Ventricular Fibrillation
Pulseless Ventricular Tachycardia

Cardiac Arrest Protocol AC 3

	Begin Continuous CPR Compressions **Push Hard (≥ 2 inches) Push Fast (100 - 120 / min)** **Change Compressors every 2 minutes** **(*sooner if fatigued*)** **(*Limit changes / pulse checks ≤ 10 seconds*)** **Ventilate 1 breath every 6 seconds** **30:2 Compression:Ventilation if no Advanced Airway** ***Monitor EtCO2*** ***if available***
	AED Procedure CSP 5 *if available*
P	Defibrillation Procedure CSP 6
	IV / IO Access Protocol UP 6
A	**Epinephrine (1:10,000) 1 mg IV / IO**
	Search for Reversible Causes
	Continue CPR Compressions **Push Hard (≥ 2 inches) Push Fast (100 - 120 / min)** **Change Compressors every 2 minutes** **(*sooner if fatigued*)** **(*Limit changes / pulse checks ≤ 10 seconds*)** **<u>If Rhythm Refractory</u>** **Continue CPR and give Agency specific Anti-arrhythmics and Epinephrine** **Continue CPR up to point where you are ready to defibrillate with device charged.** **Repeat pattern during resuscitation.**
P	**After 2 Defibrillations Attempts** Change vector by placing a second set of pads in new location (A-P or A-L) ***if available*** *Do not interrupt chest compressions*
P	**Amiodarone 300 mg IV / IO Bolus** May repeat if refractory **Amiodarone 150 mg IV / IO Bolus** Or **Lidocaine 1.0 mg/kg IV / IO** May repeat **1.0 mg/kg** if refractory If refractory, consider **Magnesium 2 gm IV / IO Bolus**
	After 4 Defibrillations Attempts Consider Dual Sequential Defibrillation Procedure CSP 7 ***if available***

Reversible Causes

Hypovolemia
Hypoxia
Hydrogen ion (acidosis)
Hypothermia
Hypo / Hyperkalemia
Hypoglycemia
Tension pneumothorax
Tamponade; cardiac
Toxins
Thrombosis; pulmonary (PE)
Thrombosis; coronary (MI)

AT ANY TIME

Return of Spontaneous Circulation

Go to Post Resuscitation Protocol AC 10

Notify Destination or Contact Medical Control

Adult Cardiac Protocol Section

* If ROSC obtained and patient subsequently looses pulses administered an additional Epinephrine 1mg of 1:10,000

* Epinephrine 1mg 1:10,000 should be given every 3-5 minutes if Anaphylaxis is suspected.

Pearls

* **Team Focused Approach / Pit-Crew Approach recommended; assigning responders to predetermined tasks. Refer to Team Focused CPR Protocol AC 11.**
* **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
* **DO NOT HYPERVENTILATE: If no advanced airway (BIAD, ETT) compression to ventilation ratio is 30:2. If advanced airway in place, ventilate 10 breaths per minute with continuous, uninterrupted compressions.**
* **Do not interrupt compressions to place endotracheal tube. Consider BIAD first to limit interruptions.**
* **It is appropriate to utilize passive oxygenation when resources are limited prior to the implementation of the Team Focused Approach / Pit-Crew Approach.**
* **Reassess and document BIAD and / or endotracheal tube placement and EtCO2 frequently, after every move, and at transfer of care.**
* **IV / IO access and drug delivery is secondary to high-quality chest compressions and early defibrillation**.
* **IV access is preferred route. Follow IV or IO Access Procedure.**
* **Defibrillation:**
  Charge defibrillator during chest compressions, near the end of 2-minute cycle, to decrease peri-shock pause. Following defibrillation, provider should immediately restart chest compressions with no pulse check until end of next cycle.
* **End Tidal CO2 (EtCO2)**
  If EtCO2 is < 10 mmHg, improve chest compressions. Goal is ≥ 20 mmHg.
  If EtCO2 spikes, typically > 40 mmHg, consider Return of Spontaneous Circulation (ROSC
* **Special Considerations**
  Maternal Arrest - Treat mother per appropriate protocol with immediate notification to Medical Control and rapid transport preferably to obstetrical center if available and proximate. Place mother supine and perform Manual Left Uterine Displacement moving uterus to the patient's left side. IV/IO access preferably above diaphragm. Defibrillation is safe at all energy levels.
  Renal Dialysis / Renal Failure - Refer to Dialysis / Renal Failure Protocol AM 3 caveats when faced with dialysis / renal failure patient experiencing cardiac arrest.
  Opioid Overdose - If suspected, administer Naloxone per Overdose / Toxic Ingestion Protocol TE 7 while ensuring airway, oxygenation, ventilations, and high-quality chest compressions.
  Drowning / Suffocation / Asphyxiation / Hanging / Lightning Strike – Hypoxic associated cardiac arrest and prompt attention to airway and ventilation is priority followed by high-quality and continuous chest compressions and early defibrillation.
* **Magnesium Sulfate is not routinely recommended during cardiac arrest, but may help with Torsades de points, prolonged QT, low Magnesium States (malnourished / alcoholic), and suspected digitalis toxicity**
* Return of spontaneous circulation: Heart rate should be > 60 when initiating anti-arrhythmic infusions.
* Success is based on proper planning and execution. Procedures require space and patient access. Make room to work.
* Discussion with Medical Control can be a valuable tool in developing a differential diagnosis and identifying possible treatment options.