**TAB 2 CARDIAC GUIDELINES**



# TAB 2 GUIDELINE 1

**Consider ALS Backup**

**Universal Patient Care**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

|  |  |  |
| --- | --- | --- |
|  | **Aspirin 324 mg PO**(Unless documented Aspirin allergy) |  |
|  |  |

**CHEST PAIN | ACUTE CORONARY SYNDROME**

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Age
* Medications (Viagra, Levitra, Cialis)
* MI, Angina, Diabetes, Post Menopausal
* Allergies
* Recent physical exertion
* **O**nset
* **P**alliation / **P**rovocation
* **Q**uality
* **R**egion / **Radiation** / **R**eferred
* **S**everity (1-10)
* **T**ime (duration / repetition)
 | **SIGNS / SYMPTOMS*** CP (pain, pressure, aching, vice-like tightness)
* Location (substernal, epigastric, arm, jaw,

neck, shoulder)* Radiation of pain
* Pale, diaphoresis
* Shortness of Breath
* Nausea, vomiting, dizziness
* Atypical presentations
* Anginal equivalents
 | **DIFFERENTIAL*** Trauma vs. Medical
* Angina vs. Myocardial Infarction
* Pericarditis
* Pulmonary embolism
* Asthma / COPD
* Pneumothorax
* Aortic dissection or aneurysm
* GE reflux or Hiatal hernia
* Esophageal spasm
* Chest wall injury or pain
* Pleural pain
* Overdose (Cocaine)
 |

|  |  |  |
| --- | --- | --- |
|  | **Cardiac Monitor / 12-Lead ECG** |  |
| **Perform procedure if able to transmit, do not****delay care to obtain EKG** |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | **Contact Medical Control** |  |
|  |  |

**Nitroglycerin**

0.4 mg SL q 5 min (SL max 3 doses)

**Patient must have a SBP > 140 mmHg before each dose of medication is given** (avoid if taking Viagra, Cialis, Levitra)

**SBP drops below 90 mmHg**

**Transport to appropriate facility**

**If notified by receiving hospital after EKG transmission, divert patient to a designated STEMI Facility**

Consider

**ResQGARD**

# SPECIAL CONSIDERATIONS:

1. Patients with 12-Lead ECG signs indicative of ST-segment elevation myocardial infarction (STEMI) will be triaged to the closest available PCI (Percutaneous Coronary Intervention) facility for treatment.

# STEMI Criteria

* 1. ST-segment elevation, measured at the J-point, of 1mm or more.
	2. ST-segment elevation must be present in two anatomically contiguous leads.
	3. Probable new-onset BBB.
1. Transmit 12-Lead ECG to the assigned receiving PCI facility as time permits. Notify On-Line Medical Control, during patient assessment transmission, that 12-Lead ECG has been sent.

# Avoid the administration of NTG if the patient has taken Sildenafil (Viagra) or Vardenafil (Levitra) in the prior 24 hours or Tadalafil (Cialis) in the prior 48 hours.

1. Avoid administration of supplemental oxygen (> 2 L / min) unless oxygen saturation < 94%

# TAB 2 GUIDELINE 2

**Consider ALS Backup**

**Universal Patient Care**

**CPAP**

**(Initial PEEP setting of 10 cm H**2**O)**

**CONGESTIVE HEART FAILURE | ACUTE PULMONARY EDEMA**

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Congestive heart failure
* Past medical history
* Medications (Digoxin, Lasix)
* Viagra, Levitra, Cialis
* Cardiac history - past myocardical infarction
 | **SIGNS / SYMPTOMS*** Respiratory distress, Bilateral rales
* Apprehension
* Orthopnea / Paroxysmal Nocturnal

Dyspnea* Jugular vein distention
* Pink, frothy sputum
* Peripheral edema, diaphoresis
* Hypotension, shock
* Chest pain
* Diaphoresis
 | **DIFFERENTIAL*** Myocardial infarction
* Congestive heart failure
* Asthma / COPD / Pneumonia
* Anaphylaxis
* Aspiration
* Pleural effusion
* Pulmonary embolus
* Pericardial tamponade
* Toxic exposure
 |

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

|  |  |  |
| --- | --- | --- |
|  | **Cardiac Monitor / 12-Lead ECG** |  |
| **Perform procedure if able to transmit, do not delay care to obtain EKG** |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | **Contact Medical Control** |  |
| **Transport to appropriate facility** |

**SPECIAL CONSIDERATIONS:**

1. Immediately begin administration of oxygen and titrate for SpO2 > 92%. This will maximize oxygen concentration and fully saturate circulating hemoglobin.
2. If a patient is in extreme distress, it may be appropriate to proceed to assistance with Bag Valve Ventilation.
3. For patients who have moderate to severe pulmonary edema, noninvasive ventilations should be started (CPAP). CPAP provides positive airway pressure and reduces the work of breathing. Preload and afterload are also both reduced by CPAP, which is very beneficial in CHF patients.

