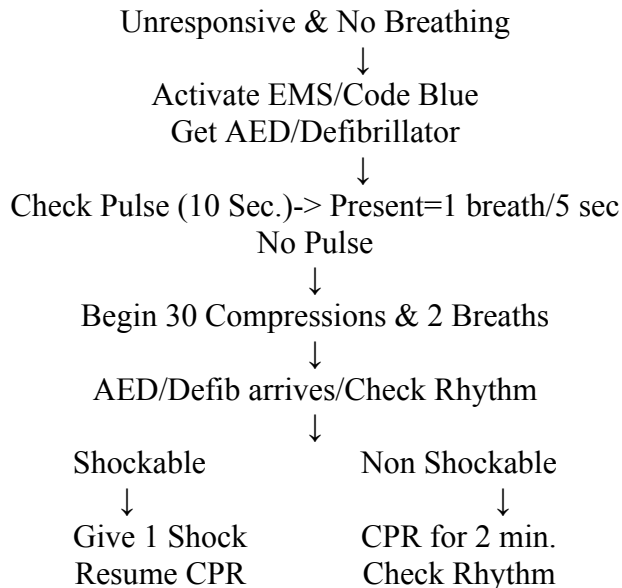


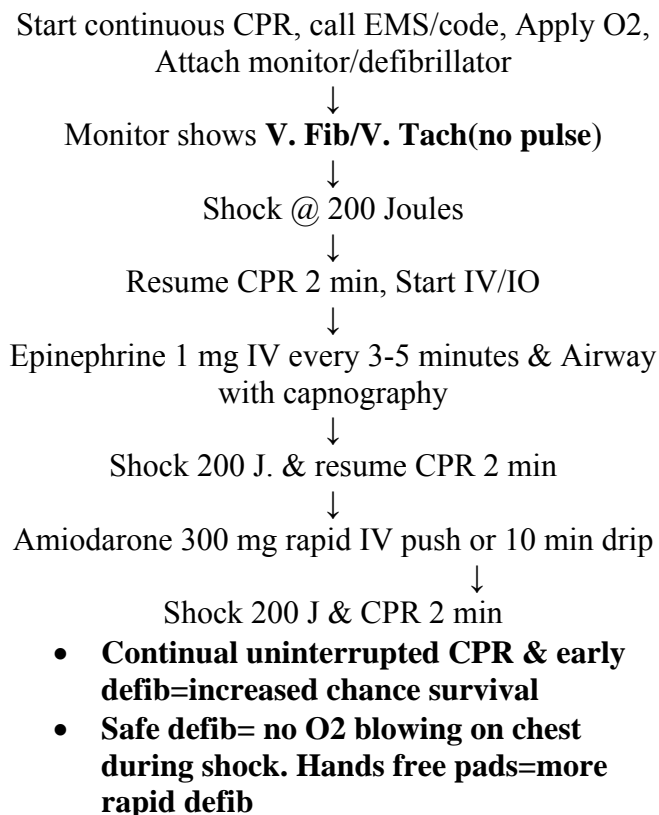
## ACLS Algorithms & Notes

### CPR Algorithm (CAB)



- **CAB**= compressions, airway, breathing- increased survival rate with early compressions & early defib, body still has oxygenated blood when person collapses pulse-less & goal is to get that circulating & prime the pump (heart)
- 2 minutes of high quality CPR & reassess & switch compressors
- No longer look, listen and feel for breathing
- Compressions harder, faster, deeper 30 in 18 sec
- Rate of at least 100/min
- Compression depth= 2 inches
- Allow complete chest recoil after each compression
- Minimize interruptions in CPR- < 10 sec & avoid over ventilation

### Cardiac Arrest- Shockable Algorithm



### BLS Survey=

- Check responsiveness & breathing
- Activate EMS/Code/AED/defib
- Check Pulse no longer than 10 sec
- Defib/shock if needed

### ACLS Survey=

- Progression of a BLS unconscious pt OR a conscious ACS (chest pain pt)
- Airway- patent with O2 or more advanced with capnography
- Breathing- Ambu/ET tube= 1 breath every 6-8 sec.
- Circulation= EKG, IV/IO, medication given peripherally
- Diagnosis- 5 H's & 5 T's

### **Cardiac Arrest- Non Shockable Algorithm (PEA/Asystole)**

Start continuous CPR, call EMS/code, Apply  
O2, Attach monitor/defibrillator

↓  
Monitor Shows Asystole or PEA

↓  
CPR, IV/IO

↓  
Epinephrine 1 mg IV every 3-5 min. & Airway  
with Capnography

↓  
Treat Causes

- PEA= no pulse= CPR
- PEA best described as Sinus Rhythm without pulse
- Asystole for awhile= consider terminating efforts
- Start with basics first (ABC's)
- Unconscious pt with rhythm on monitor- first priority is determine if there is a pulse
- Purpose of Rapid Response Team is to identify & treat early clinical deterioration
- Pt with epigastric pain= STAT EKG rule out MI

