

INMATES IN PRISON/JAIL



- Incarcerated Patients should be **WORKED ON SCENE**.
 - If possible, move the patient to a nearby more private/secure area.
 - Continue 20-30 minutes of resuscitation on scene.
- If patient remains pulseless:
 - **DO NOT TERMINATE ON SCENE.**
 - Load and transport the patient, preferably non-emergency, as per the CPR During Transport Procedure (*below*).

CARDIAC ARREST PHILOSOPHY = “STAY-AND-PLAY”

- **Almost every patient should be resuscitated on scene prior to transport.**
- Resuscitation in both adult and pediatric patients, is not a “load and go” situation, and a minimum of 10 - 20 minutes of resuscitative efforts should be performed prior to transport. This includes:
 - Near immediate placement of a BIAD with appropriate oxygenation and ventilation.
 - Insertion of an IO/IV with appropriate IV fluids and resuscitative medications.
- The **“Stay & Play”** Philosophy includes:
 - Moving a patient only if absolutely necessary, and
 - Moving the patient only the minimal distance needed to provide safety and privacy.
- If provider safety is a concern, attempt the following prior to extrication and transport:
 - Attempt to deescalate the situation (i.e. family) and move *them* to a different area
 - Call for law enforcement (if not already present) to provide crowd control.
 - Move the patient to another nearby area on the scene.
 - Move the patient to the ambulance, and resuscitate in the ambulance.
 - Resuscitating a patient in a *moving* ambulance is an absolute last resort.

PEDIATRIC ARREST

- Positioning:
 - INFANT: Place a folded towel under the shoulders to prevent further flexion of the neck and possible obstruction of the airway.
- Chest compressions:
 - INFANT: Compress with two hands encircling the chest and compressing with two thumbs on the sternum.
 - CHILD: Compress the chest with the heel of one or both hands over the lower third of the sternum at the nipple line.
 - ADOLESCENT/ADULT: Compress in the center of the chest at the nipple line with the heel of one hand and the other hand on top.
 - Compress at least **1/3rd** the depth of the chest.
 - Allow complete recoil of the chest wall between compressions.
 - Provide 100 compressions per minute
 - INFANT/CHILD: 15:2 CPR:Vent.
 - ADULT (i.e. >Broselow): 30:2 CPR:Vent.
- Defibrillation:
 - 1st shock @ 2 J/kg
 - Subsequent shocks @ 4 J/kg
- Ventilate:
 - Deliver 2 breaths with an appropriate BVM.
 - Ventilations should be provided at a rate of 8-10 per minute (every 6-8 seconds).



TRANSPORT DECISION & TIMING in Cardiac Arrest

Load-and-Go!

- The only Load-and-Go Exceptions, include:
 - Serious and immediate concern of physical injury to the EMS providers.
 - Patient is obviously **pregnant** (can palpate uterus above the umbilicus = >20 weeks) with arrest *witnessed by EMS*.
 - **Penetrating trauma** (that is potentially survivable) with signs of life on EMS arrival.
- In these cases, provide hemorrhage control (if applicable) and stabilize the patient's airway as soon as possible then transport to the closest ED. See **CPR During Transport (below)**.

Full (30+ Minute) Resuscitation On Scene

- Patients who will likely meet criteria for Discontinuation (of Resuscitation) in Medical Arrest [X-02]--i.e. do not meet any of the "Critical Criteria":
 - Should have full resuscitative efforts and interventions (30+ minutes) performed on scene, regardless of ultimate disposition/transport.
 - Should be transported only:
 - After ROSC.
 - If in a public place (or was moved to the ambulance for privacy/safety), or
 - If there is substantial resistance from family, that does not improve with discussion.

15-20 Minute Resuscitation On Scene with Delayed Transport

- Patients who meet one or more of the "Critical Criteria" (i.e. do NOT meet criteria for field Discontinuation of Resuscitation) should be transported only:
 - After ROSC, or
 - After the patient has been given **adequate resuscitative efforts on scene**, including: high-quality CPR, placement of an advanced airway, and fluid/medication administration per the appropriate guideline.
- It is recommended that online medical control be contacted prior to transport to make termination or transport decision.
- See "Special Situations" (*below*) for more information on patient's meeting "Critical Criteria".