# TAB 2 GUIDELINE 3 CARDIOGENIC SHOCK

**Consider ALS Backup**

**Universal Patient Care**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

|  |  |  |
| --- | --- | --- |
|  | **Airway Managem ent**Monitor lung sounds for fluid overload |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Age
* Medications
* Past medical history (MI, Angina, Diabetes)
* Allergies
* Recent events
* Onset
 | **SIGNS / SYMPTOMS*** Chest pain
* Systolic BP < 100 mmHg
* Rales or crackles ("wet" lung sounds)
* Pedal edema
* Dyspnea
* Diaphoresis
* Nausea / Vomiting
 | **DIFFERENTIAL*** Trauma vs. Medical
* Myocardial infarction
* Pulmonary embolism
* Pneumothorax
* Chest wall injury or pain
* Sepsis
 |

|  |  |  |
| --- | --- | --- |
|  | **Cardiac Monitor / 12-Lead ECG** |  |
| **Perform procedure if able to transmit, do not delay care to obtain EKG** |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | **Contact Medical Control** |  |
| **Transport to appropriate facility** |

**TAB 2 GUIDELINE 4**

**Contact Medical Control**

**CARDIAC ARREST – ADULT | PEDIATRIC**

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Time of onset, time lapse until CPR

initiated* Events leading to arrest
* Estimated down time
* Past medical history
* Medications
* Existence of terminal illness
* DNR
 | **SIGNS / SYMPTOMS*** Unresponsive
* Apneic
* Pulseless
* Signs of lividity, rigor mortis
* Evidence of drug ingestion
* Trauma
* Hypothermia
 | **DIFFERENTIAL*** Medical vs. Trauma
* Ventricular Fibrillation vs. Pulseless

Ventricular Tachycardia* Asystole
* Pulseless Electrical Activity (PEA)
 |

|  |
| --- |
| **Universal Patient Care** |
| **Consider ALS Backup** |
|  |  |

 **YES**

**NO**

**Begin Continuous Chest Compressions at 100 / min** (turn on metronome)

**Dead On Arrival (DOA) Guidelines**

**Automated CPR Device**

**(When Available)**

**Withhold Resuscitation**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

**Return of Spontaneous**

**Circulation (ROSC)**

**Criteria for Termination**

**of Resuscitation**

**Interrupt compressions only as per**

**Defibrillation Procedure**

**Ventilate no more than**

**8 – 10 breaths / minute**

**Airway Managem ent**

Ventilations 8 – 10 / min

**Automated Defibrillation Procedure**

**Attach AED**

**Continue Resuscitation**

**Transport to appropriate facility**

**Stop Resuscitation**

# SPECIAL CONSIDERATIONS:

1. **Resuscitation is based on proper planning and organized execution. Procedures require space and patient access. Make room to work. Utilize Team Focused Approach (PIT Crew CPR) assigning responders to predetermined tasks.**
2. **Unless patient / crew is in an unsafe environment all resuscitative measures should be performed where the cardiac arrest occurred. Sustained ventricular tachycardia / fibrillation greater than 20 minutes should be discussed with online medical control for potential transport.**
3. **Efforts should be directed at high quality and continuous compressions with limited interruptions and early defibrillation when indicated.**
4. **MCMA** acronym for Cardiac Arrest Priorities
	1. **M**etronome – Rate above 100 beats per minute but allow adequate recoil
	2. **C**ompression – harder, deeper, faster (continuous with advanced airway in place)

# INTERRUPTION IN COMPRESSIONS NEEDS TO BE KEPT TO A MINIMUM.

* + 1. “Push Hard and Push Fast” at a rate of 100 – 120 beats per minute
			1. Allow chest to recoil from compressions
			2. Limit interruptions to chest compressions

# If no advanced airway (BIAD, ETT) compressions to ventilations are 30:2. If advanced airway in place ventilate 10 breaths / minute with continuous, uninterrupted compressions.