### **Capnography (PETCo2)**

- Device placed between ET tube and ambu and hooked to monitor
- Measures amount Co2 exhaled by pt-waveform will increase when pt exhales
- Measure effectiveness of chest compressions
- Measures adequate coronary perfusion
- Best indicator of ET tube placement
- ROSC(return of spontaneous circulation)- target Co2 level is 35-40
- During ET suctioning withdraw no longer than 10 sec
- Avoid anchoring ET tube with ties around neck- if too tight can obstruct venous return to brain

### **Return of Spontaneous Circulation (ROSC)**

- Pt gets **therapeutic hypothermia protocol** which lowers their body temp in order to help reduce the risk of ischemic injury to tissue & brain following a period of insufficient blood flow
- Goal-
  - i. Cool for 24 hours to goal temp of 89-93 F
- Contraindication
  - i. pt responding to verbal commands
  - ii. Known pregnancy
  - iii. DNR
  - iv. Recent head trauma or traumatic arrest
  - v. In coma from other causes like; overdose, stroke, etc
  - vi. Temp already less than 93.2 F
- Indications:
  - i. Unresponsive pt not responding to commands after ROSC
  - ii. Estimated time from arrest to ROSC is less than 60 minutes
- If hypotensive with ROSC= 1-2 liters of NS or LR to keep minimum systolic pressure of 90
- 1<sup>st</sup> priority in ROSC pt is to optimize ventilation and oxygenation

## Bradycardia Algorithm

Assess Clinical Condition: HR <50, B/P, Skin color, LOC, Pain, Dizziness,



Identify Treatable Causes: Apply O<sub>2</sub>, Cardiac Monitor, IV, EKG



Symptomatic



Atropine 0.5mg repeat every 5 min. to max of 3 mg



If Atropine ineffective → Pacing  
→ Dopamine Infusion 2-10 mcg/kg/min  
→ Epinephrine Infusion 2-10 mcg/min

## Treatable Causes

Hypoxia= Apply O<sub>2</sub> and assure patent airway

Hypovolemia= Give fluid bolus of N/S or LR consider blood

Hydrogen Ion= correct acidosis, advanced airway, Capnography

Hypothermia= Keep patient warm, while in arrest

Hypo/hyper Kalemia= check potassium & correct

Toxins= overdose of what?

Tension Pneumothorax= needle decompression & chest tube

Tamponade(cardiac)= pericardiocentesis- remove blood from heart sac

Thrombosis (pulmonary) = PE

Thrombosis (cardiac) = MI

## Tachycardia With Pulse Algorithm

Assess clinical condition- HR >150, LOC, color, Pain, dizzy, B/P, Symptomatic or non



Identify Treatable Causes: Apply O<sub>2</sub>, Cardiac Monitor, IV, EKG



Narrow Stable (SVT)

Wide Stable (VT)



Vagal maneuvers  
Adenosine 6 mg  
Adenosine 12 mg



Amiodarone 150 mg over 10 min.  
Can consider Adenosine if wide monomorphic



Narrow Unstable (SVT)

Wide Unstable



Regular= 50-100 J Synch Cardioversion  
Irregular= 120-200J Synch



Synch 100 J

- Non symptomatic stable SVT do EKG 1<sup>st</sup> before meds
- Defib=Dead=200 J->V fib & Vtach- no pulse
- Synch Cardioversion=Crashing- SVT Vach with pulse

## ACLS Medications Overview

### Epinephrine (1:10,000)- (drug class= Vasopressor)

1 mg Rapid IV/IO push

1<sup>st</sup> for all pulseless arrests

### Vasopressin (drug class= Vasopressor)

40 Units IV/IO- can replace 1<sup>st</sup> or 2<sup>nd</sup> Epi

### Amiodarone

Used with ventricular rhythms (V-Fib / V-Tach)

Pulseless= 300 mg IV push or drip over 10 min

With pulse= 150 mg in 100 ml D5W drip over 10 min

Amiodarone Maintenance Drip= 450mg in 250 glass bottle of D5w Drip infusion

@ 1mg/min

### Atropine

"A" for accelerate

0.5mg IV/IO—for sinus bradycardia may repeat every 5 minutes for Max of 3 mg

### Adenosine

Used for SVT or stable monomorphic VT

6mg rapidly—may repeat with a 12mg x 2- always follow with NS bolus & give closest to heart

Warn patient and family about drug related symptoms:

Chest pressure, feeling faint, EKG pause

### Dopamine Drip

Chronotropic drug- given for Symptomatic Bradycardia refractory to Atropine

2-10 mcg/kg/min

### Epinephrine Drip

2-10 mcg/min

For symptomatic bradycardia refractory to Atropine