

**GMVEMSC PREHOSPITAL PARAMEDIC STANDING ORDERS  
TRAINING MANUAL VERSION June 1, 2018**

**Adult: Patients 16 Years Old and Above**

**Pediatric: Patients < 16 Years old will be in Pink and Bulleted with a "P"**

**ADULT and PEDIATRIC ORDERS INDEX**

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## STIPULATIONS

- This protocol is for use by those individuals operating in and under the authority of the Greater Miami Valley EMS Council (GMVEMSC) Drug Bag Exchange Program and certified by the State of Ohio as a Paramedic. You may not use new protocol until you have passed both the skills check-off and CBT.
- This protocol is to be used in the field only. Communications must be attempted as soon as practical for potentially unstable patients, or for hospitals that request contact on all patients being transferred to their facility.
- Procedures marked with a diamond (♦) are never to be performed without a physician's order. The diamond provides identification of procedures and medications that require on-line medical control authorization.
- No procedures, techniques, or drugs will be used without the proper equipment or beyond the training or capabilities of the prehospital personnel. Nothing in this protocol may be used without specific pre-approval of the Medical Director for the local department or agency.
- It is the recommendation of the Standing Orders Committee that departments be able to access the humeral head via IO in the adult population.
- It is recommended to use filtered needles when drawing up any medication from an ampule.
- Items enclosed in braces ( { } ) are at the option of the department and its Medical Director.
- EMS personnel of any level are not authorized to intubate, unless they have and can use appropriate confirmation devices: End tidal carbon dioxide (EtCO<sub>2</sub>) detectors or monitors, or Esophageal Detection Devices (EDD).
- Any patient in respiratory distress on oxygen or whose O<sub>2</sub> sats indicate a need for oxygen, shall remain on oxygen until care is transferred to the hospital.
- Any patient being monitored for a significant cardiac event or EtCO<sub>2</sub> shall remain on the monitor until patient care is transferred to hospital staff. In addition, a summary report shall be provided from any device capable of printing one.
- Infrequently, stepwise adherence to specific protocols may not be in the patient's best interest. No protocol can substitute for the EMS professional's judgment. However, at no time should treatment options exceed those authorized without direct consultation with the Medical Control Physician (MCP). In all such cases, contact with MCP should be considered as soon as possible.
- The Adult and **Pediatric Orders** ("**Peds**") are combined.
  - Sections that apply only to Adults are bulleted with an "**A**".
- P** All Pediatric treatments will be in Pink and bulleted with a "**P**".
  - Sections which apply to both Adult and Peds are indicated with standard bullets.
- G** There are also sections which apply to only Geriatric patients and are bulleted with a bold "**G**."

## COMMUNICATING WITH HOSPITAL OR MEDICAL CONTROL

- There are several reasons to contact the hospital:
  - To notify the hospital when time is needed to set-up for the patient. Examples include major trauma, cardiac arrest, hazardous materials, bedbugs, and Cardiac, Stroke alerts or Sepsis patients.
  - Contact all hospitals with all serious patients, e.g., stroke, MI, respiratory distress, shock and major traumas.
  - To obtain orders for procedures or medications indicated by the diamond in these Standing Orders.
  - To obtain advice, for example, guidance from the MCP might be needed before a medication is given, even though Standing Orders allow it to be used without permission. Another situation might be a patient with an unfamiliar condition.
- When contacting a hospital, make sure a clear picture is painted. The crew can see the patient; the hospital personnel cannot. The ability to communicate findings will directly impact the hospital's response.
- When calling about a trauma patient, include MIVT, ETA, the components of the GCS, and patient assessment findings, especially those relevant to the decision to transport to a Trauma Center.
- If consultation with a physician is desired, specifically request Medical Control Physician.
- Paramedics should read the EKG, and then decide whether it should be transmitted. Paramedics who have transmitted an EKG are expected to call and to speak with the MCP.
- When calling with an alert (Trauma, etc.) say, "We recommend a \_\_\_\_\_ Alert."
- Remember that the hospital may have more information, and may or may not decide to act on your recommended alert. Examples:
  - Patients who meet Trauma Destination Protocols do **NOT** always warrant the hospital calling in a surgical team immediately.
  - A patient who meets Cardiac Alert criteria may have prior EKGs in their hospital record that indicate that the alert is unnecessary.
- Every crew transporting a patient is expected to provide a completed run sheet to the hospital upon delivery or within 3 hours.

## NON-INITIATION OF CARE

**NOTE: 1. ADULT & PEDIATRIC PATIENTS MAY MEET NON-INITIATION OF CARE CRITERIA.**

- 2. If care began and it is readily apparent to EMS that the patient met non-initiation of care criteria, RESUSCITATION EFFORTS MAY CEASE.**

### Non-Initiation of Care

- Resuscitation will not be initiated in the following circumstances:
  - Deep, penetrating, cranial injuries
  - Massive truncal wounds
  - DNR Order—present and valid
  - Frozen body
  - Rigor mortis, tissue decomposition, or severe dependent lividity
  - Triage demands
  - Blunt trauma found in cardiac arrest *unless* one of the following conditions is present:
    - Patient can be delivered to an emergency department within 5 minutes.
    - The arrest is caused by a medical condition
    - Focused blunt trauma to the chest (such as a baseball to the chest)
      - An example is Commotio Cordis, a form of sudden cardiac death seen most often in boys and young men playing sports. It occurs as the result of a blunt, non-penetrating impact to the precordial region from a ball, bat or other projectile.
  - Penetrating trauma found in cardiac arrest when the patient cannot be delivered to an emergency department within 15 minutes.
    - Resuscitation will be initiated on victims of penetrating trauma who arrest after they are in EMS care.
- Once en route, continue care even if the above time limits cannot be met.

## **DNR: COMFORT CARE and COMFORT CARE ARREST**

### **Do Not Resuscitate-Comfort Care (DNR-CC)**

- Permits any medical treatment to diminish pain or discomfort that is not used to postpone the patient's death.
- The following treatments are permitted:
  - Suctioning
  - Oxygen
  - Splinting/spinal restriction
  - Bleeding control
  - Pain control
  - Or any intervention that will provide comfort
- The following treatments are **not** permitted:
  - Chest compressions
  - Airway adjuncts including CPAP and respiratory assistance
  - Resuscitative drugs
  - Defibrillation, cardioversion, monitoring

### **Do Not Resuscitate-Comfort Care Arrest (DNR-CCA)**

- Permits any Standing Orders treatment until cardiac or respiratory arrest or agonal breathing occurs.

**NOTE:** EMS operates on a DNR status. A Living Will is not a DNR. A Living Will is for a long-term scenario.

Health Care Power of Attorney cannot revoke a DNR.

♦ Call MCP for any clarification.

**RESUSCITATION GUIDELINES and FIELD TERMINATION**  
**FIELD TERMINATION DOES NOT APPLY TO PEDIATRICS**

- The subject of resuscitation is constantly evolving. New therapies such as mechanical CPR devices, percutaneous coronary intervention on patients in arrest, and extracorporeal membrane oxygenation (ECMO) have changed the face of prehospital resuscitation, which no longer has an abysmal survival rate under the right circumstances.
- Paramedics are expected to provide resuscitative care at the scene. Some resuscitations may take 30 minutes or more. The patient's BEST CHANCE for resuscitation is at the scene with high quality CPR and code management. Research has shown that CPR quality diminishes while being transported.
- There are different categories of patients for which considerations of transport should be given:
  - These patients should be rapidly transported to a cardiac interventional facility if less than a 30 minute transport and defibrillation is the only needed intervention to establish a perfusing rhythm:
    - They have a documented STEMI and you witness their cardiac arrest after brief resuscitative efforts, including defibrillation as indicated.
    - They have ROSC after VFIB or ROSC with evidence of ST elevation.
  - Patients require prolonged resuscitation efforts if:
    - They have a PEA > 40. The patient may not be in true cardiac arrest, but simply not have palpable pulses due to profound shock.
    - They have an upward trending or persistent EtCO<sub>2</sub> ≥ 20, refractory VF or VT.
  - The patient needs to be rapidly transported to a Trauma Center if:
    - They arrest due to profound hypothermia.
- Consider aeromedical transport for transports > 30 minutes if the patient has ROSC.
- ♦ Following all appropriate efforts, field termination requires MCP approval, and may only be considered when the following criteria are met:
  - 18 years or older
  - In asystole or PEA rates < 40
  - Not be in arrest due to hypothermia
  - Have an advanced airway in place
  - Have vascular access in place
  - There are no signs of neurological function such as reactive pupils, response to pain or spontaneous movement
- ♦ **EMS must contact MCP directly to receive consent for field termination and be able to provide the following:**
  - **The duration of the resuscitation**
  - **How long the patient may have been in arrest prior to EMS arrival**
  - **Witnessed or unwitnessed**
  - **EtCO<sub>2</sub>**
  - **Blood glucose**
  - **Presenting rhythm.**
- ♦ If no ALS equipment is available at the scene, and transport time to a medical facility will exceed 20 minutes, field termination may be considered.
- Send a copy of the run sheet to the EMS Coordinator of the authorizing MCP's hospital.

**NOTE:** If family requests any information about organ donations have them call Life Connection of Ohio @ 800-535-9206.

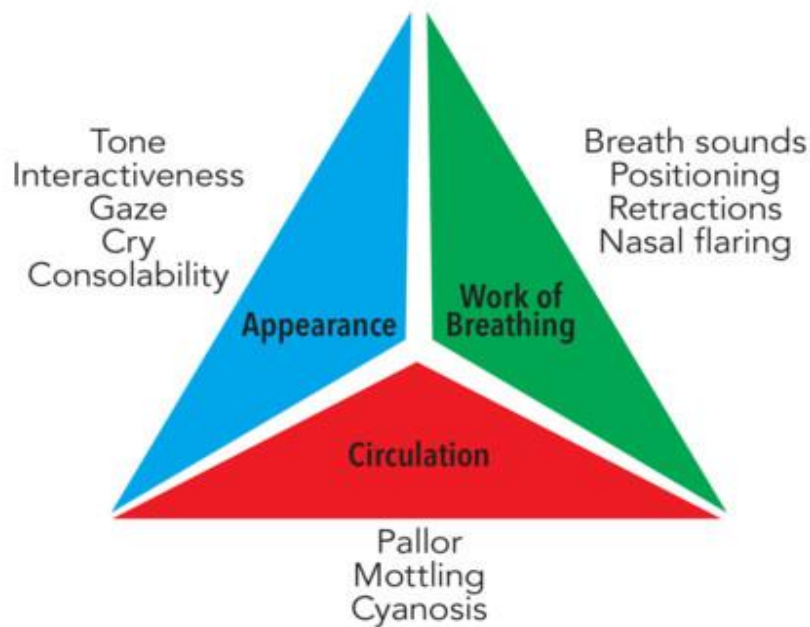
## INITIAL CARE

- Follow BLS or ALS and airway algorithms as indicated based on current AHA Guidelines.
- Obtain chief complaint (OPQRST, see Abdominal Pain), SAMPLE history, and vital signs per patient condition:
  - SAMPLE: Signs and Symptoms, Allergies, Medications, Past medical history, Last oral intake, Events leading up to present illness or injury.
- Utilize cardiac monitor or other monitoring device, pulse oximeter, etc. as appropriate.
- IN medication administration must be via Mucosal Atomizer Device (MAD).
- Start IV crystalloid solutions which have been changed to include balanced crystalloid solution (Normosol, Plasmalyte, Isolyte), LR or NS in that order. Their pH is closer to neutral. **Saline Lock (SL)** as appropriate.
- **IVs:** Follow shock protocol on page 20.
  - Shock (not related to penetrating trauma): run wide-open using macro-drip or blood tubing. Decrease fluid rate if systolic blood pressure (SBP) >100.
- **P IV fluid, 20 ml/kg using macro-drip tubing. Titrate to maintain adequate perfusion.**
  - Medical emergencies, head trauma, cardiac problems with stable BP: Use TKO rate.
  - IV medication administration: **Slow IV = over 2 minutes**, unless otherwise specified.
  - Any medication given IV can also be given intraosseous, IO.
  - {IV pump} IV pump is an option of the department and its Medical Director.
  - Existing central venous catheters, dialysis catheters, fistulas, or grafts may be utilized for infusion of IV fluids and medication if the patient is hemodynamically unstable. These may also be used when the patient is deteriorating rapidly.
  - ♦ If a patient with an existing IV pump experiences an allergic reaction, call the MCP for an order to discontinue the pump. Otherwise, the IV pump must be maintained.
- Use of IO devices for both Adults and Peds is limited to patients who are unresponsive or hemodynamically unstable, and only when less invasive means are not available or are ineffective (e.g., **Glucagon IM, Narcan IN, and Versed IN**).
- An unresponsive patient with gasping breaths and poor color should get supplemental oxygen via BVM
- Bring medications or a list of the medications with the patient to the hospital; include the dose and frequency administered.
- Monitor blood glucose. See hypoglycemia.