* + 1. Deploy and utilize resqCPR system or automated CPR device when appropriate and available.
			1. With the efficacy of automated CPR devices, compressions should not be stopped during defibrillation
	1. **M**onitor – defibrillate after 2 minutes of CPR if down > 4 minutes
		1. AED should be used on all children over the age of 1 year
		2. AED should deliver one (1) shock and then CPR should immediately begin
	2. **A**irway

# DO NOT HYPERVENTILATE

* + 1. Breathing / Airway management after second shock and / or 2 rounds of compressions (2 minutes each round.)
		2. **DO NOT STOP CPR TO INTUBATE EARLY IN THE ARREST**. Initiate basic airway (King LT or LMA preferred) with Bag Valve Mask ventilations and apply ResQPOD device inline or with constant mask seal, **ventilate at a rate of 10 breaths / minute** with oxygen source at flow rate of 15 LPM.
		3. Utilize EZ cap or capnography device if available, evaluate CPR (EtCO2 > 10 mmHg).
			1. In patients with return of spontaneous circulation (ROSC), the first visualized sign may be a significant increase in capnographic waveform and capnogram value. C02 washout through the lungs upon return of mechanical circulation proves a valuable sign of ROSC and should prompt the EMS providers in the field to assess patient circulation (pulses).
			2. Rescue breaths over one (1) second
			3. Limit ventilations one (1) every six (6) seconds or ten (10) per minute
			4. Limit tidal volumes to 500 ml for adults if using oxygen
		4. Upon placing and evaluating an advanced airway (ET, LMA, KING), it is **strongly recommended** that the patient’s head be immobilized with a C-collar and/or CID to maintain airway control.
1. **Maternal Arrest** - Treat mother per appropriate guideline with immediate notification to Medical Control and rapid transport as per Cardiac Arrest Destination Plan. Place mother supine and perform Manual Left Uterine Displacement moving uterus to the patient’s left side. AED use is safe.
2. If any underlying cause of arrest is suspected (i.e., hypothermia, diabetes, overdose), it would be appropriate to integrate those treatment guidelines during the resuscitative process. Do not, however, delay administration of cardiac medications while integrating treatments from other guidelines.
	1. **The most common cause of pediatric cardiac arrest is HYPOXIA** for this reason our primary responsibilities differ somewhat from that of an adult. If intervention is swift and effective, the child can often be restored to full health. This makes the psychological burden and reward for you as providers all the greater.

|  |  |  |  |
| --- | --- | --- | --- |
| **COMPONENT** | **ADULT** | **CHILD** | **INFANT** |
| **Recognition** | **Unresponsive (for all ages)** |
| No breathing, not breathing normal (gasping) | Not breathing or only gasping |
| **ACTIVATE** | Activate when victim found unresponsive. | Activate after performing 5 cycles of CPR. |
| Emergency response | For sudden, witness collapse, activate after verifying that victim unresponsive |
|  | HCP: if respiratory arrest likely, call after 5 cycles (2 minutes of CPR) |
|  |  |
| CPR Sequence | CAB | CAB | CAB |
| **CIRCULATION** | Carotid | Brachial or femoral |
| HCP: Pulse check (< 10 sec) | (HCP can use femoral in child) |
| Compression landmarks | Center of chest, between nipples | Just below nipple line |
| Compression method | 2 hands: Heel of 1 hand, other hand on top | 2 Hands: Heel of 1 hand with second on top or | 1 rescuer: 2 fingers |
| HCP: 2 rescuers: 2 thumb- encircling hands |
| 1 Hand: Heel of 1 hand only |
| Compression depth | At least 2 inches | At least 1/3 AP diameter of the chest |
| Compression rate | Approximately 100 – 120 beats / minute (push hard, fast, allow full chest recoil) |
| Compression - ventilation ratio | 30 to 2 | 30 to 2 (single rescuer) |
| (1 or 2 rescuers) | HCP: 15 to 2 (2 rescuers) |
| (5 cycle / 2 minutes) | (1 cycle should take 18 - 23 seconds) |
| **AIRWAY** | Head tilt-Chin Lift (HCP: suspected trauma, use jaw trust) |
| **BREATHS** |
| Initial | 2 breaths at 1 second / breath | 2 effect breaths at 1 second / breath |
| HCP: Rescue breathing without chest compressions | 10 to 12 breaths / minute(approximately 1 breathevery 5 to 6 seconds) | 12 to 20 breaths / minute |
| (approximately 1 breath every 3 to 5 seconds) |
| HCP: Recue breaths for CPR with advanced airway | 10 breaths / minute (approximately 1 breath every 6 to 8 seconds) |
| **DEFIBRILLATION** |
| AED | USE adult pads. Do not sue child pads / child system. | HCP: Use AED as soon as available for sudden collapse and in-hospital | No recommendation for infants < 1 year of age. |
| HCP: For out-of-hospital response may provide 5 cycles / 2 minutes of CPR before shock. If response > 4 to 5 minutes and arrest not witnessed. | All: After 5 cycles of CPR (out-of-hospital). Use child pads / child system for child 1 to 8 years if available. If child pads / system not available, use adult AED and pads. |

