Cardiac Arrest

Remember: Confirm patient is apneic and pulseless "Pit Crew" CPR includes Begin CPR1 one team member working solely as the CODE leader when able Apply cardiac monitor and defibrillation pads Assess cardiac rhythm Ventricular Fibrillation/ Asystole/PEA Pulseless Ventricular Tachycardia • Establish IV/IO access (proximal humerus IO is preferred) • Epinephrine 0.1mg/ml (1:10,000) 1mg IV/IO q 3-5 min x 3 **Defibrillate** at Maximum Joules² doses MAX *If ROSC achieved then lost again can give Resume CPR immediately additional 3 doses of Epi Consider CPR device (Defib Tech) • Crystalloid Fluid bolus 1-2L IV/IO Insert advanced airway (ETT or SGA) Establish IV/IO access (proximal humerus IO is preferred) Initiate continuous EtCO₂ monitoring • Epinephrine 0.1mg/ml (1:10,000) 1mg IV/IO q 3-5 min x 3 • Apply Impedance Threshold Device (ITD)³, if available doses MAX Search and treat reversible causes Amiodarone 300mg IV/IO Crystalloid Fluid bolus 1-2L IV/IO Insert advanced airway (ETT or SGA) **NOTE:** ALS Provider May STOP CPR Initiate continuous EtCO₂ monitoring Continue CPR with rhythm/pulse after 20 min if in ASYSTOLE on • Apply Impedance Threshold Device (ITD)³, if available check q2min until ROSC or initial rhythm and ETCO2 is Termination of Resucitation After 2nd shock: Amiodarone 150mg IV/IO < 20 if CODE is unwitnessed and remained ASYSTOLE (all pauses should last < 10 seconds) throughout If VF/pVT persists: Reversible Causes of Cardiac Arrest

Defibrillate → **CPR** → Rhythm Check q2min until ROSC, asystole, or PEA

If torsade de pointes: Magnesium Sulfate 2g IV/ 10

Search and treat reversible causes

Hydrogen Ion (Acidosis) – Sodium Bicarbonate 1 mEq/kg IV/IO(prolonged downtime) Hyperkalemia - Calcium Chloride 10% 1000 mg IV/IO

Hypothermia – rewarming (see Hypothermic Cardiac Arrest protocol)

Hypoxemia – Supplemental Oxygen

Hypoglycemia – Dextrose

Hypovolemia – Crystalloid Fluid bolus

Tension Pneumothorax – needle decompression^o

Toxins - e.g. Opiates (Naloxone), TCAs (Sodium Bicarbonate)* Thrombosis, pulmonaryo

Thrombosis, cardiac

* Look for wide QRS

Tamponade^o

° Look for narrow QRS

Promptly initiating and maintaining effective and continuous chest compressions is most important – CPR is a treatment! Airway management should not interfere with chest compressions or defibrillation. Provide ventilations at 10 breaths per minute.

- ¹ In cases of witnessed arrest or adequate & uninterrupted bystander CPR performed prior to first responder arrival, it is reasonable to defibrillate as soon as possible after chest compressions are initiated. CPR should not be delayed while applying pads or charging.
- ² Maximum dosing is determined by the defibrillator's manufacturer guidelines. If unknown, use the highest setting possible.
- ³ An impedance threshold device prevents unnecessary air from entering the lungs during the decompression phase of CPR this decreases pressure and allows more blood to return back to the heart. Remove the ITD upon return of spontaneous circulation.
- The effectiveness of CPR decreases with movement. Resuscitation should occur on-scene if it is safe and operationally possible.
- Rarely, effective CPR can induce varying states of consciousness (e.g. eye opening, speech, spontaneous movement). Also consider pseudo-PEA (i.e. severe shock) in these patients and monitor closely for ROSC.
- Cardiac arrest in pregnancy: Focus on high-quality CPR and left lateral uterine displacement. Defibrillate the same as non-pregnant patients. Consider early transport for peri-mortem C-section. See Cardiac Preambles and/or consult Medical Control for further guidance.