**NOTE: A Pedi reference guide may be used as a reference for pediatric vital signs.**

- Patient care should proceed by ensuring airway protection, oxygenation, and adequate ventilation without causing harm. Injury reduction strategies may include noninvasive ventilation when appropriate, titration of oxygen in certain settings, and being cautious not to over ventilate. You should tailor treatment to the overall clinical picture. With the exception of suspected acute cerebral herniation, the rate and depth of ventilation in the prehospital setting should not be guided by the EtCO<sub>2</sub> reading alone. For the patient with cerebral herniation, ventilate the patient at 20 times per minute to obtain an end tidal value of 30 mmHg. Doing so acutely can result in over ventilation leading to pneumothorax, barotrauma, breath stacking, hypotension, and compromised hemodynamics. "Permissive hypercapnia" in most cases is appropriate particularly in those with chronic lung disease who may chronically retain CO<sub>2</sub>. Listening to the chest to ensure that adequate exhalation is occurring during manual ventilation is recommended.

# The PAT Triangle



- The Pediatric Assessment Triangle establishes a level of severity, assists in determining urgency for life support measures, and identifies key physiological problems using observational & listening skills.
- **Appearance** reflects adequacy of: oxygenation ventilation, brain perfusion, CNS function
- One mnemonic used for pediatric assessment is: TICLS.
  - **Tone**- Moves spontaneously, sits or stands (age appropriate)
  - **Interaction**- Alert, interacts with environment
  - **Consolability**- Stops crying with comfort measures (holding, warmth, distraction)
  - **Look/gaze** – Makes eye contact with clinician, tracks objects
  - **Speech/cry** – Uses age appropriate speech or crying
- **Breathing**-Work of breathing is a more accurate indicator of oxygenation and ventilation than respiratory rate or breath sounds (standards used in adults)
- **Circulation** reflects adequacy of cardiac output and perfusion of vital organs (core perfusion).
- **Cyanosis** reflects decreased oxygen levels in arterial blood, vasoconstriction and respiratory failure.
- **Mottling** of the skin indicates hypoxemia, vasoconstriction and respiratory failure.

## SPINAL MOTION RESTRICTION (SMR)

### Introduction

Traditionally, EMS has immobilized all patients with *potential* spinal injury to include backboards and associated adjuncts (BB/AA). However, studies indicate that traditional spinal restriction with BB/AA has risks and may even cause harm in select cases. SMR has been modified to more accurately reflect appropriate indications and methods for spinal restriction. Spinal precautions for at risk patients remain paramount. This protocol does not indicate that EMS no longer immobilizes the spine; it simply provides a different means of restriction in selected patients.

### Blunt trauma (falls, MVC)

1. All patients with clinical indications of a spinal injury (such as focal neurologic deficit including paralysis) and or with altered levels of consciousness (including those who are combative, confused, or intoxicated, i.e. patients who are unable to follow commands) must be immobilized with both a C-collar and a spinal restriction device (e.g., spine board, KED, vacuum splint).
2. Additionally pediatric trauma patients less than 3 years of age with a GCS of < 15 must be immobilized with both a C-collar and a spinal restriction device.
3. Other alert trauma patients, including all those listed below, should have a c-collar placed and moved with caution in-line as a unit to the cot. This does not mean on a BB.
  - Neck pain
  - Midline neck or spinal tenderness
  - Pain on motion of the neck
  - High risk mechanism (high speed MVC, fall > 10 feet, axial loading injury)

### Penetrating Trauma

- Patients with penetrating trauma do not need to be immobilized with either a CC or BB.
- Delays in transport are to be minimized.

### Airway or Ventilatory Management

Patients who are immobilized and require airway and or ventilatory intervention (including intubation) may have the collar removed with in-line stabilization performed during the intervention. The collar should then be reapplied.

### Other

- Patients who do not tolerate restriction (e.g., shortness of breath, anxiety, and body habitus) should have restriction adjusted to the point of removal if necessary based on clinical response. They should be maintained in the manner of restriction that they can tolerate (e.g., a patient may not tolerate a backboard but may tolerate sitting up with a c-collar).
- Spinal restriction devices may be utilized for movement from a site of injury to the cot. Patients who do not require restriction as above should be removed from the device prior to transport and kept in-line during transport. This is referred to as, “Move patients on hard things; transport on soft things.”

### Sporting Injuries

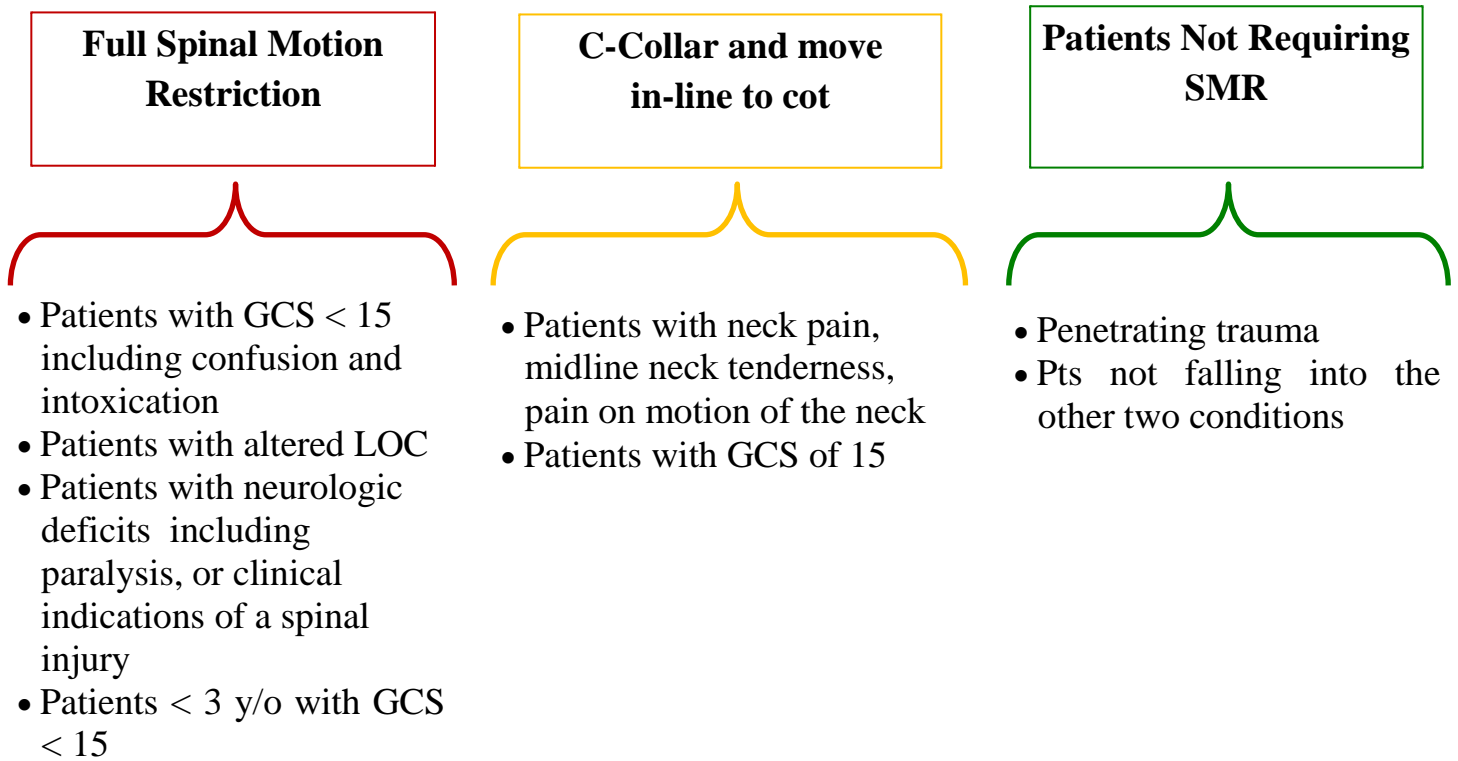
- In an emergency situation with equipment intensive sports such as football, hockey and lacrosse, the protective equipment shall be removed prior to transport to an emergency facility.



## SPINAL MOTION RESTRICTION (SMR)

How should I determine the level of Spinal Motion Restriction for potential spinal injury?

Potential spinal injury may come from: high risk MOI including high speed MVC, falls > 10 ft., axial load injuries and blunt force above the shoulders



### EXCEPTIONS

- Patients who require airway or ventilatory intervention may have the collar removed with inline stabilization during the intervention
- Patients who do not tolerate restriction should have it adjusted to the point of removal if necessary

## PAIN CONTROL PROTOCOL

### General Considerations

- This protocol is for management of acute moderate to severe pain, including pain from suspected cardiac events, trauma, including thermal and chemical burns, crush syndrome, frostbite, fractures, dislocations, sprains, and abdominal pain including unilateral flank pain.
- It is not for treatment of exacerbations of chronic pain.
- ♦ Call for orders if you feel narcotics are needed for pain from a chronic condition.
- Prehospital pain management is important. It significantly reduces time to pain relief, avoids exacerbation of pain during movement and transport, is compassionate, and is good medical care.
- Document patient's reported pain during initial patient contact, during treatment, and after any intervention.
- Use ice packs, position of comfort, and splinting to reduce pain as indicated.
- Always consider the weight of your patient when dosing pain meds, especially for the elderly.

### Specific Care

- A For moderate to severe pain relief when the patient is alert:
  - Consider **Fentanyl 50-100 mcg slow IV**, provided SBP > 100.
  - If no response, or inadequate response to **IV Fentanyl** and a second drug bag is available:
    - May repeat **slow IV Fentanyl 50-100 mcg**, after 15 minutes provided SBP > 100.And if pain persists after 15 minutes:
  - Consider **Ketamine 25 mg IV**.
    - May repeat **Ketamine 25 mg IV**, after 15 minutes.
- **DO NOT GIVE KETAMINE TO SUSPECTED CARDIAC CHEST PAIN**
- A If unable to obtain IV:
  - Give **Fentanyl 50-100 mcg IN or IM**.
    - Repeat dose of **Fentanyl 50-100 mcg IN or IM**, no sooner than 15 minutes, if second drug bag is available.And if pain persists after 15 minutes:
  - Give **Ketamine 25 mg IN or 50 mg IM**.
    - May repeat **Ketamine 25 mg IN or 50 mg IM**, after 15 minutes.
- P ♦ **MCP CONTACT REQUIRED BEFORE ADMINISTRATION OF FENTANYL FOR PEDIATRIC PATIENTS WITH ABDOMINAL PAIN.**
- P **FENTANYL IS NOT TO BE ADMINISTERED TO ANYONE < 2 YEARS OF AGE.**
- P **KETAMINE IS NOT TO BE ADMINISTERED TO ANYONE < 16 YEARS OF AGE FOR PAIN.**
- P For severe pain relief when the patient is conscious and alert the first choice is:
  - **Fentanyl 1 mcg/kg IN**, max dose 100 mcg.
  - May repeat **Fentanyl 1 mcg/kg IN** after 15 minutes, if an additional drug bag is available.
  - Consider **Fentanyl 1 mcg/kg, slow IV**, max dose 100 mcg, provided appropriate normal SBP (80 mmHg + 2X age in years).
  - May repeat **Fentanyl 1 mcg/kg, slow IV** after 15 minutes, max dose 100 mcg, if still in pain, appropriate SBP and a second drug bag is available.
- P If unable to obtain IV: **IM FOR PEDS IS A LAST RESORT.**
  - Give **Fentanyl 1 mcg/kg IM**, max dose 100 mcg
  - Repeat dose of **Fentanyl 1 mcg/kg IM**, max dose 100 mcg, repeat no sooner than 15 minutes if a second drug bag is available.