# TAB 2 GUIDELINE 5

**CARDIAC ARREST – “PIT CREW” CPR GUIDELINE**

1. Clinical Indications
	1. Patient in cardiac arrest
2. Contraindications
	1. < 1 year or patient size prohibits access
3. Procedure
	1. Establish prior to arriving at patient’s side, the following responsibilities:
	2. Position 1

# ALWAYS on patient’s right side

* + 1. Assesses responsiveness/pulses
		2. Initiates chest compressions immediately if needed
		3. Alternates chest compressions w/ Position 2
		4. May operate BVM when not performing chest compressions
		5. Assembles, applies & operates automated CPR device when available
	1. Position 2

# ALWAYS on patient’s left side

* + 1. Applies AED pads immediately
		2. Operates AED after each 2-minute cycle of compressions
		3. Alternates chest compressions w/ Position 1
		4. May operate BVM when not performing chest compressions
		5. May assist with inserting / securing King Airway
	1. Position 3

# ALWAYS at patient’s head

* + 1. Assembles and appropriately applies all equipment for airway and ventilations
		2. Opens/clears airway, Suction as needed
		3. Assembles King Airway
		4. Inserts & secures King Airway
		5. Ventilate at appropriate intervals w/ BVM
		6. Alternates w/ Positions 1 & 2 for chest compressions as needed
		7. Operates BVM when not performing chest compressions
	1. Position 4

# ALWAYS outside of CPR “Triangle”

* + 1. Functions as a “Team Leader”, assesses quality of compressions/ventilations
		2. Assembles O2, BVM, ResQPod and Thomas Tube Holder (or alternative means of securing King airway)
		3. Turns on audible metronome (if available) and/or timing lights on ResQPod
		4. Gathers patient information (may delegate to Police Officer if available)
1. SPECIAL CONSIDERATIONS:

# Minimally interrupted compressions at a rate of 100 BPM.

* 1. **Appropriate depth and quality of compressions.**
	2. **Consider compressor fatigue and change compressors as needed. Change at the minimum every (2) minutes.**
	3. Team approach.
		1. Infants and small children may require modification of the procedure due to size
		2. This procedure is based on a 4-person crew of providers
		3. If there is only a 3-person crew, Position 3 will incorporate Position 4 responsibilities
		4. If only a 2-person crew, follow standard CPR Guideline

**“Pit Crew” CPR Positions**



# TAB 2 GUIDELINE 6 CARDIAC ARREST – HYPOTHERMIC

**Treat for Hypothermia**

**edical Control**

**Stop Resuscitation**

**Transport to appropriate facility**

**Severe Hypothermia (< 30oC)**

Start CPR Attempt defibrillation (x 1)

* **Avoid rough movement**
* **Remove patient from cold**

**environment**

* **Remove wet clothing**
* **Protect against heat loss**
* **Cover with blankets**

|  |
| --- |
| **Universal Patient Care** |
| **Consider ALS Backup** |
|  |  |

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Hypothermia
* Time of arrest
* Medical history
* Medications
 | **SIGNS / SYMPTOMS*** Unresponsive
* Cardiac arrest
 | **DIFFERENTIAL*** Hypothermia
* Exposure
* H's and T's
 |

**Cardiac Arrest Guidelines**

|  |
| --- |
| **Contact M** |
|  | **Continue Resuscitation** |  |
|  |

**Moderate Hypothermia (30oC to 34oC)**

Start CPR Attempt defibrillation

**SPECIAL CONSIDERATIONS:**

1. This guideline applies to patients with suspected hypothermia (less than 32 ºC). These patients are **LOAD** and **GO** situations.
2. Patients in hypothermic cardiac arrest will require CPR with some modifications of conventional BLS care
	1. When the victim is hypothermic, pulse and respiratory rates may be slow or difficult to detect
	2. For these reasons breathing and pulse should be assessed for 30 – 45 seconds to confirm respiratory arrest, pulseless cardiac arrest, or bradycardia that is profound enough to require CPR
3. The hypothermic heart may be unresponsive to pacemaker stimulation, and defibrillation.
	1. Acquire tympanic temperatures in the hypothermic arrest patient and factor into the overall approach to treatment.
	2. The temperature at which defibrillation should first be attempted in the severely hypothermic patient and the number of defibrillation attempts that should be made have not been established. The following guidelines should be considered:
		1. **Moderate Hypothermia (30oC to 34oC):** Start CPR, attempt defibrillation, initiate

re-warming.

