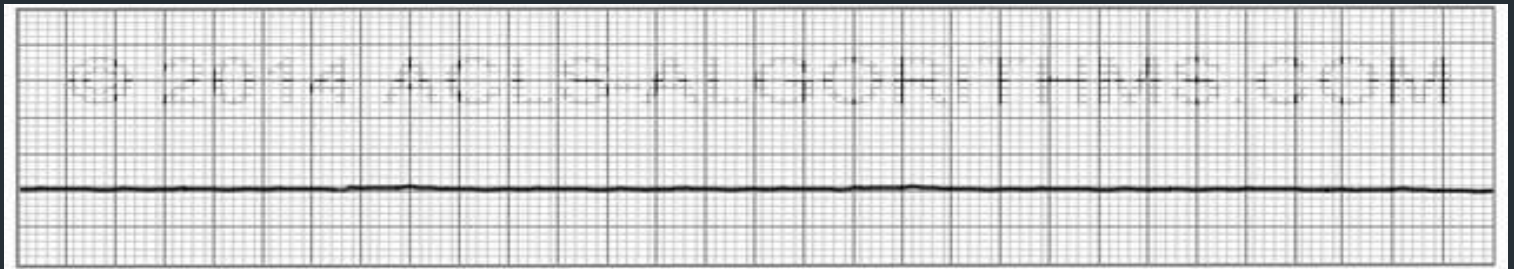


rhythm check- 1

Step 2

- 2-Rhythm shock able ? No (As /PEA)

- Asys



- PEA



Step 3(A –B-C-D)



- Epinephrine ASA.P
- **A**– CPR 2min
- **B**– IV/IO access
- **C**– Epinephrine every 3-5 min
- **D**– consider advance airway , capnography



rhythm check- 2

Step 4 (A-B)

- Rhythm shock able ? No
- **A-** CPR 2 min
- **B-** Treat reversible cause



rhythm check- 3

Step 5 (A-B)

- **A** – Rhythm shock able ? **No**
 - If no signs of ROSC go to : CPR 2min / Treat reversible cause / Epinephrine every 3-5 min
 - If signs of ROSC go to : post cardiac arrest care

Step 5 (A-B)

- **B**-Rhythm shock able ? Yes : shock, CPR 2 min,
Amiodarone or lidocaine

Chain5

- C5_ ROSC obtained (Post cardiac arrest care)A-B
- Phase A: Initial Stabilization Phase
- Phase B: Continued Management and Additional Emergent Activities