## AIRWAY MAINTENANCE

- **O<sub>2</sub>** as needed. Use the following rates as guidelines:
  - 2 LPM by nasal cannula (NC) for patient with COPD, or as prescribed.
  - 4-6 LPM by NC for other patients
  - 8-10 LPM for nebulized medications
  - 12-15 LPM by non-rebreather mask (NRM) for severe trauma patients, distressed cardiac patients, patients with respiratory distress, and other patients who need high flow O<sub>2</sub>.
- Ventilate patients who are symptomatic with an insufficient respiratory rate or depth.

### RESPIRATORY RATES BY AGE

Up to 1 year	30-60	7-9 years	16-24
1-3 years	20-40	10-14 years	16-20
4-6 years	20-30	15+ years	12 -20

- Consider patient airway anatomy for the appropriate selection of the airway adjunct.
- If two attempts with an ETT are not successful, move to an adjunct device.
  - If approved, adjuncts considered “rescue airways” such as the LMA or Dual Lumen Airways may be appropriate primary airway devices.

**P** Supraglottic airway is recommended as the primary airway except in extreme cases such as airway edema.

- When deciding whether to intubate, consider the following:
  - Insufficient respiratory rates, < 10 or > 29, that are not rapidly controlled by other measures
  - Irregular respiratory rhythm
  - Abnormal breath sounds
  - Inadequate chest expansion and respiratory depth
  - Excessive effort to breathe
  - Use of accessory muscles
  - Nasal flaring
  - Pallor or cyanosis
  - Cardiac dysrhythmias
- Confirm correct placement of advanced airways by at least **five methods**.

**P** For patient < 2 years old showing respiratory distress with nasal congestion, cough, rales, rhonchi or wheezing - **without previous history of wheezing, reactive airway disease, breathing treatments:**

Nasal suction both nares (3-5 seconds) with an appropriate device and apply oxygen as required. If distress continues, repeat nasopharyngeal suction with an appropriately sized and lubricated suction catheter x 1, for 3-5 seconds.

**NOTE: Repeated and prolonged suctioning could cause hypoxia and bradycardia.**

**P** If patient does have history of reactive airway disease with prescribed breathing treatments treat with asthma protocol.

**P** For patients < 6 years old without a foreign body showing respiratory distress with agitation, upper airway noise, stridor, and/or “barky cough,” lower temperature of ambulance as much as possible. Use oxygen as the patient tolerates. Oftentimes symptoms resolve with less intervention. Consider keeping distance from the patient.

## INTUBATION

- Always secure the ET tube in place, preferably with a commercial tube-securing device.
- A cervical collar is effective in maintaining patient's head in a neutral position.
- Reassess ET tube placement every time the patient is moved.
- {Digital Intubation} or {Lighted Stylet Intubation} or {Camera Assisted} may be utilized.
- {Dual Lumen Airways, (e.g., Combitube, Pharyngotracheal Lumen Airway (PtL)), King Airway, or Laryngeal Mask Airways (LMA)}, are acceptable airway devices and satisfy the "rescue airway" component for {StI}. Use of these devices is limited to patients who need an artificial airway, and who are able to tolerate the device.
- If routine ventilation procedures are unsuccessful, try to visualize obstruction with laryngoscope. If a foreign body is seen, attempt to remove it using suction or Magill forceps.
- If a conscious patient requires intubation, consider the following:
  - Apply **Lidocaine Jelly** to the ET tube.
  - **Lidocaine 100 mg IN** (half dose per nostril) or **nebulized** with 8-10 LPM O<sub>2</sub>.
  - P Lidocaine 1.5 mg/kg nebulized with 8-10 LPM O<sub>2</sub> or IN. Maximum dose is 100 mg.**
  - If the patient is resisting the tube after confirmed intubation and SBP > 100, consider **Midazolam 2 mg slow IV.**
  - P If SBP is appropriate, and the patient is resisting consider Midazolam 0.1 mg/kg (max dose 2 mg), slow IV.**
  - If a patient would benefit from intubation but is combative, agitated, or has jaws clenched, use {Sedate to Intubate or RSI} procedures.
- Whenever all reasonable attempts to provide an adequate airway by less invasive means have failed, perform a cricothyrotomy or surgical airway (must be ≥ 12 y/o) utilizing an approved method.

**NOTE:** Nebulized Lidocaine can be administered simultaneously with Albuterol and Ipratropium. If feasible, wait one to two minutes before intubating.

### CONFIRMATION METHODS:

- CO<sub>2</sub> detection methods are recommended and Capnography is the "gold standard."
- Auscultation of the epigastrium, anterior chest, midaxillary areas, and then the epigastrium again
- Rise and fall of the chest
- Repeat visualization of the tube between the vocal cords
- Condensation in the tube
- Depth placement and measurements:
  - Keeping an oral endotracheal tube at the 20-22 cm mark at the teeth will prevent inserting the ETT too far and greatly reduces the chances of a right mainstem bronchus intubation. Don't confuse right mainstem intubation for a pneumothorax.
  - P Proper depth placement of tracheal tube in the pediatric patient can be calculated by the following formula: Depth of insertion (length of tube at teeth or gum line) = tube size x 3.**
  - A nasotracheal tube that is 22 cm at the nose is unlikely to reach the glottis.
  - Nasotracheal tubes need to be placed deeper, or the tube will only reach the pharynx, not the trachea. When a nasotracheal tube is correctly placed, there is often only an inch or so between the nose and the ET adapter. Avoid nasal intubation after trauma if there is central facial movement or CSF present. EDDs and EtCO<sub>2</sub> detectors can help prevent esophageal intubation, but they cannot identify placement in a mainstem bronchus. That requires physical assessment, including depth of the tube, and auscultation.

### CONFIRMATION DEVICES:

#### Electronic End Tidal CO<sub>2</sub> (EtCO<sub>2</sub>) Monitors—Capnography

Capnography or capnometry is considered the "gold standard" of tube placement confirmation. Waveform EtCO<sub>2</sub> is the preferred confirmation device. These devices measure the amount of carbon dioxide in the exhaled ventilations of patients. They can use mainstream sensors, which are located directly on the endotracheal tube, or sidestream sensors, which sample the ventilation more remotely. Capnography can also be used with patients who are not intubated. In-line EtCO<sub>2</sub> monitors can be used on patients with or without adequate perfusion. Electronic monitors show changes in real-time.

If this equipment is available, it should be used on **EVERY** intubation, and always be one of the

five confirmation steps. **MAINTAIN THIS DEVICE UNTIL PATIENT CARE IS TRANSFERRED TO THE RECEIVING HOSPITAL STAFF.** Under normal conditions, ventilations should not exceed 10-12 ventilations per minute, as referenced on P. 17. Only if signs of cerebral herniation are present, hyperventilate at 20 ventilations per minute to a goal end tidal value of 30 mmHg.

For any department whose monitors have summary capabilities, that summary must be presented with the patient.

Patients in asystole with a confirmed correct tube placement and a capnography reading < 10 mm/Hg, which does not improve during resuscitative efforts, have essentially no probability of survival and field termination should be strongly considered.

### **End Tidal CO<sub>2</sub> Detector (EtCO<sub>2</sub>) -- Colorimetric**

#### **Colorimetric Limitations:**

- The Colorimetric EtCO<sub>2</sub> detector may be utilized as a confirmation device for patients in cardiac arrest, **IF** it shows the presence of CO<sub>2</sub> (color change to yellow). If there is no color change, use other confirmation methods. The absence of color change may be caused by a lack of perfusion, but it may also indicate esophageal intubation.
- Secretions, emesis, etc. can ruin the device.
- A patient with large amounts of carbonated beverage (e.g., beer) in their stomach can give a false positive result. The device may sense the CO<sub>2</sub> given off by that beverage and indicate that the tube is in the trachea when it is in the esophagus.
- The device can be used for no more than two hours.
- Follow manufacturer's recommendations for weight restrictions.

#### **Medication Issues:**

- Intravenous sodium bicarbonate will produce more carbon dioxide enhancing the color.

### **Esophageal Detector Device (EDD)**

This device confirms tube placement mechanically. It is based on the principle that the esophagus is a collapsible tube, while the trachea is rigid. An EDD looks like a bulb syringe. Collapse the bulb first and then place the device on the end of the ETT prior to first ventilation. As the bulb tries to refill with air, it creates suction. If the tube is in the esophagus, the soft tissues will collapse around the holes in it preventing expansion of the bulb. When the bulb does not refill (or refills very slowly), the tube is presumed to be in the esophagus. If the tube is in the trachea, there is nothing to occlude the movement of air. The bulb will rapidly refill, indicating that the ETT is properly placed.

#### **EDD Limitations:**

- A large amount of gastric air (e.g., caused by carbonated beverage, aggressive ventilations, misplacement of ETT) can give a false positive finding. Tracheal obstructions in patients with morbid obesity, late pregnancy, status asthmaticus, or copious endotracheal secretions may yield misleading results.
- A cold device may give a false negative result. If the rubber bulb is stiff from the cold, it will fail to fill with air. The ETT will seem to be in the esophagus, when it is actually in the trachea.
- It cannot be used continuously. It must be removed after confirmation, though it may be used again after patient movement.
- Use only for confirmation of endotracheal tube placement, not for any other airways (LMA, King, etc.)

**P EDD may only be used on pediatric patients who are older than 5 years of age who weigh at least 20 kg (44 pounds).**

### **Beck Airway Airflow Monitor (BAAM)**

The BAAM is a device to assist with nasotracheal tube placement. The BAAM is a small plastic device that attaches to the endotracheal tube. It emits a whistle sound when the patient inhales and exhales which should become notably louder with cuff inflation.

## TENSION PNEUMOTHORAX RELIEF

- If there are indications of tension pneumothorax and the patient is hemodynamically unstable, decompress the chest with a 14-gauge, 3 ¼" angiocaths placed in the second or third intercostal space in the mid-clavicular line (MCL). The MCL is parallel to the sternum, extending down from the midpoint of the clavicle. Placement of a needle too high, too low, too medial, or too lateral increases the risk of complications. Tracheal deviation is a very late sign and therefore an unreliable indicator.
- 3 ¼" angiocaths may not be available from emergency departments. EMS agencies may need to purchase them.

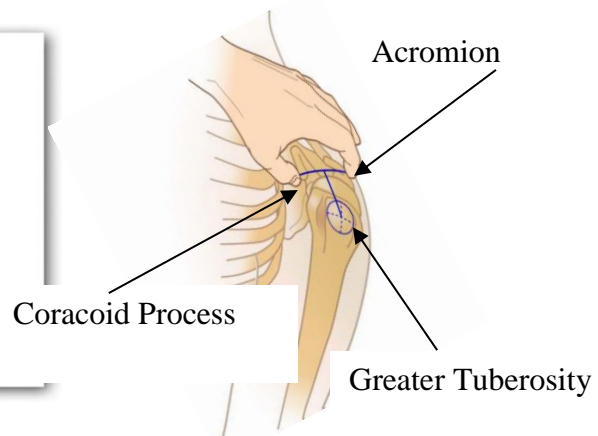
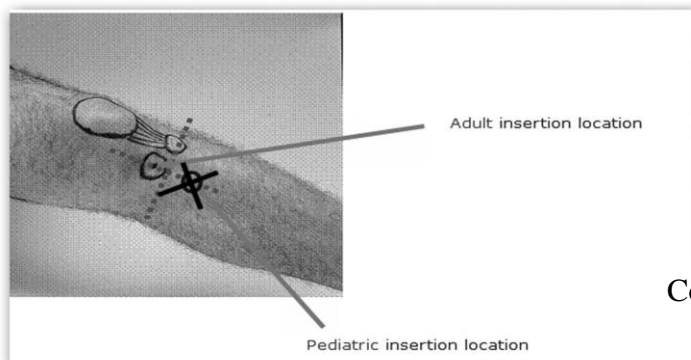
## NEBULIZED MEDICATION

Nebulized medication may be administered while ventilating a patient with a BVM. The process ideally requires two oxygen sources, one attached to the nebulizer and one attached to bag-valve device and an extra elbow. If only one oxygen source is available, attach it to the nebulizer until nebulized medication delivery is complete, and then attach to BVM. Refer to the diagram on the skill sheet for further info.