* + 1. **Severe Hypothermia (<30oC):** Start CPR, attempt defibrillation (x 1), initiate re- warming.
	1. If the patient fails to respond to the initial defibrillation attempt, defer subsequent defibrillation attempts until the core temperature rises above 30oC (86oF).
1. Passive re-warming can be initiated in the field with application of blankets and movement of the victim to a warm environment. Severely hypothermic patients will require active internal warming upon arrival to the emergency department. To prevent further core heat loss, remove wet garments and protect the victim from further environmental exposure.

# TAB 2 GUIDELINE 7 CARDIAC ARREST – TRAUMATIC

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Patient who has suffered traumatic injury and is now pulseless
* Mechanism of injury
* Time of arrest
* Medical history
* Medications
 | **SIGNS / SYMPTOMS*** Evidence of penetrating trauma
* Evidence of blunt trauma
* Unresponsiveness
* Cardiac arrest
 | **DIFFERENTIAL*** Medical condition preceding traumatic event as cause of arrest
* Tension Pneumothorax
* Hypoxia secondary to respiratory arrest
* Hypovolemic shock
	+ External hemorrhage
	+ Unstable pelvic fracture
	+ Displaced long bone fracture(s)
	+ Hemothorax
	+ Intra-abdominal hemorrhage
	+ Retroperitoneal hemorrhage
* Injury to vital structures
* Head injury with secondary cardiovascular collapse
 |

**Universal Patient Care**

**Patient with injury obviously**

**incompatible with life**

**Consider ALS Backup**

**Do not attempt resuscitation. Contact law enforcement as appropriate**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

**YES**

**NO**

**Spinal Immobilization**

**Cardiac Arrest Guidelines**

**Return of Spontaneous**

**Circulation (ROSC)**

**YES**

 **NO**

**Continue Resuscitation**

**Consider:**

* **Reduction / Stabilization of Long Bone Fracture(s)**
* **Reduction / Stabilization of**

**Pelvic Fracture**

* **Control of External Hem orrhage**

**Contact Medical Control**

**Transport to appropriate facility**

**Stop Resuscitation**

# SPECIAL CONSIDERATIONS:

1. Traumatic arrest patients have a high mortality rate. **Patient transport if necessary should be to the closest emergency department.**
2. Patients with long extrications, a helicopter / mobile doctor should be considered so a physician and / or nurse will be on the scene. The patient should have no delay in transport after extrication, except as needed for c-spine and airway control.
3. Common errors in trauma resuscitation include failure to open and maintain the airway, failure to provide appropriate fluid resuscitation, and failure to recognize and treat internal bleeding.
4. When the mechanism of injury is compatible with spinal injury, restrict motion of the cervical spine and avoid traction or movement of the head and neck. Open and maintain the airway with a jaw thrust, and do not tilt the head.
5. In cases of suspected head injury, do not hyperventilate the patient.
6. Suspect thoracic injury in all thoracoabdominal traumas, even in the absence of external injuries. Tension pneumothorax, hemothorax, or pulmonary contusion may impair breathing.
7. Minimal radio report (TAG-EM)
	1. **T**rauma guideline: Patient is a major or intermediate trauma guideline patient.
	2. **A**ge of patient (estimate).
	3. **G**ender.
	4. **E**TA: Provide an ETA to the closest facility and identify the facility.
	5. **M**echanism of injury: Briefly describe the mechanism of injury and basis for declaring a trauma.
	6. Vital signs – including HR / BP / RR / SpO2 and if appropriate EtCO2

# TAB 2 GUIDELINE 8

**2015 AHA GUIDELINES ADULT BASIC LIFE SUPPORT**



**PEDIATRIC BASIC LIFE SUPPORT SINGLE RESCUER**



**PEDIATRIC BASIC LIFE SUPPORT 2 OR MORE RESCUERS**



**TAB 2 GUIDELINE 9**

**DEAD ON ARRIVAL (DOA) GUIDELINE**

|  |  |  |
| --- | --- | --- |
| **HISTORY*** Known medical conditions
* Last time known to be alive
* Patient encountered by EMS who meet criteria for obvious death
* Patient with DNR order in place who is

pulseless and apneic* Patient for whom resuscitation efforts are

ceased on-scene | **SIGNS / SYMPTOMS*** Apnic / pulseless
* Signs of decomposition
* Decapitated
* Burned beyond recognition
* Rigor mortis
* Dependent lividity
 | **DIFFERENTIAL*** Death of apparent medical causes
* Suspicious death (law enforcement)
 |