SPECIAL SITUATIONS in Cardiac Arrest

- **Cardiac arrest is witnessed by a prehospital provider**
 - Witnessed on scene: resuscitate on scene, per “Transport Decision and Timing”.
 - Arrests in the ambulance *while* on scene: provide 15-20 minutes of resuscitative efforts on scene, then transport the patient as per the *CPR During Transport*, below.
 - Arrests en route to the destination:
 - STOP! Pull over to as safe and private an area as is reasonably possible, and call for First Response or other assistance.
 - Provide resuscitative interventions as per the Pit-Crew CPR Guideline [C-P1].
 - Once interventions have been completed (airway, IO/IV and mechanical CPR device), continue on to destination, as per *CPR During Transport*.
 - **NEVER pronounce a patient in a vehicle.** You may terminate efforts on the orders of online medical control if they are deemed unreasonable and put EMS personnel at risk during transport.
- **Patient is a minor (<18 years old)**
 - Work on scene for at least 15-20 minutes, focusing on airway management and oxygenation. Then transport, as per *CPR During Transport*, *below*.
 - ED Goal = Provide Social Services
- **Patient is obviously pregnant** (can palpate uterus above the umbilicus)
 - If an obviously pregnant patient (*as above*) sustains a witnessed arrest AND you are less than 10 minutes from an ED, rapid evacuation and transport IS indicated.
 - ED Goal = Emergency C-Section
- **Hypothermia/Cold Water Drowning**
 - In cases of rapid submersion in near-freezing liquid or snow:
 - Treat as per the **Hypothermia Guideline [E-06]**.
 - Provide initial interventions as described in the **Pit-Crew CPR Guideline [C-P6]**, and the patient should be transported soon after the interventions have been completed to the nearest ED.
 - ED Goal = rewarming via ECMO (cardiac bypass) or other invasive techniques.
 - Note: for prolonged exposure/gradual decrease in core temperature (i.e. submersion in cool water [40-60 degrees]): Resuscitate on scene and provide warm fluids.
- **Patient displays any shockable rhythm (VF/VT) at any time:**

- If the shockable rhythm is due to cardiac ischemia, there is a possibility of survival with emergent (intra-arrest) cardiac catheterization.
- This is a highly debated and somewhat experimental intervention with conflicting data at present and is not supported by most specialists. The standard of care at present is to resuscitate the patient and only catheterize if pulses are restored.
- This may change in the future, but for now resuscitate on scene and contact medical control for termination or transport orders.

AIRWAY IN CARDIAC ARREST

- Airway management remains an important part of cardiac resuscitation, but its importance has been placed secondary to high-quality CPR and defibrillation.
 - Evidence suggests that oxygenation of blood is maintained for several minutes after sudden cardiac arrest.
 - In addition, there is a decreased demand in the amount of ventilation and oxygenation that a pulseless patient requires.
 - Hyperventilation can be detrimental to successful resuscitation, because the increased intrathoracic pressure decreases coronary perfusion pressure. Be extremely mindful of ventilation rates and volumes.
- ***Pediatric or Other Respiratory Arrests***: In arrests that are hypoxic/respiratory in nature, care should focus on obtaining adequate ventilation/oxygenation as soon as possible.
 - **Unwitnessed cardiac arrests** (that generally require several minutes or more of response time) should be assumed to have oxygen depleted blood and should have oxygenation and ventilation addressed immediately after CPR has begun and defibrillation pads are placed.
- Initial airway management should be performed with Bag Valve Mask ventilation and/or rapid placement of a BIAD (Blind Insertion Airway Device).
 - A BIAD/supraglottic airway (i.e. iGel or KingLT) should generally be inserted as soon as possible during the initial stages of resuscitation.
- Endotracheal (ETT) Intubation in cardiac arrest can be considered only if:
 - BVM and supraglottic airway methods fail.
 - Upon achieving ROSC, replacement of the supraglottic airway with an ETT may be considered, but is not necessary and usually should be deferred to the destination facility.

- It is unacceptable to interrupt chest compressions more than momentarily while performing airway procedures.
- In cases of sole respiratory arrest (pulses present), the endotracheal tube may be placed as the initial airway device. Be extremely mindful of increased vagal tone produced by intubation which can lead to bradycardia and full cardiac arrest.
- **“When in doubt, take it [*the tube*] out!”** Correct airway placement is paramount.