## IO INSERTION

- Use of IO devices is limited to patients who are unresponsive or hemodynamically unstable; and then, only when less invasive means are ineffective or not available (e.g., IM Glucagon, IN Narcan or Versed).
- A For an adult in cardiac arrest, preferential order of vascular access is EJ, AC and proximal humeral IO. An adult cardiac arrest patient's circulation differs from a pediatric cardiac arrest patient's, and also differs from an adult in deep shock. With the approval of the department's Medical Director, it is recommended that the proximal humerus be the site for IO insertions for adults in cardiac arrest. IV or IO accesses below the diaphragm may be ineffective for patients greater than 8 years old who are receiving CPR. Flow rates are better in the proximal humerus due to decreased bone density. The longer yellow (45 mm) needle should be used for humeral IOs in adults.
- In summary:

	<u>Adults</u>	<u>Pediatric</u>
<b>Arrest:</b>	<b>Humerus</b>	<b>Tibia</b>
<b>Non-arrest:</b>	<b>Tibia</b>	<b>Tibia</b>



### **Proximal Tibia**

Find the "flat spot" on the medial aspect of the tibial shaft two finger widths below (distal) the tibial tuberosity. Remember, "Big Toe IO" means to look on the big toe side of the leg for the tibial plateau (the flat spot). Use a similar technique as for the Pediatric tibial insertion.

- Use the blue IO needle for 5-30 kg.
- Use the pink IO needle for 0-5 kg.

- **IO Insertion at Proximal Tibia Site**

1. Identify the tibial tuberosity by palpating just below the knee.
2. Locate the consistent flat area of bone 2 cm distal and slightly medial to the tibial tuberosity (to avoid growth plate).
3. Support flexed knee with towel under calf.
4. Prep the skin and insert needle according to manufacturer's directions.
5. Use 10-15° caudal angulation to further decrease risk of hitting growth plate.
6. Needle will stand up on its own with proper placement.
7. Attach syringe and aspirate bone marrow (to further confirm placement).
8. Connect the IV line. If flow is good and extravasation is not evident secure needle with gauze pads and tape.
9. A pressure bag may facilitate infusion.
10. **Lidocaine 2% 1.5 mg/kg up to 100 mg via IO** for pain associated with infusion.  
**Lidocaine 2% 0.5 mg/kg (max 100 mg) via IO** for pain associated with IO infusion.

**NOTE:** The administration of other drug therapy should not be delayed due to the administration of Lidocaine for pain management.

### **Humeral Head**

The greater tuberosity is located by placing the patient's hand on their navel and relaxing their shoulder and elbow. Draw a straight line between the coracoid process and the acromion. Complete the drawing of a perfect triangle by using the previous line as the base of the triangle and extending the "point" of the triangle over the humeral head. The site is at the downward point of the triangle.

#### **A IO Insertion at Humeral Head Site**

1. Position patient so shoulder is adducted (moved toward the middle of the body) and the greater tuberosity is most prominent by lying patient supine, arm at their side with palm on their navel.
2. Palpate proximal humerus and identify the greater tuberosity.
3. Prep the skin.
4. Insert the needle at a 45 degree angle to the frontal plane and aimed at the inferior portion of the sternum.
5. Needle will stand up on its own with proper placement.
6. In most patients, the longer yellow IO needle should be used for humeral IOs.
7. Attach syringe and aspirate bone marrow to further confirm placement.
8. Connect the IV line. If flow is good and extravasation is not evident, secure needle with gauze pads and tape.
9. Pressure bags may facilitate infusion.



## CENTRAL VENOUS CATHETERS

Patients who require long-term intravascular therapy may have Central Vascular Access Devices (CVAD). CVADs may be used for IV access if the patient is hemodynamically unstable or in arrest.

- Central catheter: Catheter placed through chest wall into the internal jugular or subclavian vein. Central catheters can be single or multilumen. Distal portion of catheter is external with access ports, either of which may be used for access.
- PICC Line: Catheter placed in arm. Distal portion of catheter is external with access port. Do not force fluids or drugs through the device or failure could result in an embolism. PICC line diameter creates significant resistance to fluid flow making it difficult to infuse large quantities of fluids. **D10** by PICC is preferable to IM Glucagon.
- Subcutaneously Implanted Port: Device surgically placed under the skin on the chest. No external access. **PARAMEDICS ARE NOT PERMITTED TO ACCESS THIS DEVICE.**

### Complications of CVADs

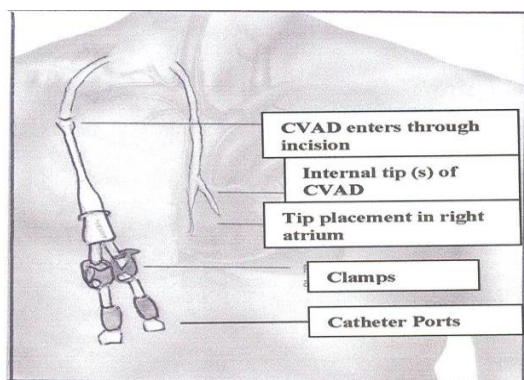
- Infection: Thorough cleaning of the selected port must be done three times during the procedure: before attaching each syringe and before attaching the IV tubing.
- Air Embolism: The catheter must be clamped with its clamp before attaching and before removing the syringes.
- Heparin Bolus: These catheters remain in place without fluids continually flowing through them. To prevent blood clot formation, a bolus of Heparin or other antico clotting agents will be in the catheter. Remove 5 ml of blood to insure that the Heparin is not systemically administered to the patient resulting in a potentially significant complication.
- Catheter Damage: Use a 10 ml syringe or larger when drawing off the blood. Smaller syringes create too much pressure. After verifying blood return, flush catheter with 10 ml of NS with a 10 ml or larger syringe utilizing a pulsating technique. Administer medications slowly to avoid creating too much pressure. *Do not use catheter if unable to get blood return.*
- **DO NOT USE A PRESSURE INFUSION DEVICE ON CVADs.**

## INTERNAL DIALYSIS FISTULA

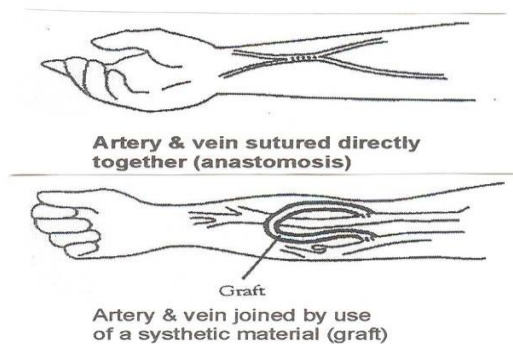
A dialysis fistula is an artificial passage between an artery and a vein used to gain access to the bloodstream for hemodialysis. In hemodialysis, the patient's blood is pumped through the internal arteriovenous fistula. These internal shunts may be an artery and vein being sutured directly together (anastomosis) or a graft, joining the artery and vein. They are usually located in the inner aspect of the patient's forearm, a bulge under the skin that should be visible or easily palpated.

In cardiac arrest or with a profoundly unstable, rapidly deteriorating patient, a dialysis fistula may be used to administer IV fluids or medication.

- Use aseptic technique.
- Be careful not to puncture back wall of vessel.
- Use IV pressure bag.
  - Blood may still back-up into tubing.
- Control bleeding with direct pressure.
  - Dialysis patients are usually on anticoagulants.



CENTRAL VENOUS ACCESS



VASCULAR ACCESS - HEMODIALYSIS



## CARDIOVASCULAR EMERGENCIES: BASIC LIFE SUPPORT

- Assess patient for pulse and respirations.
- If no pulse, initiate CPR and use AED or defibrillator using the most current American Heart Association Guidelines.
- Consider {Impedance Threshold Device}.
- Transport patient as appropriate.

### General Considerations:

- CPR should not be interrupted for more than 10 seconds until spontaneous pulse is established.
- Paramedics are expected to provide resuscitative care at the scene. Cardiac arrests should not be transported unless the patient has Return of Spontaneous Circulation (ROSC), an airway cannot be secured, vascular access is not established, or the MCP refuses to authorize Field Termination. Any ROSC patient should be transported to an interventional facility.

### 2015 AHA CPR GUIDELINES

	ADULTS	CHILDREN	INFANTS	NEWBORNS
CPR ORDER	CAB: Compression, Airway, Breathing			
COMPRESSION DEPTH	At Least 2 Inches	1/3 Depth of Chest (About 2")	1/3 Depth of Chest (About 1 ½ ")	1/3 Depth of Chest
COMPRESSION RATE	100 to 120 per minute			120/min
COMPRESSION NOTES	Minimize interruptions in chest compressions Limit interruptions to < 10 seconds			
COMPRESSION TO BREATHS RATIO	30:2 1 or 2 Person CPR	30:2 1 Person CPR 15:2 2 Person CPR		3:1
ADVANCED AIRWAY	1 breath every 6-8 seconds (8-10 breaths/min) About 1 sec per breath duration No interruptions of compressions			40-60 breaths/min
RESCUE BREATHING	1 breath every 5-6 seconds (10-12 breaths/min)	1 breath every 3-5 seconds (12-20 breaths/min)		40-60 breaths/min

### NOTES:

- Use jaw-thrust method to open airway on trauma patients.
- Allow the chest to fully recoil after each compression.
- Change person compressing chest every 2 minutes.
- Attach and use AED as soon as possible after 1-2 minutes of CPR.
- Utilize AED as it is programmed. (Even if it is not to AHA guidelines.)
- P If available, use age appropriate AEDs or pads.**
- Minimize interruptions to compressions before and after each shock to less than 10 seconds.
- Resume CPR beginning with compressions after each defibrillation.
- For pregnant patients in arrest, consider need for manual uterine displacement and perform chest compressions slightly higher on the sternum than normal.
- In all cardiac arrests, consider the ACLS "Treatable Causes": i.e., "Hs" and "Ts"

### H's

Hypovolemia: look for obvious blood loss, use a fluid challenge to determine if arrest is related to hypovolemia.

Hypoxia: open airway, administer oxygen

Hypo or hyperkalemia: hyper may be evidenced by peaked T-waves and wide QRS, hypo may be evidenced by U-waves.

Hydrogen Ion (Acidosis): provide adequate ventilations, administer sodium bicarb to prevent metabolic acidosis

Hypothermia: pt may not respond to drug or electrical therapy

### T's

Tamponade, Cardiac: may be evidenced by narrow QRS with rapid rate

Toxins: treat known overdoses

Tension Pneumothorax: decompress the chest

Thrombosis (Coronary, Pulmonary): treat known MI

## CARDIAC ARREST: RENAL DIALYSIS

- For renal dialysis patients in arrest:
  - A Calcium Chloride 10% (1 g) IV
  - P Calcium Chloride 10%, 20 mg/kg (0.2 ml/kg) IV, max dose 500 mg Calcium Chloride
  - A Sodium Bicarb 100 mEq IV
  - P Sodium Bicarb 1 mEq/kg IV
- ♦ For a renal dialysis patient presenting with a wide complex bradycardia consider treatment of hyperkalemia:
  - A Calcium Chloride 1 g IV.
  - P Calcium Chloride 10%, 20 mg/kg (0.2 ml/kg) IV, max dose 500 mg Calcium Chloride
  - A Sodium Bicarb 100 mEq IV
  - P Sodium Bicarb 1 mEq/kg IV
- Dialysis patients who are bradycardic or experience cardiac arrest should be given both calcium (chloride or gluconate) and sodium bicarbonate. Flush well between these medications. It is critical that these drugs not be given together, as they will precipitate.