**YES**

**Injury Incompatible with life? Decapitation, or**

**burned beyond recognition**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

**NO**

**YES**

**Signs of Decomposition, rigor mortis or extreme**

**dependent lividity?**

**NO**

**YES**

**Traumatic arrest and patient is in asystole on cardiac monitor**

**NO**

**YES**

**Reliable history indicates patient without vital signs for longer than 20 minutes without resuscitative measures and victim is cold?**

**NO**

**YES**

**Active DNR-CC, or CCA presented to the EMS**

**Providers?**

**NO**

**YES**

**Patient meets criteria for Termination of**

**Resuscitation?**

**NO**

**YES**

**Coordinate with Law Enforcement**

**Avoid disturbing scene or body**

**Law Enforcement and / or EMS Recognize Suspicious Death?**

**DO NOT Initiate resuscitative measures**

**Continue with Resuscitation Per Appropriate Guideline**

**NO**

**Coordinate with Law Enforcement and / or coroner.**

**Contacting Medical Control is not required.**

# TAB 2 GUIDELINE 10 TERMINATION OF RESUSCITATION (TOR)

1. All decisions to withhold or terminate CPR and resuscitation efforts should be sufficiently documented and readily supported by this guideline.
2. Criteria
	1. For patient’s meeting **Do Not Resuscitate** criteria refer to DNR Guideline.
		1. Whenever resuscitative measures are instituted, they must be continued until an appropriate DNR Form is verified.
	2. For patient with obvious death refer to DOA guideline.
	3. Blunt traumatic arrest – resuscitative measures can be terminated if ALS care available to perform cardiac monitor.
	4. All EMS personnel involved in the patient’s care agree that discontinuation of the resuscitation is appropriate.

# Requirements to be meet for termination of resuscitative efforts:

* + 1. If a reliable history indicates that the patient has been without vital signs for longer than 20 minutes without any resuscitative measures being instituted.
		2. Non-hypothermic.
			1. Any victim, who appears dead but is hypothermic from environmental cold, should be provided with resuscitative measures immediately via the Cardiac Arrest – Hypothermic Guideline.
		3. AED does not advise to “shock”.
			1. ECG confirmation of death is not required for
				1. Injuries incompatible with life.
				2. Victim exhibits signs of decomposition, rigor mortis or extreme dependent lividity.
		4. If resuscitative measures were initiated, then cardiac arrest guidelines have been followed for at least 20 minutes, including adequate CPR and advanced alternative airway with End-Tidal CO2 **(when available)** levels < 10 mmHg after 20 minutes of resuscitation or a falling EtCO2 sustained below 20 mmHg after 20 minutes of resuscitation.
		5. Appropriate emotional support by family, neighbors, clergy or police is available at the scene if the family is present.
1. For patients who have had CPR initiated prior to the squad arrival, and the EMT determines the patient meets the criteria set forth by the DOA Policy, CPR may be stopped.
	1. If, while obtaining a reliable history, the patient indeed does meet the criteria for DOA, all life support measures may be stopped with permission from on-line MEDICAL CONTROL.
	2. Avoid disturbing a potential crime scene unless it is necessary to do so to effect patient resuscitative efforts.
2. If the EMT is unsure if the patient meets the exact criteria set forth by the DOA policy, then on- line MEDICAL CONTROL should be contacted and the case discussed. CPR should be continued during this time period.
3. For patients who have had CPR initiated prior to the squad arrival and it is determined that the patient has a DNR Comfort Care or DNR Comfort Care / Comfort Care Arrest order in place, CPR will be discontinued.

# In any case where doubt exists, clear documentation cannot be distinguished, or EMS feels that discontinuation of efforts at the scene would not be appropriate, the patient is to receive full resuscitative efforts and transported to the closest available hospital

**TAB 2 GUIDELINE 11**

**DNR COMFORT CARE GUIDELINE**

1. The State of Ohio has enacted legislation (2133.21 to 2133.26) that provides guidelines to manage the class of patients designated as Do Not Resuscitate or DNR. Paramedics and EMT’s are protected under Ohio’s law from the following, resulting from withholding or withdrawal of CPR after a DNR Comfort Care is discovered, and after reasonable efforts have been made to determine that the DNR applies to their patient:
	1. Criminal prosecution
	2. Professional disciplinary action
	3. Liability damages in a tort or other civil action
2. There are two (2) official types of DNR orders:
	1. DNR Comfort Care
		1. DNR Comfort Care guidelines are activated immediately when DNR order is issued or when an appropriate living will specifies no CPR.
		2. Comfort care means a dying person receives care that eases the pain and suffering during the final days or hours of life, but no resuscitative measures to sustain life will be implemented.
		3. DNR Comfort Care does **NOT** mean, “Do Not Treat”.
		4. For patients that have a valid DNR Comfort Care order:

|  |  |
| --- | --- |
| **YOU WILL** | **YOU WILL NOT** |
| * Suction the airway
* Administer oxygen
* Place in position of comfort
* Splint or immobilize
* Control bleeding
* Provide pain medication
* Provide emotional support
* Contact other appropriate health care providers such as Hospice, Home health care, attending physician / Certified Nurse Practitioner (CNP) / Certified

