2.04 MEDICAL CARDIAC ARREST

- If signs of ROSC during rhythm/pulse checks, see **Protocol 2.05 Adult Post-Cardiac Arrest or Return of Spontaneous Circulation**
- Consider appropriateness of continued efforts after 20 minutes of resuscitation
  - **If persistent VF/pVT**: (after 3 defibrillation attempts)Transport to a STAR center with ongoing CPR or contact Base Hospital
  - **If non-shockable**: Review criteria for Discontinuing Resuscitative Efforts **(Policy 4049)** or contact Base Hospital

Adapted from AHA 2020 ACLS Guidelines

2.04 MEDICAL CARDIAC ARREST

CPR Quality
• Push hard (at least 2 inches [5cm] and fast (100-120/min) and allow complete chest recoil. • Minimize interruptions in compression. • Avoid excessive ventilation • Change compressor every 2 minutes or sooner if fatigued • Quantitative waveform capnography – if end tidal CO2 is low or decreasing reassess CPR quality
Shock Energy for Defibrillation
• **Biphasic:** manufacturer recommends (e.g. initial dose of 120-200J): if unknown use maximum available. • Second and subsequent doses should be equivalent, and higher doses may be considered. • Minimize peri-shock pause to <5 seconds. Pre-charge AED/defibrillator at 1:45 to get ready to deliver shock at 2 minutes. • Always resume chest compressions immediately after rhythm analysis or shock. • **EXCEPTION**: If a patient goes into VF/pulseless VT while monitored or attached to an AED or defibrillator, a shock must be administered immediately. • If there is no shock advised, resume compressions for another 2 minutes before next rhythm analysis/pulse check. • **Vector change:** If a shockable rhythm continues past the third shock, attach a second set of defibrillator pads in a chest position to provide alternate vector defibrillation and switch vectors.
Drug Therapy

• **Epinephrine IV/IO dose:** 1mg every 3-5minutes, up to **4 doses**
• **Amiodarone IV/IO dose:**
  ○ First dose: 300mg bolus
  ○ Second dose: 150mg

Advanced airway
• BLS airway: 30:2 compression ventilation ratio • Supraglottic airway (first line) or endotracheal intubation advanced airway. Do **NOT** stop compressions to place advanced airway. • Waveform capnography to confirm and monitor advanced airway tube placement • Advanced airway: continuous ventilation [1 breath every 6 seconds (10 breaths/min]
Return of Spontaneous Circulation (ROSC)
• Check for pulse and blood pressure • Abrupt sustained increase in end tidal (typically >40mmHg) • **See Protocol 2.05 Adult Post-Cardiac Arrest or Return of Spontaneous Circulation**

2.04 MEDICAL CARDIAC ARREST

Reversible Causes
Hypoxia: • Ventilation with O2 (via BVM, supraglottic airway (e.g. iGel) or ET tube) • Insert airway adjuncts as appropriate • Target O2 saturation 94 – 95% **H**ydrogen Ion (Acidosis): • Assure adequate ventilation to blow off CO2 **H**ypovolemia: • Give Normal Saline bolus • If secondary to blood loss, early transport **H**ypothermia: • Rewarm if the patient is hypothermic **H**yperkalemia: • Give Calcium Chloride • Consider Sodium Bicarbonate only after Calcium Chloride when treating suspected hyperkalemia • Consider in-line Albuterol via BVM **H**ypoglycemia: Check blood glucose and correct hypoglycemia **T**ension Pneumothorax: Relieve tension pneumothorax per Protocol 7.06 Needle Thoracostomy **T**orsades de Pointes: After defibrillation give Magnesium Sulfate **T**oxins: Treat signs and symptoms of drug toxicity: • If QRS widening from Tricyclic Antidepressant Overdose, give Sodium Bicarbonate. May repeat • If calcium channel blocker overdose, give Calcium Chloride • If opiate overdose is suspected, consider Naloxone **T**amponade (cardiac) or Thrombosis, pulmonary or cardiac: Consider early transport

High Performance CPR Team Set Up
Assign functional positions based on available personnel. One person may do one or more of the recommended functional positions listed below:

Compressor:
- Performs chest compressions

Airway:
- Opens airway
- Provides bag-mask ventilation with O2. Inserts airway adjuncts as appropriate.
- Target O2 saturation 94 – 95%.

AED/Monitor/Defibrillator:
- Operates AED/monitor/defibrillator

IV/IO Medications:
- ALS role – gets IV/IO access and gives medications.

Team Leader/Time Keeper:
- Assigns team roles (or assumes roles if not assigned)
- Provides team feedback.
- Records intervention and medication times. Announces when next interventions and medications due
- Records frequency and duration of CPR interruptions.

Next Compressor:
- Continuously checking pulse. Switch at end of cardiac cycle (2 minutes).

2.04 MEDICAL CARDIAC ARREST

SPECIAL CIRCUMSTANCES

PREGNANCY

- If patient is obviously gravid or known to be > 20weeks gestation, focus on early transport to OB and STAR designated center.
- Most common causes of maternal cardiac arrest are hemorrhage, cardiovascular diseases (including myocardial infarction, aortic dissection, and myocarditis), amniotic fluid embolism, sepsis, aspiration pneumonitis, pulmonary embolism, and eclampsia.
- If patient is receiving IV/IO **Magnesium** pre-arrest, stop infusion and switch to **Normal Saline** unless the arrest was due to seizure activity.
- During CPR, have a provider manually displace gravid uterus to patient's left side.
- If ROSC is achieved, displace uterus or place padding under backboard for 30° tilt to patients left side.

VENTRICULAR ASSIST DEVICE (LVAD)

- See **Protocol 2.19 Left Ventricular Assist Device (LVAD)**

DOCUMENTATION

- Initial "At Patient Side" time
- Intervention and medication times
- Use accelerometer ("puck") to track CPR unless LUCAS is being used
- Patient response to interventions and medications (rhythm changes; pulses with and without CPR, ROSC).
- ROSC or death pronouncement time
- Bystander CPR prior to arrival and duration-

AFTER CARE

IF ROSC

- See **Protocol 2.05 Adult Post-Cardiac Arrest or Return of Spontaneous Circulation**

IF NO ROSC after **20 minutes OPTIONS:**

If **persistent VF/pVT** (after **3** defibrillation attempts):	If **non-shockable rhythm**:
• Transport to a STAR center with ongoing CPR **OR** • Contact Base Hospital	• Review criteria for Discontinuing Resuscitative Efforts (See Policy 4049) **OR** • Contact Base Hospital