## CARDIAC ARREST: V-FIB or PULSELESS V-TACH

- If in arrest, initiate quality CPR for 1-2 minutes and proceed to first defibrillation as soon as possible.
- **First Defib:**
  - A Use manufacturer's recommendations.
  - P 2 J/kg or biphasic equivalent.
  - CPR for 1-2 minutes
  - Repeat cycles of CPR - shock - drug
- **Second Defib:**
  - A Use manufacturer's recommendations.
  - P 4 J/kg or biphasic equivalent.
  - A **Epinephrine 1 mg 1:10,000, IV or IO**, repeat every 3-5 minutes.
  - P **Epinephrine (1:10,000) 0.01 mg/kg, IV or IO**, repeat every 3-5 minutes.
  - CPR for 1-2 minutes
- **Third Defib:**
  - A Use manufacturer's recommendations.
  - P 6 J/kg or biphasic equivalent.
  - **Amiodarone:**
    - A 300 mg, IV or IO
    - P 5 mg/kg IV or IO (max first dose 300 mg)
  - CPR for 1-2 minutes
- **Fourth Defib:**
  - A Use manufacturer's recommendations.
  - P 8 J/kg or biphasic equivalent.
  - A **Epinephrine 1 mg 1:10,000, IV or IO**, repeat every 3-5 minutes.
  - P **Epinephrine (1:10,000) 0.01 mg/kg, IV or IO**, repeat every 3-5 minutes.
  - Continue CPR and repeat treatment as indicated
- **Fifth Defib:**
  - A Use manufacturer's recommendations.
  - P Fifth and successive defibrillations will be at 10 J/kg or biphasic equivalent
  - A **Epinephrine 1 mg 1:10,000, IV or IO**, repeat every 3-5 minutes.
  - P **Epinephrine (1:10,000) 0.01 mg/kg, IV or IO**, repeat every 3-5 minutes.
  - Continue CPR and repeat treatment as indicated
- **Sixth Defib:**
  - A Use manufacturer's recommendations.
  - P Fifth and successive defibrillations will be at 10 J/kg or biphasic equivalent
  - Repeat **Amiodarone, IV or IO** after approximately 10 minutes:
    - A 150 mg IV or IO
    - P 5 mg/kg, (max second dose 150 mg)
- Consider treatable causes.
- A If patient converts with ROSC from a ventricular arrhythmia and no anti-arrhythmic has been given, then administer **Amiodarone 150 mg in 250 ml NS, IV over 10 minutes using 60 drop/ml tubing.**
- {12-lead EKG}

## CARDIAC ARREST: ASYSTOLE or PEA

- CPR for 1-2 minutes
- A **Epinephrine (1:10,000) 1 mg, IV or IO**, repeat every 3-5 minutes.
- P **Epinephrine (1:10,000) 0.01 mg/kg, IV or IO**, repeat every 3-5 minutes.
- CPR for 1-2 minutes
- A Consider **Atropine 1 mg, IV or IO** for asystole or slow PEA (repeat every 3-5 minutes x 3 doses)
- Continue CPR and repeat treatment as indicated
- Consider treatable causes:
  - Narcan should be given IV or humeral IO.
- {12-lead EKG}

## SUSPECTED CARDIAC CHEST PAIN

**P** Chest pain in the pediatric patient is rarely related to a cardiac event. Assessment for other causes (e.g., muscle pain, respiratory difficulties, injury) should be completed to determine the source of pain. Application of supplemental oxygen and transport should be the mainstay of care for these patients. Contact MCP for further advice when needed.

**P THE REST OF CHEST PAIN ALGORITHM DOES NOT APPLY TO PEDS.**

- A** An unstable cardiac patient is one who is hypotensive, or has chest pain with poor skin color or diaphoresis.
- A** A patient with chest pain, moderate distress, who has an oxygen sat of < 94%, should be given oxygen via NC and titrated to 94%.
- A** A patient with chest pain, minor distress, whose oxygen sats are > 94%, should not get any oxygen.
- A** No significant change in patient condition in the field should be expected from the administration of Aspirin. The treatment of active chest pain in appropriate patients should include both **Aspirin** and **Nitroglycerin** (after 12-lead EKG). There is definite, time dependent benefit, to aspirin making field administration of significant value.
- A** Prior to moving patient, acquire a supine {12-lead EKG} on all patients with ACS symptoms. Some patients (elderly or diabetics) often may have atypical symptoms.
- A** Give **Aspirin (ASA) 324 mg** to every patient  $\geq 25$  y/o with symptoms of Acute Coronary Syndrome (ACS) including anginal chest pain, shortness of breath, syncope, diaphoresis, weakness, nausea, or vomiting. Patient **MUST CHEW** the **ASA**.
- A** Ask male and female patients if they have taken Viagra, Cialis, Levitra, Revatio, or similar medications within the last 24 hours. Do not administer **Nitroglycerin (NTG)** if they have taken the above medications. **NTG** may cause profound hypotension in these patients.
- A** If SBP >100, and the patient is  $\geq 25$  y/o, administer **Nitroglycerin 0.4 mg SL, every 5 minutes**, for pain, to **a total of three pills** with vital signs between doses. Prior to **NTG** administration, establish vascular access for patients who have not previously had **NTG**.
- A** Consider Pain Control Protocol, provided SBP > 100 after first nitro. **DO NOT WAIT UNTIL 3 NITROS ARE GIVEN BEFORE CONSIDERING FENTANYL.**
- A** {Transmit} EKG with two identifiers, such as name, DOB, Medic number, age and sex to MCP any {12-lead EKG} that meets Cardiac Alert criteria, or any that is questionable.
- A** The MCP shall be contacted after any {12-lead EKG transmission} is completed.
- A** {If evidence of STEMI, transport to an interventional cardiac cath lab.}
- A** **IV fluid, up to 500 ml**, may be administered to a patient with SBP < 100 without pulmonary edema. If RVI is suspected with hypotension, consult MCP for fluid bolus.
- A** Consider repeat {12-lead EKGs} during transport.

**NOTE:** Revatio is a drug approved for treatment of pulmonary arterial hypertension (PAH), a disease that may be treated with Flolan at end stage. The drug contains Sildenafil which is Viagra. Organic nitrates are contraindicated with Revatio. Revatio is prescribed for both men and women. Providers should ask patients, especially PAH patients, about both Viagra and Revatio before giving NTG.

## REPEATED AICD ACTIVATIONS

A patient experiencing repeated AICD (Automatic Implantable Cardioverter-Defibrillator) activations should receive Midazolam under the same Standing Order as if EMS was preparing to cardiovert. Analgesia with Fentanyl may also be appropriate. Be prepared to manually cardiovert or defibrillate in the event of AICD failure. Consult MCP.

- **Midazolam 2 mg slow IV.**
- Consider **Fentanyl 50-100 mcg slow IV**, provided SBP > 100.

## **CARDIAC ALERT PROGRAM**

The Intent of the Cardiac Alert Program is to decrease the “Door to Balloon” time for Pre-Hospital AMI Patients. EMS Providers who have patients experiencing symptoms of an AMI, and confirm the AMI with Diagnostic 12-Lead will make early notification to the receiving facility and speak directly with MCP. The receiving facility may activate a Cardiac Alert, prompting the response of the On-Call Cath Lab team members.

Rerouting of Interventional Facilities does not apply to Cardiac Alerts. Follow the appropriate treatment considerations for specific AMI types.

### **Inclusion Criteria**

- All patients presenting with anginal-type chest pain or an equivalent anginal event may be candidates. The paramedic will perform an initial 12-lead EKG to determine the presence of an AMI.
- All patients with evidence of an AMI (>1mm ST elevation in 2 contiguous leads) on a diagnostic 12-lead EKG. The EMS Provider will contact the receiving facility as soon as possible.

### **Exclusion Criteria For The Cardiac Alert Program:**

- Patient with a LBBB (QRS greater than 120 ms).
- Patients with a Pacemaker rhythm

Hospitals expect the paramedic to read the 12-lead EKG! Do not simply depend on the computer chip in the monitor to read it for you.

If you read the strip one way, and the computer reads it another, give both pieces of information to the MCP when you call, but have the courage of your convictions.

Patients with Anterior Wall Acute Myocardial Infarctions, especially with ST elevation in three leads are at higher risk for Cardiac Arrest. They are also at high risk for developing CHF or cardiogenic shock, and may develop BBB's, PVC's or 3° blocks.

Quality Assurance and Quality Improvement (QA/QI) is an important part of a 12-lead EKG program, as it is with every aspect of EMS.

## **DESTINATION CONSIDERATIONS**

- An Interventional Facility is a hospital that provides PCI 24 hours a day.
- Patients with ROSC should be transported to an Interventional Facility.
- ST Elevation MI (STEMI) only patients should be transported directly to an Interventional Facility even if other hospitals are closer. Consider air medical transport if the Interventional Facility is over 30 minutes away.
- Exceptions:
  - It is medically necessary to transport the patient to the closest hospital for stabilization.
  - It is unsafe to transport the patient directly to an Interventional Facility due to adverse weather or ground conditions or excessive transport time.
  - Transporting the patient to an Interventional Facility would cause a critical shortage of local EMS resources.
  - Patient requests transport to a different facility, despite EMS education of patient.
  - Contact MCP to discuss the appropriate destination for resuscitated cardiac arrest patients who have evidence of AMI.

## **CARDIAC INTERVENTIONAL FACILITIES**

Atrium Medical Center  
Fort Hamilton Hospital  
Good Samaritan Hospital  
Grandview Hospital  
Kettering Medical Center

Miami Valley Hospital  
Reid Memorial Hospital  
Southview Medical Center  
Springfield Regional Medical Center  
West Chester Hospital

## TREATMENT CONSIDERATIONS FOR AMI

### Inferior Wall

(Leads II, III, aVF supplied by the Right Coronary Artery)

- Aggressive fluid administration may be required (i.e. fluid boluses) due to cardiogenic shock. Reassess lungs frequently.
- Attempt to capture Lead V4R to determine right ventricular involvement.
- Patient may be sensitive to NTG and Fentanyl administration. Monitor BP frequently.
  - Treat hypotension with a fluid challenge and administer NTG or Fentanyl with caution.
- If 2° type II or 3° block, prepare to pace immediately.
  - A Consider **Atropine 0.5 mg IV up to 3 mg** while awaiting pacer.
  - A Consider **Midazolam 2 mg slow IV** prior to pacing.
  - A Start pacing at 70 BPM, 20 mA and increase until mechanical capture is obtained.
- A If patient is still hypotensive, begin **Norepinephrine** by adding 4 mg to 250 ml of IV fluids. Infuse starting at **30 drops per minute (max 45 drops)** with 60 drop tubing and titrate to effect. Increase by 5 drops every 5 minutes.

### Anterior Wall

(Leads V1-V4; supplied by Left Anterior Descending Artery)

- A Patients with ST elevation in more than 2 leads are at higher risk for sudden cardiac death.
- A High risk for developing CHF or cardiogenic shock
- A May also develop BBB's, PVC's or 3° blocks
- A If patient is hypotensive, begin **Norepinephrine** by adding 4 mg to 250 ml of IV fluids. Infuse starting at **30 drops per minute (max 45 drops)** with 60 drop tubing and titrate to effect. Increase by 5 drops every 5 minutes.

### Lateral Wall

(Leads I, aVL, V5-V6; supplied by Circumflex)

- May have some LV dysfunction but not as severe as anterior wall AMI
- May also develop AV Nodal Block

## BRADYCARDIA: ADULT ONLY

- A Obtain {12-lead EKG}.
- A ♦ Wide complex bradycardia patients should spark consideration of treatment of hyperkalemia. Patients should be given both **Calcium Chloride 1 g** (calcium chloride or gluconate) and **Sodium Bicarbonate 100 mEq**. Flush well between these medications. It is critical that these drugs not be given together, as they will precipitate.
- A For adequate perfusion, observe and monitor.
- A For poor perfusion:
  - Consider **Atropine 0.5 mg IV, up to total of 3 mg**.
  - If treatments are ineffective begin pacing:
    - If time permits, **Midazolam 2 mg slow IV** prior to pacing.
    - Set at 70 BPM, 20 mA and increase until mechanical capture is obtained.

## BRADYCARDIA: PEDS ONLY

Pediatric patients are considered unstable if they have bradycardia that adversely affects their cardiac output and vital signs.