Nurse Specialist (CNS) | * Administer chest compressions
* Insert an artificial airway
* Administer resuscitative drugs
* Defibrillate or cardiovert
* Provide respiratory assistance (other than that listed above)
* Initiate resuscitative IV (this does not include an IV for providing pain medications)
* Initiate cardiac monitoring
 |

* + 1. For those patients where any of the **will not** measures have been initiated prior to confirmation of the DNR Comfort Care status, discontinue these actions upon DNR Comfort Care confirmation.
	1. DNR Comfort Care – Arrest
		1. Unlike DNR Comfort Care, which is effective at the time the order is written, DNR Comfort Care – Arrest is activated only when a patient experiences a cardiac or respiratory arrest.
		2. “Cardiac Arrest” means the absence of a palpable pulse and / or absence of spontaneous respirations and / or presence of agonal breathing.
		3. DNR Comfort Care – Arrest allows for interventions to forestall cardiac and / or respiratory arrest. Interventions to forestall cardiac arrest include:
			1. Insert oral / nasal airway
			2. Administer resuscitative drugs
			3. Initiate resuscitative IV
			4. Initiate cardiac monitoring
1. Identification of status
	1. The following page shows the types of identification being used in Ohio for the DNR Comfort Care Policy.
	2. EMS workers are not required to search a person to see if they have DNR identification. If an EMS or other health care worker discovers one of these items in the possession of the patient, the worker must make reasonable effort to establish identity of the patient, in appropriate circumstances. Examples of ways to verify identity include:
		1. The patient, family member, caregiver or friend gives the patients name
		2. The health care worker knows the patient personally
		3. Institution identification band
		4. Driver’s license, passport or other picture ID
2. Interaction with patient, family and bystanders
	1. The patient always may request resuscitation even if he or she is a DNR Comfort Care patient and this guideline has been activated. The request for resuscitation amounts to a revocation of the DNR Comfort Care status.
	2. If family or bystanders request or demand resuscitation for a person for whom the DNR Comfort Care Guideline has been activated, **DO NOT** proceed with resuscitation. Provide

comfort measures as outlined above and try to help the family understand the dying process and the patient’s choice not to be resuscitated.

1. Documentation
	1. If the EMS provider implements the DNR Comfort Care Guideline, the following shall be documented
		1. The item that identified the patient as DNR Comfort Care.
		2. The method of verifying the patient’s identity, if any was found through reasonable efforts.
		3. Whether the patient was a DNR Comfort Care or DNR Comfort Care – Arrest patient.
		4. The actions taken to implement the DNR guideline.
2. The DNR law does not govern all DNR orders; it applies only to DNR orders, which specific the Comfort Care Guideline. Physicians, CNS or CNP may write DNR orders which use a different guideline and which may better meet the patient’s needs.





# TAB 2 GUIDELINE 12

**Consider CPR**

if no pump sound, no pulse or blood pressure, and signs of hypoperfusion

**LEFT VENTRICULAR ASSIST DEVICES (LVAD)**

|  |  |  |
| --- | --- | --- |
| **HISTORY*** End-Stage Heart Failure
* Patient has surgically-implanted pump that assists the action of one or both ventricles
* Patient may or may not be on a list for

cardiac transplantation | **SIGNS / SYMPTOMS*** The flow through many of these devices is not pulsatile, therefore THE PATIENT MAY NOT HAVE A PULSE AT BASELINE. For this reason pulse oximetry readings may also be inaccurate
* Altered Mental Status may be the only

indicator of a problem* Consider both VAD-related and non- VAD-related problems
 | **DIFFERENTIAL*** Stroke
* Cardiac Arrest
* Dysrhythmia different from patient’s baseline
* Infection
* Bleeding
* Dehydration
* Cardiac Tamponade
* Device problem such as low battery or disconnected cable
 |

**YES NO**

**Signs or symptoms of possible device malfunction or failure**

**Problem with Circulation, Perfusion, SYMPTOMATIC Dysrhythmia not at patient’s baseline, any other problems**

**Universal Patient Care**

|  |
| --- |
| **LEGEND** |
|  | **EMR** |  |
|  | **EMT** |  |
|  | **A-EMT** |  |
|  | **EMT-P** |  |
|  | **MC Order** |  |

|  |  |  |
| --- | --- | --- |
|  | **Determine type of device and asses any alarms** |  |
| **Call VAD Coordinator and****Discuss plan with Caregivers** |
|  |  |
|  |

**YES**

**NO**

**Continuous Flow Device**

If indicated, place defib pads away from LVAD site and ICD.