Phase A: Initial Stabilization Phase

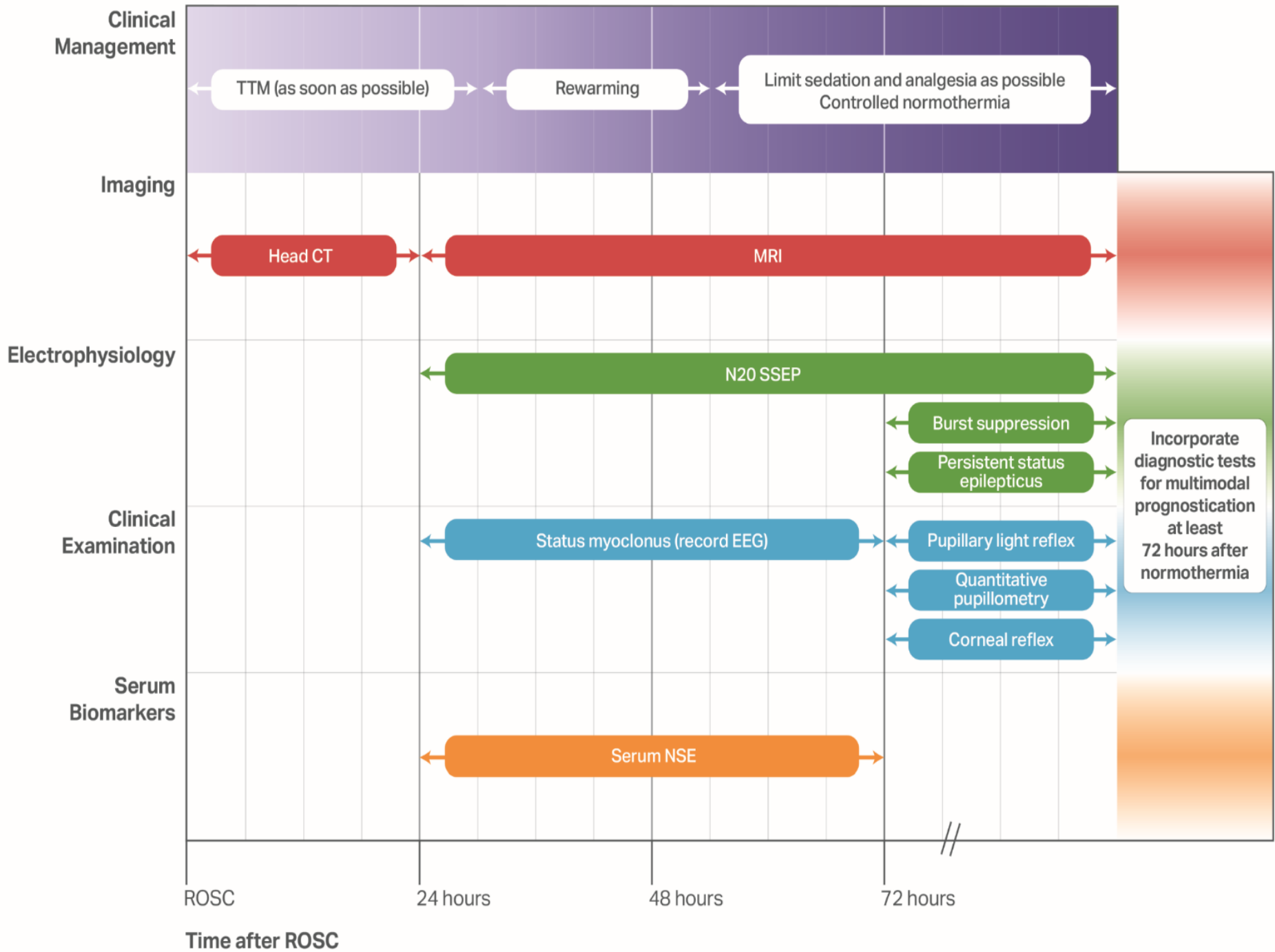
A-B-C-D

- A- Manage airway
- B- Manage respiratory parameters
- C- Manage hemodynamic parameters
- D- obtain 12 lead ECG