- P** For adequate perfusion, observe, monitor and apply oxygen if needed.
- P** For poor perfusion:
  - Perform CPR if HR < 60/min.
  - **Epinephrine (1:10,000) 0.01 mg/kg, IV**, repeat every 5 minutes.
  - If AV block:
    - Consider **Atropine 0.02 mg/kg IV** (minimum dose 0.1 mg, maximum single dose 0.5 mg), may repeat dose every 5 minutes. Max total dose of 1 mg.
    - Consider pacing:
      - Pediatric electrodes should be used on patients < 15 kg.
      - Consider **Midazolam 0.1 mg/kg** (max dose 2 mg) **slow IV** prior to pacing.
      - Start with 5 mA increasing as needed to 200 mA at a rate of 80 bpm until capture.

## TACHYCARDIA: ADULT ONLY

- A** Obtain {12-lead EKG}.

### Stable:

- A** Narrow Complex - Regular
  - Vagal maneuvers
  - **Adenosine 6 mg rapid IVP**
    - If patient has history of Paroxysmal Supraventricular Tachycardia (PSVT) and advises it takes 12 mg of **Adenosine**, then skip the 6 mg dose.
  - May repeat **Adenosine 12 mg rapid IVP** x 2.
- A** Wide Complex – Regular or Irregular
  - **Amiodarone 150 mg in 250 cc NS, IV over 10 minutes using 60 drop tubing wide open with 18 gauge needle.**

### Unstable:

An unstable patient is defined as a patient who is hypotensive or unconscious when the hypotension or altered mental status is thought to be due to the patient's tachycardia. Do not cardiovert patients without hemodynamic changes or patients whose hemodynamic changes have other apparent causes (e.g., blood loss).

- A** Consider **Midazolam 2 mg slow IV** prior to cardioversion.
- A** Cardioversion: 100, 200, 300, 360 J for monophasic or biphasic equivalent

## TACHYCARDIA: PEDS ONLY

### Stable:

- P** Vagal maneuvers (blowing through a straw or oxygen tubing, etc.)

### Unstable:

A patient who is hypotensive or unconscious when the hypotension or altered mental status is thought to be due to the patient's tachycardia is considered unstable. Do not cardiovert patients without hemodynamic changes or patients whose hemodynamic changes have other apparent causes (e.g., blood loss).

- P** Vagal maneuvers (blowing through a straw or oxygen tubing, etc.)
- P** **Adenosine 0.1 mg/kg rapid IVP** (max dose 6 mg), saline flush.
- P** If no response, **Adenosine 0.2 mg/kg rapid IVP** (max dose 12 mg), saline flush. **Repeat x 1.**
- P** Consider cardioversion.
  - If time permits, **Midazolam 0.1 mg/kg slow IV** (max dose 2 mg).
  - Cardioversion 1 J/kg
- P** If no response, Cardioversion 2 J/kg

## SHOCK

Perform manual BP on all pts presenting with S/S of shock. SBP is only one component of the overall clinical picture, which may include tachycardia, tachypnea, diaphoresis, restlessness, decreased mentation. Skin may be pale, ashen, cyanotic, cool, or clammy. Be sure to include S/S in report if SBP is < 100.

Only give fluids for specific S/S of shock and not to every trauma patient.

**Non-traumatic shock without Pulmonary Edema:** Patient does not have JVD, edema, or rales

- A **IV fluid 500 ml IV.** Maintain adequate perfusion. May repeat x 1.
- P **IV fluid 20 ml/kg IV.**
- P **Titrate to maintain adequate perfusion.**
- A ♦ **Additional IV fluid 500 ml IV,** if needed.
- P ♦ **Additional IV fluid 20 ml/kg IV,** if needed.
- A For persistent shock, establish additional vascular access.
- A If SBP remains < 100, begin **Norepinephrine 30 gtts/min (max 45 drops).** Titrate to effect of SBP ~ 100. Increase by 5 drops every 5 minutes.

**Non-traumatic shock with Pulmonary Edema:** Patient may have JVD, edema, or rales present.

- A Treat arrhythmias as indicated.
- A Consider **IV fluid 250 ml IV.**
- A If SBP remains < 100, begin **Norepinephrine 30 gtts/min (max 45 drops).** Titrate to effect of SBP ~ 100. Increase by 5 drops every 5 minutes.

**Exsanguinating Hemorrhage:**

- A Control external bleeding and treat for hypovolemic shock as indicated.
- A **IV fluid to maintain SBP ~ 100** en route to hospital. Do not get SBP too high.
- P **IV fluid 20 ml/kg IV. May repeat x 2. Titrate to maintain adequate perfusion**

## SEPSIS

Sepsis affects at least one million people annually. Patients may be in septic shock with a normal BP. Severe sepsis is characterized by poor perfusion, leading to a buildup of serum lactate and resulting metabolic acidosis. EtCO<sub>2</sub> levels decline in the setting of both poor perfusion and metabolic acidosis. To compensate for metabolic acidosis, patients increase their minute ventilation. This increased respiratory rate “blows off” carbon dioxide and lowers EtCO<sub>2</sub>. At the same time, poor tissue perfusion decreases the amount of blood flow to the alveoli of the lungs, reducing the amount of carbon dioxide that can be exhaled—the most dramatic demonstration of this process is during cardiac arrest.

Sepsis is often associated with a high mortality rate. The key to improve patient outcomes in septic shock is early recognition, fluid resuscitation, O<sub>2</sub> therapy and rapid transport.

When to consider sepsis:

- A patient with a known or suspected infection and an EtCO<sub>2</sub> < 32 or > 47, with 2 or more of the following criteria:
  - Respiratory rate ≥ 22
  - Altered mental status (GCS < 13)
  - Temperature > 100.4 (38 C) or < 96.8 (36 C)
  - Heart rate > 90
  - Systolic BP < 100 or MAP ≤ 65. MAP (mean arterial pressure) is considered to be the organ perfusion pressure. MAP = (SBP + 2 X DBP) / 3 and is normally 70 – 110 mm/hg.
- Treatment:
  - 1 liter of IV fluid
  - O<sub>2</sub>
  - ♦ For additional fluids and or **Norepinephrine starting at 30 gtts/min.**

**Note:** Be especially suspicious of sepsis in geriatric patients with altered mental status



## STROKE

- A Be prepared to assist ventilations with oral or nasal airway and BVM or {FROPVD (Flow Restricted Oxygen Powered Ventilation Device)}.
- A A patient in respiratory distress with pale, moist skin and altered mental status, should get oxygen via NRM.
- A If signs of cerebral herniation are present, ventilate at the following rates:
  - A {If numeric EtCO<sub>2</sub> readings are available, ventilate at a rate to maintain readings at approximately 30 mmHg (30 torr)}, which is approximately 20 times per minute.
  - P Ventilate at a rate of ten faster than normal respiratory rate when the signs of cerebral herniation are present.
- A If glucose < 60, or there is strong suspicion of hypoglycemia despite glucometer readings, treat for hypoglycemia.
- A If one or more signs of the Cincinnati Prehospital Stroke Scale are abnormal, and < 4 hours since patient was last seen normal, call a Stroke Alert, and transport to the closest Stroke Center:
  - o State actual clock time for last known normal. Do not say, “20 minutes ago.”
  - o Cincinnati Prehospital Stroke Scale: (normal or abnormal)
    - Facial Droop (pt. shows teeth or smiles).
    - Arm Drift (pt. closes eyes and holds both arms straight out for about 10 seconds).
    - Abnormal Speech (have pt. say “You can’t teach an old dog new tricks.”)
  - o A patient with indications of stroke who has an oxygen sat of < 94%, should be given oxygen via NC and titrated to 94%.
  - o A patient with indications of stroke whose oxygen sats are > 94%, should not get any oxygen.
- A If patient’s symptoms occurred > 4 hours and < 8 hours from last time they were known to be free of stroke symptoms or awoke abnormal, transport to a Comprehensive Stroke Center.
  - A Contact MCP with a Stroke Alert for advice regarding transport destination if greater than 8 hours since last seen normal.
- Transport the patient with the bed flat, if able to tolerate. If showing signs of increased ICP, do not lay pt flat.
- Transport historian with patient both to provide patient history and for permission to treat.
- Document that you called a “Stroke Alert.”

**Telemedicine stroke center with tPA ready**, also known as drip and ship, has tPA capabilities and immediate access to a Neurologist via telemedicine.

**Primary Stroke Center:** facility with capability to administer tPA, also has an ICU. They can either admit patients or move them on.

**Comprehensive Stroke Centers:** facility with 24/7 endovascular capabilities.

- A Miami Valley Hospital
- A Kettering Medical Center

### Disorders Mimicking Stroke

- Seizure
- Subdural hematoma
- Brain tumor
- Syncope
- Toxic or metabolic disorders (i.e., hypoglycemia)

## TRAUMA EMERGENCIES

### General Considerations:

- Use of on-line MCP for medical direction in the field for difficult cases is encouraged.
  - Minor trauma patients may be transported to non-trauma centers.
  - Major trauma patients are to be transported as soon as possible to the nearest appropriate facility.
  - Scene size-up, with rapid assessment and recognition of major trauma/multiple system trauma and effective evaluation of the mechanism of injury are essential to the subsequent treatment.
  - Hypothermia is a significant and frequent problem in shock for major trauma patients. Maintain patient's body temperature.
  - If patient condition changes, notify hospital.
  - When patient is transported by helicopter, the EMS run sheet should be faxed to the receiving trauma center.
  - The *only* procedures that should take precedence to transport of major trauma patients are:
    - Airway management
    - Stabilization of neck/back or obvious femur and pelvic fractures on a backboard
    - Exsanguinating hemorrhage control
    - Extrication
  - After the trauma patient's extrication, the on-scene time should be limited to **10 minutes or less**, except when there are extenuating circumstances.
  - **Pre-arrival notification of the receiving facility is essential!** Give Mechanism of Injury, Injuries, Vital signs, Treatment (MIVT), GCS with components, and ETA.
  - Take a manual BP on all trauma patients.
  - Repeat vitals on trauma patients every 5 minutes.
- A IVs should be established en route to the hospital unless the patient is trapped, transport is otherwise delayed, or patient has no life threatening injuries, and transport prior to analgesia would be extremely painful. Start the IV with a large bore catheter, macro drip tubing and 1000 ml of IV fluid.
- P Start IV with a large bore catheter, macro drip tubing and 20 ml/kg of IV fluid.**
- A IV flow rates are as follows:
- A Keep open rate for major head trauma with adequate perfusion
  - A IV wide open if the patient has inadequate perfusion (including head trauma) utilizing {IV Pressure Infusion Pump or Bag} or similar equipment if available.
  - A Titrate IV flow rates to maintain SBP ~ 100.
  - A **For penetrating trauma to the chest and abdomen:**
    - If a radial pulse is present and the patient is conscious and mentating, load and go.
    - If no radial pulse, infuse **IV fluid in 250 ml boluses** en route until radial pulse is present and then stop fluid.
  - Consider Pain Control Protocol.
  - **NOTE:** Studies indicate that surgical emergencies with increased fluid administration cause dilution, lower body temperatures and increase coagulopathies, all of which increase mortality. This is referred to as "permissive hypotension," and means that IV fluids are not administered to these patients unless there is loss of radial pulse.

## GLASGOW COMA SCALE

	< 2 YEARS OLD		ADULT & PEDIATRIC > 2 YEARS OLD	
EYES	SPONTANEOUSLY	4	SPONTANEOUSLY	4
	TO VOICE	3	TO VOICE	3
	TO PAIN	2	TO PAIN	2
	NO RESPONSE	1	NO RESPONSE	1
VERBAL	COOS, BABBLING	5	ORIENTED	5
	IRRITABLE CRY, CONSOLABLE	4	CONFUSED	4
	CRIES TO PAIN	3	INAPPROPRIATE WORDS	3
	MOANS TO PAIN	2	GRUNTS, GARBLED SPEECH	2
	NO RESPONSE	1	NO RESPONSE	1
MOTOR	NORMAL MOVEMENTS	6	OBEYS COMMANDS	6
	WITHDRAWS TO TOUCH	5	LOCALIZES PAIN	5
	WITHDRAWS TO PAIN	4	WITHDRAWS TO PAIN	4
	FLEXION (DECORTICATE)	3	FLEXION (DECORTICATE)	3
	EXTENSION (DECEREBRATE)	2	EXTENSION (DECEREBRATE)	2
	NO RESPONSE	1	NO RESPONSE	1

## PRE-HOSPITAL FIELD TRIAGE

- Patients to be taken to the nearest hospital:
  - Unstable airway
  - Blunt trauma arrest  $\leq 5$  minutes from a hospital or penetrating trauma arrest  $\leq 15$  minutes from a hospital
- Drowning; near drowning; strangulation; burns; electromagnetic, chemical, or radiation exposure; heat or cold injury or illness; and asphyxia are considered trauma and these patients should be transported to a Trauma Center.
- List in the EMS run report which of the State Trauma Triage Criteria the patient met.