BREATHING (O₂/VENTILATION) in Cardiac Arrest

- If hypoxic arrest suspected (e.g.: any pediatric patient, or adult with asphyxiation, overdose, status asthmaticus, etc.), begin ventilations and oxygenation immediately.
- In a witnessed, sudden arrest (i.e. not a respiratory/hypoxic arrest), you may consider placing an NPA/OPA and a NRB face mask with O₂ for first 2 cycles of CPR.

VENTILATIONS:

- Do not over ventilate: squeeze the bag with a 2-3 finger “pinch”.
- If no advanced airway is in place, alternate ventilations and compressions per current BLS/ACLS guidelines (generally 30:2 in adults or 15:2 in children).
- If advanced airway in place, ventilate continuously at 6-10 breaths/minute in adults (20-30 breaths/minute in pediatrics).

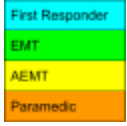
CPR/CHEST COMPRESSIONS in Cardiac Arrest

- CPR should **always** take priority over any other intervention and interruption of chest compressions should be kept to an absolute minimum.
 - Resume compressions immediately after shocks & rhythm checks.
 - Check pulses only if organized rhythm is present.
- Assess quality of CPR with continuous waveform capnography (goal = 10-20).
 - If ETCO₂ < 10: improve quality of compressions or change compressor.

ELECTRICITY (i.e. Defibrillation and Pacing)

- Pacing is **NEVER** indicated for asystole and PEA.
- If patient has an implantable cardioverter defibrillator (ICD) or pacemaker: place pacer/defib

C-01
INITIAL CARDIAC
ARREST



pads at least 1 inch from device.

- Defibrillation
 - Biphasic: per manufacturer recommendation, or if unknown, use 200 J.
 - Monophasic defibrillator: 360 J
- If the AED is being utilized upon ALS arrival, ALS personnel shall allow the AED to complete the upcoming analysis including a shock if required. Immediately after this, the patient shall be switched over to the ALS monitor.

VASCULAR ACCESS in Cardiac Arrest

- Renal Dialysis and Cardiac Arrest
 - In non-arrest, do not take blood pressures or attempt IV's in the same area of the dialysis access or catheter.
 - In an arrest situation, accessing dialysis shunts or catheters is appropriate.
 - If accessing a VasCath or similar dialysis catheter (central Line used for temporary dialysis with red and blue ports).
 - Remove at least 3-5 ml of the catheter fluid (heparin solution) from either port.
 - Then flush the port with 10 ml of Normal Saline, prior to attaching IV tubing and infusing fluids or medications.

“OTHER” NOTES:

- Family Presence
 - Family presence during resuscitation is preferred by most families, is rarely disruptive, and may help with the grieving process.
 - It should be encouraged, unless disruptive to the resuscitation efforts.

CPR DURING TRANSPORT

- Resuscitation in a moving ambulance is **INEFFECTIVE** and **DANGEROUS**.
 - Evidence shows it is associated with poorer patient outcomes.
 - The majority of on-job deaths of EMS personnel are due to being unrestrained in the box of an ambulance running lights-and-siren towards its destination.
- IF it is necessary to transport a patient in cardiac arrest the following must be met:
 - **ALL individuals in the ambulance (patient and crew) must be restrained. There are NO EXCEPTIONS.**
 - All critical interventions will be performed while the vehicle is stopped. These include:
 - Advanced airway (BIAD) placement.
 - IO/IV Placement
 - Attachment additional of monitoring equipment (including EtCO₂)
 - Manual CPR should NOT be performed in a moving ambulance.
 - Mechanical CPR (Lucas or Autopulse) should be initiated prior to extrication to the ambulance, if available.
 - If a functional Mechanical CPR device is not available, Manual CPR may only be performed if the EMS Provider is **FULLY RESTRAINED** in the bench seat.
 - Avoid Red Lights & Siren (RLS) Transport
 - With the exception of patients who meet the “Load-and-Go” criteria (*above*), transports should generally be non-emergent (“Code 2”).
 - If traffic is heavy and/or multiple stops at intersections are anticipated and there is concern about the general public witnessing resuscitative efforts, transport with Red Lights & Siren (RLS, “Code 3”) may be warranted in select circumstances.

QI Review Parameters:

1.