Phase B: Continued Management and Additional Emergent Activities



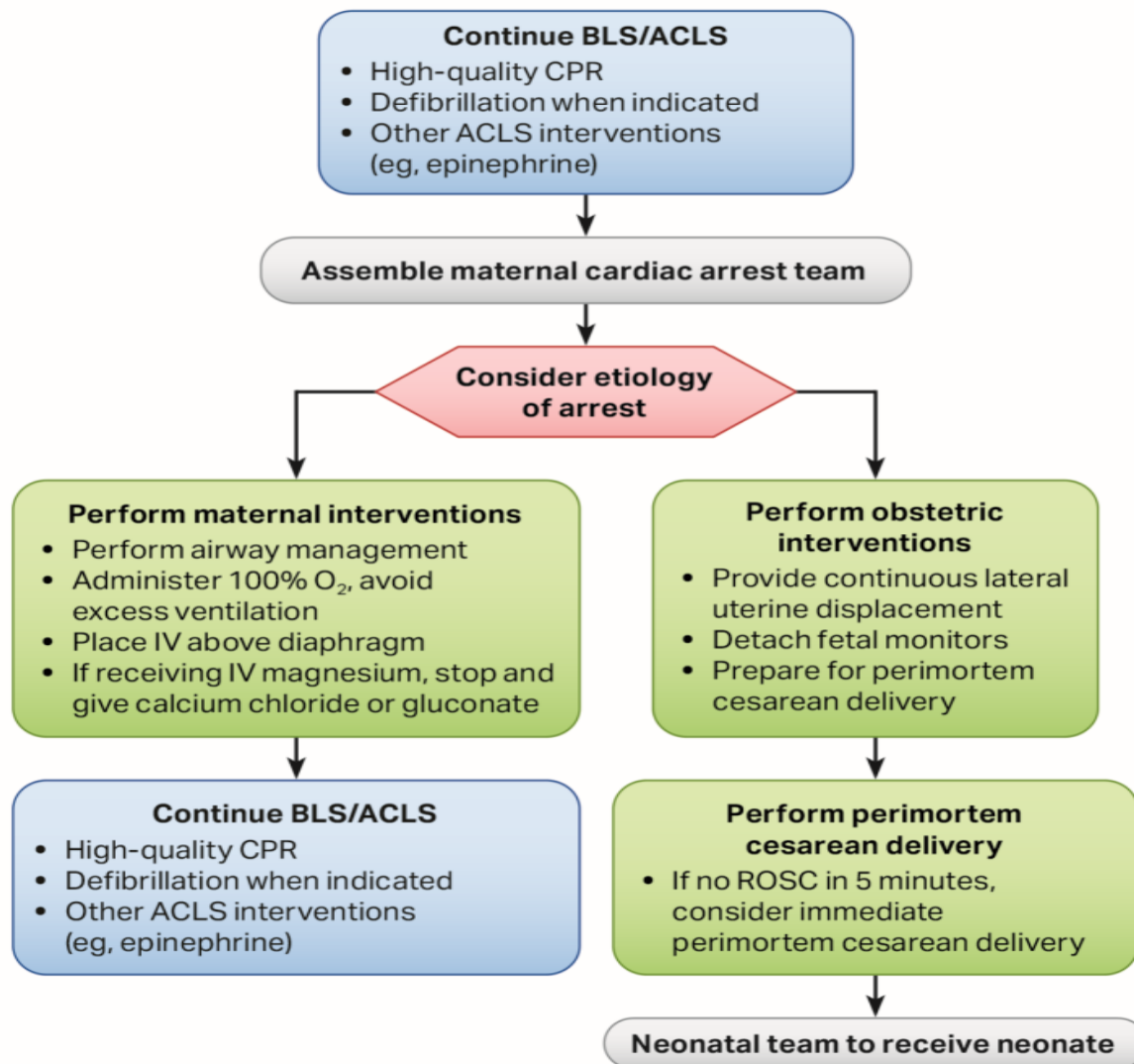
- A- consider for emergent cardiac intervention
- B- Awake
- C- comatose





Chain 6

- C6- recovery



Maternal Cardiac Arrest

- Team planning should be done in collaboration with the obstetric, neonatal, emergency, anesthesiology, intensive care, and cardiac arrest services.
- Priorities for pregnant women in cardiac arrest should include provision of high-quality CPR and relief of aortocaval compression with lateral uterine displacement.
- The goal of perimortem cesarean delivery is to improve maternal and fetal outcomes.
- Ideally, perform perimortem cesarean delivery in 5 minutes, depending on provider resources and skill sets.

Advanced Airway

- In pregnancy, a difficult airway is common. Use the most experienced provider.
- Provide endotracheal intubation or supraglottic advanced airway.
- Perform waveform capnography or capnometry to confirm and monitor ET tube placement.
- Once advanced airway is in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions.

Potential Etiology of Maternal Cardiac Arrest

- A** Anesthetic complications
- B** Bleeding
- C** Cardiovascular
- D** Drugs
- E** Embolic
- F** Fever
- G** General nonobstetric causes of cardiac arrest (H's and T's)
- H** Hypertension

- 
- M.r_bastami@yahoo