## TRAUMA CRITERIA

- G** Patients 70 years of age or older will be triaged for evaluation in a Trauma Center for:
  - GCS < 15 with suspected traumatic brain injury (TBI)
  - Systolic BP < 100 mmHg
  - Falls, even from a standing position, with evidence of TBI
  - Pedestrian struck by motor vehicle.
  - Known or suspected proximal long bone (femur/humerus) fracture sustained in MVC.
  - Multiple body regions injured.
- G** Special consideration should be given for the geriatric trauma patient to be evaluated at a Trauma Center if they have diabetes, cardiac disease, clotting disorders, immunosuppressive disorder, are on anticoagulants, or require dialysis.

### Anatomy of Injury:

- All penetrating trauma to head, neck, torso, and extremities proximal to elbow or knee with neurovascular compromise.
- Abdominal injury with tenderness, distention, or seat belt sign
- Chest injury: flail chest or tension pneumothorax
- Two or more proximal long bone fractures
- G** One proximal long bone fracture in MVC only
- Evidence of pelvic fracture (exception: isolated hip fracture)
- Spinal cord injury with paralysis
- A** Burns greater than 10% total body surface area (BSA) or other significant burns involving the face, feet, hands, genitals or airway
- P** Burns greater than 5% total BSA or other significant burns involving the face, feet, hands, genitals or airway
- Amputation proximal to wrist or ankle
- Evidence of serious injury of 2 or more body systems
- Crush injury to head, neck, torso, or extremities proximal to knee or elbow
- Open skull fracture

<b>YES = Transport to Trauma Center</b>	<b>NO = Assess Physiologic</b>
<b>Alert Trauma Team</b>	

### Physiological Adult:

- A** GCS less than or equal to 13
- A** Loss of consciousness greater than five minutes at any time
- A** Alteration in level of consciousness with evidence of head injury at time of exam or thereafter
- A** Failure to localize pain
- A** Respirations < 10 or > 29
- A** Needs ventilatory support
- A** Tension pneumothorax
- A** Pulse > 120 in combination with any other physiologic criteria
- A** SBP < 90 or absent radial pulse with carotid pulse present

### Physiological Pediatric:

- P** GCS less than or equal to 13
- P** Loss of consciousness greater than five minutes at any time
- P** Alteration in level of consciousness with evidence of head injury at time of exam or thereafter
- P** Failure to localize pain
- P** Evidence of poor perfusion (e.g., weak distal pulse, pallor, cyanosis, delayed capillary refill, tachycardia)
- P** Evidence of respiratory distress or failure (e.g., stridor, grunting, retractions, cyanosis, nasal flaring, hoarseness, or difficulty speaking)
- P** Respiratory rate less than 20 per minutes in infants less than 1 year old.

**Physiological Geriatric:**

- G** GCS < 15 with evidence of TBI
- G** Loss of consciousness greater than five minutes at any time
- G** Alteration in level of consciousness with evidence of head injury at time of exam or thereafter
- G** Failure to localize pain
- G** Respirations < 10 or > 29
- G** Needs ventilatory support
- G** Tension pneumothorax
- G** Pulse > 120 in combination with any other physiologic criteria
- G** SBP < 100 or absent radial pulse with carotid pulse present

<b>YES = Transport to Trauma Center</b>	<b>NO = Evaluate Mechanism of Injury</b>
<b>Alert Trauma Team</b>	

**Mechanism of Injury:**

- Auto-pedestrian/auto-bicycle injury with significant (> 5 mph) impact
- Death in same passenger compartment
- Ejection from motor vehicle
- Extrication time > 20 minutes
- A** Fall > 20 feet
- P** Fall greater than 3 times child's height
- High-speed auto crash
  - Speed > 40 mph
  - Intrusion into passenger compartment > 12 inches
  - Major auto deformity > 20 inches
- Open motor vehicle crash > 20 mph or with separation of rider from vehicle
- Pedestrian thrown or run over.
- Unrestrained rollover
- Vehicle telemetry data consistent with high risk of injury

<b>YES = Consider Trauma Center</b>	<b>NO = Check Special Situations</b>
May consult with Medical Control Physician if needed	

**Special Situations:**

- Pre-existing cardiac or respiratory disease
- Insulin dependent diabetes, cirrhosis, morbid obesity, seizure disorder
- Patient with bleeding disorder or on anticoagulants
- Immuno-suppressed patients (renal dialysis, transplant, cancer, HIV)
- P** Congenital disorders

<b>YES = Consider Trauma Center</b>	<b>NO = To Local Hospital</b>
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## TRAUMA TRANSPORT GUIDELINES

### Trauma Center or Facility Capabilities:

- Level I and II Trauma Centers can care for the same trauma patients.
  - Level III Trauma Centers offer services, based on individual hospital resources that provide for initial assessment, resuscitation, stabilization, and treatment of the trauma patient.
  - In some areas of the region a Level III Trauma Center is the only trauma facility within 30 minutes ground transport time. This hospital may act as the primary receiving facility for the critically injured patient.
  - In areas where the trauma patient is closer to a Level III Trauma Center, but a Level I or Level II Trauma Center is still within 30 minutes, the EMS Provider should decide whether the patient would benefit more from an immediate evaluation, stabilization, and treatment at the Level III Trauma Center, or from direct transport to a Level I or Level II Trauma Center.
  - In areas of the region where there are no Trauma Centers within 30 minutes ground transport time, the acute care hospital may act as the primary receiving facility for critically injured trauma patients, or EMS Provider may arrange for air medical transport from the scene.
- P** If a pediatric patient meets the trauma triage guidelines, transport to a Pediatric Trauma Center. Pediatric patients should be transported in an appropriately sized child restraint system. If transportation time is > 30 minutes, transport to the nearest acute care hospital, or EMS providers may arrange for air medical transport from the scene.
- All pregnant trauma patients should be rapidly transported to the nearest Adult Trauma Center with labor and delivery capabilities, unless transport time > 30 minutes.

### Air Medical Transportation:

- Prolonged delays at the scene waiting for air medical transport should be avoided.
- Cardiac arrest is **not** appropriate for air transport.
- In the rural environment, direct transfer of trauma patients by air medical transport may be appropriate and should be encouraged.

### Exceptions to Transportation Guidelines:

- It is medically necessary to transport the victim to another hospital for initial assessment and stabilization before transfer to a Trauma Center.
- It is unsafe to transport the victim directly to a Trauma Center due to adverse weather or ground conditions or excessive transport time.
- Transporting the victim to a Trauma Center would cause a shortage of local EMS resources.
- No appropriate Trauma Center is able to receive and provide trauma care to the victim without undue delay.
- Before transport begins, the patient requests to be taken to a particular hospital even if it is not a Trauma Center. If the patient is a minor or otherwise considered incapable of making medical decisions, an adult relative or other legal representative may make this request.

## MAJOR TRAUMA

Patients meeting criteria for transport to a Trauma Center are considered “Load and Go.”

- Place the patient in a correct position to maintain the airway.
- Open pneumothorax: cover wound with an occlusive dressing, tape down three sides.
- Tension pneumothorax:
  - Lift one side of any occlusive dressing.
  - Use caution not to confuse right mainstem intubation for a pneumothorax.
  - Perform needle decompression.
- If patient in arrest has potential chest trauma, perform bilateral relief of tension pneumothorax.
- Flail chest: stabilize immediately with a gloved hand, then immobilize with a bulky dressing or towels taped to the chest, apply positive pressure ventilation.
- Contact MCP and advise of patient condition with MIVT, ETA, and GCS components.
- For pregnant patient in arrest consider need for manual uterine displacement and perform chest compressions slightly higher on the sternum than normal.

## CRUSH SYNDROME TRAUMA

- **History:** Entrapped or under an extreme load and crushed.
- ♦ Contact MCP immediately and prior to relieving the load.
- **Signs and symptoms:** hypotension, hypothermia, abnormal ECG findings, pain and anxiety  
A 1 liter IV fluid bolus IV. Then 500 ml/hour IV  
P IV fluid, 20 ml/kg IV
- Follow pain management protocol
- **If hypotensive and the pt has been entrapped > 1 hour:**  
A Give additional IV fluid, 1 Liter IV.  
P Give additional IV fluid, 20 ml/kg IV.
- {12-lead} as soon as feasible
- **Normal ECG and hemodynamically stable, immediately prior to extrication:**  
A Sodium Bicarb 100 mEq IV  
P Sodium Bicarb 1mEq/kg IV
- **Abnormal ECG and hemodynamically unstable:**
  - If after release, hyperkalemia causes wide bizarre EKG complexes with:
    - Peaked T waves with a QRS greater than or equal to 0.12 seconds
    - $QT \geq 0.46$  seconds
    - Loss of P wave
    - BBBs
    - PVCs
  - ♦ Consider Calcium Chloride, flush line well before Sodium Bicarb
- Albuterol 10 mg  
A Sodium Bicarb 100 mEq IV.  
P Sodium Bicarb 1mEq/kg IV.
- ♦ Consider sedation:  
A Ketamine 250 mg IM, may repeat after 2 minutes  
P Ketamine 5 mg/kg IM, max dose of 500 mg
- Monitor and reassess
- Monitor for fluid overload
- **Special considerations:**
  - Potential for multiple system trauma
  - Potential for hypo or hyperthermia.

## HEMORRHAGE CONTROL

- Control of life-threatening external hemorrhage takes priority over any other treatment.
- Constant, direct pressure is the primary method of bleeding control.
- If direct pressure fails to control bleeding from extremities, use a tourniquet.
  - {Commercial tourniquets such as the CAT or SOFTT are recommended.}
  - Only use wide, flat materials such as cravats or BP cuffs as improvised tourniquets.
  - Place a tourniquet as proximal as possible to the torso on the femur or humerus.
  - Tighten the tourniquet until the bleeding stops.
  - If bleeding persists, place another tourniquet abutted to the first tourniquet.
  - Document time and location. Be sure that the ER staff is aware of the tourniquet.
- {For life-threatening hemorrhage that can't be controlled by tourniquets, consider hemostatic dressings, e.g., Combat Gauze, or ChitoFlex PRO. These can be used on or in the chest or abdomen. Place in direct contact with the source of bleeding and apply a pressure dressing or use Kerlix}.
- **DO NOT USE GRANULAR AGENTS.**
- Treat for hypovolemic shock as indicated.

## HEAD INJURY

- Evaluate patient condition:
  - Level of consciousness
  - Pupillary size and reaction
  - Glasgow Coma Scale
- Signs of cerebral herniation:
  - Dilated and unresponsive pupils, bradycardia, posturing, and decreased mental status.
  - A** Ventilate at a max of 20 breaths per minute when signs of cerebral herniation are present.
  - {Ventilate to maintain EtCO<sub>2</sub> readings of 30 mmHg (30 torr)}. Never ventilate at less than 8 per minute.
  - P** Ventilate at a rate of ten faster than normal respiratory rate when the signs of cerebral herniation are present.

Maintain good ventilation at rate of about one breath every 5-6 seconds (10-12 per minute), with high flow oxygen. Prophylactic hyperventilation for head injury is not recommended. Cerebral herniation syndrome is the only situation in which hyperventilation (rate of 20 per minute; **pediatric rate of 10 faster than the normal rate**) is indicated.

Hypoventilation increases the level of CO<sub>2</sub> in the brain, causing cerebral vasodilatation and increased swelling. Hyperventilation decreases the level of CO<sub>2</sub> and causes cerebral vasoconstriction, hypoxia and ischemia. Both hyperventilation and hypoventilation could cause cerebral hypoxia and increased mortality.