CALL VAD COORDINATOR and DISCUSS PLAN WITH CAREGIVERS

**Treat per Appropriate Guideline**

**Pulsatile Flow Device**

Auscultate chest for whirring mechanical pump sound. Assess patient for hypoperfusion: Altered Mental Status, pallor, diaphoresis

Measure pulse and blood pressure. If no pulse or blood pressure, providers should use the device’s HAND PUMP To maintain perfusion

|  |  |  |
| --- | --- | --- |
|  | **Cardiac Monitor / 12-Lead ECG** |  |
| **Perform procedure if able to transmit, do not delay care to obtain EKG** |
|  |  |

|  |  |  |
| --- | --- | --- |
|  | Treat non-VAD related conditions per usualGuidelines |  |
|  | **Contact Medical Control** |  |
| **Transport to appropriate facility** |

# ALWAYS talk to family / caregivers as they have specific knowledge and skills. CALL THE VAD COORDINATOR EARLY as per patient / family instructions or as listed on the device. They are available 24 / 7 and should be an integral part of the treatment plan

1. There are a growing number of patients in the area who have a LVAD system. The LVAD system is continuously augments the left ventricle with pumping of blood
	1. System Components:

|  |  |
| --- | --- |
| * System Controller
 | * Emergency Power Pack (EPP)
 |
| * Power Base Unit (PBU) and cable
 | * System Monitor
 |
| * Batteries and battery clips
 | * Display Module
 |

# Precautions / Warning Specific to EMS Assessment and Treatment

* 1. LVAD patients will pose a challenge in the approach to assessment and treatment. ALS transport is strongly encouraged for an ill patient even with normal LVAD function.
	2. Peripheral pulses may be absent with normal LVAD function and blood pressures may be unobtainable. Assessment must be based upon overall patient presentation including respiratory status, skin color and temperature, mentation and ECG findings.
		1. Patient may have VF / VT and be asymptomatic
		2. In the event of cardiac arrest, external chest compressions pose a risk to the location of the outflow graft on the aorta and the inflow conduit in the left ventricular apex.
		3. Patients who present in cardiac arrest with a functioning LVAD unit should **NOT**

have CPR performed.

* + 1. LVAD function can be assessed by placing a stethoscope over the device and listening for a whirling sound. All other standard therapies should be rendered as per guideline (i.e., airway control, defibrillation, medication administration).
	1. The LVAD System Controller has a number of “advisory” and “hazard” alarms that may have to be addressed for optimal LVAD function. Rely on the patient or family member’s familiar with the device to troubleshoot the operation. Patients and family members have been educated in the function of the LVAD device.
1. SPECIAL CONSIDERATIONS:
	1. Batteries and the emergency power pack can provide 24 – 36 hours of power
	2. Patients are frequently on three different anticoagulants and are prone to bleeding complications

# Precautions / Warnings Specific to Patient or System Management

* + 1. The LVAD should NOT be disconnected during external defibrillation or cardioversion
		2. In the event that the LVAD stops operating, attempt to restore pump function immediately. In the event that the LVAD stops operating and blood is stagnant in the pump for more than a few minutes, there is a risk of stroke or thromboembolism should the device be restarted. There is also a risk for retrograde flow within the LVAD
		3. Disconnecting both System Controller power leads at the same time will result in loss of pump function. One System Controller power lead must be connected to a power source (i.e., batteries, PBU, or EPP) at all times to maintain support
		4. Avoid unnecessary pulling or moving of the external portion of the percutaneous lead, especially as the exit site is healing
		5. The use of automated blood pressure monitoring devices may not yield accurate blood pressure data. Manual auscultation to assess blood pressure is recommended. In circumstances where the flow is not sufficient for auscultation, Doppler or invasive blood pressure monitoring may be required
1. Utilizing the emergency contact information supplied, EMS Providers are encouraged to contact the LVAD specialists for questions related to LVAD function, power management, alarms, device management or patient assessment and treatment