In cerebral herniation, there is a sudden rise in intracranial pressure. Portions of the brain may be forced downward, applying great pressure on the brainstem. This is a life-threatening situation characterized by a decreased LOC that rapidly progresses to coma, dilation of the pupil, an outward-downward deviation of the eye on the side of the injury, paralysis of the arm and leg on the side opposite the injury, or decerebrate posturing. When this occurs, the vital signs frequently reveal increased blood pressure and bradycardia. The patient may soon cease all movement, stop breathing, and die. If these signs are developing in a head injury patient, cerebral herniation is imminent and aggressive therapy is needed. Hyperventilation will decrease intracranial pressure (ICP). In this situation, the danger of immediate herniation outweighs the risk of ischemia.

## EXTREMITY FRACTURES, DISLOCATIONS, SPRAINS

- For open fractures, control bleeding with direct pressure and cover with dry, sterile dressing.
- Apply appropriate splinting device.
- Apply cold pack to reduce swelling.
- Consider Pain Control Protocol.

## GOOD SPLINTING PRACTICES

- Document distal sensation and circulation pre & post splinting, and pre & post spinal restriction.
- If the extremity is severely angulated and pulses are absent, apply gentle traction in an attempt to bring the limb back into a natural anatomic position. If resistance is encountered, splint the extremity in the angulated position.
- Open wounds should be covered with a sterile dressing before splinting.
- Apply a well-padded splint to immobilize above and below the injury.
- If in doubt, splint any possible injuries.

**NOTE:** The patient who requires a load and go approach can be adequately immobilized by careful packaging on the long spine board. Do additional splinting en route to the hospital as time and the patient's condition permit.



## **DROWNING**

- Consider spinal restriction.
- Consider possibility of hypothermia.
- Establish vascular access.
- Evaluate neurological status.
- Drowning patients should be transported to a Trauma Center.

## **HYPOTHERMIA**

- Move patient to warm environment, remove all wet clothing, dry and cover the patient with blankets.
- Avoid any rough movement as that may cause cardiac dysrhythmias or cardiac arrest. It may be beneficial to immobilize the patient.
- Minimize movement.
- Assess neurological status.
- It may be necessary to assess pulse and respirations for up to 45 seconds to confirm arrest.
- Consider possibility of other medical conditions (e.g., overdose, hypoglycemia).
- Do not initiate CPR if there is any pulse present, no matter how slow.
- Use the least invasive means possible to secure airway. Intubate if necessary, as gently as possible.
- Hypothermic patients should be transported to a Trauma Center.
- Complete the following steps during transport:
  - Establish vascular access and consider {warmed} fluids.
  - Treat bradycardia only if hypotensive.
- If patient arrests:
  - CPR continuously
  - If severe hypothermia ( $< 86^{\circ}\text{ F}$  ( $30^{\circ}\text{ C}$ )) is suspected, limit defibrillation attempts to one and withhold medications except on orders from MCP.
  - If body temperature is  $> 86^{\circ}\text{ F}$  ( $30^{\circ}\text{ C}$ ), follow normal arrest protocols.
  - Intubate and oxygenate the patient with {warmed and humidified} 100%  $\text{O}_2$ .
  - Continue resuscitative efforts while in transit, even if there is no response.

## **FROSTBITE**

- Protect injured area. Remove clothing and jewelry from injured parts.
- Do not attempt to thaw injured part with local heat.
- Maintain core temperature.
- Severe frostbite injuries should be transported to a Burn Center.
- Consider vascular access and consider {warmed} fluids.
- Consider Pain Control Protocol.

## **BURNS and SMOKE INHALATION**

### **General Considerations**

- Stop the burning and minimize contamination.
- Severe burns should be transported to a Burn Center unless transport time  $> 30$  minutes.
- Keep patient warm. Patients with extensive burns must be monitored for hypothermia.
- Superficial and partial thickness burns  $< 10\%$  BSA may have wet dressings applied.
- Burns  $> 10\%$  BSA may be covered with clean, dry sheets or dressings.
- Remove clothing and jewelry from injured parts.
- **Do not remove items which have adhered to the skin.**
- Inhalation injuries with an unsecured airway should be transported to the nearest facility.
- Chemical burns are Haz-Mat situations and must be grossly decontaminated at the scene.
- BP may be taken over damaged tissue if no other site is accessible.

## Specific Care

- Assess for respiratory distress, stridor, hoarseness, sooty sputum, singed eyebrows and nares, or burns of the face or airway.
- Apply cardiac monitor, especially if patient has suffered a lightning strike or electrical burn.
- Determine type of burn and treat as follows:
  - Radiation burns:
    - Treat critical medical conditions first.
    - Treat as thermal burns except when burn is contaminated with radioactive materials, and then treat as a HazMat situation, decontaminate the pt. and contact HazMat for assistance.
  - Inhalation Burns:
    - Provide **O<sub>2</sub>** {humidified with **Saline**}.
    - If no humidifier is available, administer a **Saline Nebulizer, 3 ml**. Repeat as needed.
    - Early intubation as indicated. Do not wait for complete airway obstruction or respiratory arrest!
- {CO oximeter}

**Cyanide antidotes are no longer carried in the GMVEMSC Drug Bags.** They are located in multiple caches in each of the counties throughout the region, and are available by contacting **937-333-USAR (8727)**, who will contact the cache agency closest to your incident, which will respond on a mutual aid basis with both a **Cyanokit** and 5 doses of **Sodium Thiosulfate**, to provide for the potential of multiple patients.

It is strongly recommended that agencies immediately call for the nearest available cyanide antidote cache at the time of dispatch whenever any of the following occur:

- Dispatched on a report of a person trapped with exposure to fire or smoke in an enclosed area.
- Dispatched on a report of an incident involving hydrogen cyanide.
- Report of a Mayday or firefighter down with exposure to fire or smoke in an enclosed area.

Cyanide antidotes are indicated for arrested patients if there is a known or strongly suspected cyanide exposure who present with altered mental status, seizures, shock or difficulty breathing. Cyanide poisoning may result from inhalation, ingestion, or dermal exposure. In addition to **Hydroxocobalamin (Cyanokit)**, treatment of cyanide poisoning must include immediate attention to airway patency, adequacy of oxygenation and hydration, cardiovascular support, and management of any seizure activity.

In any case of known or strongly suspected cyanide intoxication:

- Provide 100% **O<sub>2</sub>** via NRB.
- Consider CPAP {BiPAP} for suspected smoke inhalation.
- If unconscious, provide 100% **O<sub>2</sub>** by BVM, preferably via ETT.
- ♦ **Hydroxocobalamin (Cyanokit): ORDER NOT NEEDED IN CARDIAC ARREST**
  - A ♦ Administer **5 grams via slow IV infusion** over 15 minutes at a rate of 15 ml/min.
  - A ♦ May repeat **5 grams via slow IV infusion** over 15 min to 2 hours, depending on clinical response.
  - P ♦ Administer **70 mg/kg slow IV over 15 minutes; max dose of 5000 mg (5 grams);**
  - P ♦ May repeat **35 mg/kg; max dose 2500 mg (2.5 grams), depending on clinical response.**

**Reconstitute:** Place the vial in an upright position.

Add 200 ml of 0.9% Sodium Chloride to the vial using the transfer spike (fill to the line).

**Mix:** The vial should be repeatedly inverted, not shaken, for at least 60 seconds prior to infusion.

**Infuse Vial:** Use vented IV tubing, hang and infuse over 15 minutes.

See video at: [How to DOSE and ADMINISTER a CYANOKIT.](#)

**NOTE:** **Hydroxocobalamin** is incompatible with numerous drugs carried by EMS, including **Diazepam**. Whenever possible establish two IV lines in a different vein or limb, one for standard protocol drugs and one for cyanide antidotes.

or

♦ **Sodium Thiosulfate: ORDER NOT NEEDED IN CARDIAC ARREST**

**A** ♦ **If > 25 kg:** Administer **12.5 grams (50 ml) 25% solution slow IV.**

**P** ♦ **If < 25 kg:** Administer **412.5 mg/kg (1.65 ml/kg) 25% solution, slow IV** (max dose 12.5 g (50 ml)).

- It is critical to control any seizure activity, using **Midazolam or Diazepam** per protocol.
- In cases of cardiac arrest associated with cyanide poisoning only CAB, defibrillation, intubation, and **Epinephrine** should precede use of the cyanide antidotes.
- **DO NOT ADMINISTER** both Hydroxocobalamin (Cyanokit) and Sodium Thiosulfate to the same patient!

### **CARBON MONOXIDE (CO) POISONING**

- Provide high flow **O<sub>2</sub>** to all suspected CO poisonings.
- Pulse oximeter will give false readings and should not be utilized.
- {CO oximeter}
- Consider Hyperbaric Oxygen treatment for the following patients with suspected CO exposure:
  - Underlying cardiovascular disease or symptoms such as chest pain or shortness of breath
  - > 60 years of age
  - Obvious neurological symptoms (e.g., any interval of unconsciousness, loss of time, inability to perform simple motor tasks, or loss of memory)
  - Smoke inhalation victims.
  - Pregnancy
- Contact MCP to discuss transport considerations.
  - KMC has a 24/7 hyperbaric chamber. You must still remove your patient to an emergency facility and then treatment and destination decisions will be determined.

### **HEAT EXPOSURE**

#### **General Considerations**

- Geriatric patients, pediatric patients and patients with a history of spinal injury or diabetes mellitus are most likely to suffer heat-related illnesses. Other contributory factors may include heart medications, diuretics, cold medications and psychiatric medications.
- Heat exposure can occur from increased environmental temperatures, prolonged exercise, or a combination of both. Environments with temperatures above 90°F and humidity over 60% present the most risk.

#### **Specific Care**

- Move patient to a cool environment.
  - Remove patient's clothing. Apply water to the skin to cool the patient.
  - Apply cold packs to underarms and groin area.
  - Cold water submersion is an acceptable method for cooling heat stroke patients. You may encounter patients in cooling body bags. The goal is to lower temperature to < 102.5°F.
  - If conscious and not vomiting or extremely nauseous, provide oral fluids.
- A** **IV fluid 500 ml IV** if hypotensive or mental status changes. May repeat x 1.
- P** **IV fluid 20 ml/kg IV** (max 500) if hypotensive or mental status changes.
- ♦ **Additional IV fluid**, if indicated.
  - Be prepared for seizures.
  - Consider other medical conditions (e.g., overdose, hypoglycemia, CVA) and treat accordingly.
  - Hyperthermia patients should be transported to a Trauma Center.

## EYE INJURIES

- If possible, contact lenses should be removed. Transport contacts with patient.
- Chemical Burns:
  - Irrigate immediately with **IV fluid** or water for a minimum of 30 minutes or until patient transport is completed
  - Determine chemical involved. Bring MSDS, if available.
- Major Eye Trauma:
  - Do not irrigate or use Tetracaine if penetrating trauma.
  - Cover both eyes to limit movement.
  - Do not use a pressure or absorbent dressing on or near any eye that may have ruptured, or has any penetrating trauma.
  - Transport with head elevated at least 30°.
- Prior to irrigation with **IV fluid** or for significant eye pain, **Tetracaine 2 drops** in affected eye.
- Use {Morgan Lens} or nasal cannula with IV tubing for irrigation.

## RESPIRATORY DISTRESS

- Evaluate breath sounds:
  - Clear: treat cause (e.g. MI, pulmonary embolism, metabolic disturbance, hyperventilation).
  - Wheezes: treat cause (e.g. pulmonary edema, FBAO, asthma, allergic reaction).
  - Rales: treat cause (e.g. pulmonary edema, pneumonia).
  - Diminished or absent:
    - Unilateral: treat cause (e.g., pneumothorax, hemothorax, pneumonia, surgically removed lung).
    - Bilateral: treat cause (e.g., respiratory failure, COPD, asthma).
- Obtain Pulse Oximeter or capnography reading.
- Cardiac monitor and {12-lead EKG}.

## PULMONARY EDEMA

- Consider need for possible early endotracheal intubation.
- Assess for and note cyanosis, clammy skin, absence of fever, coughing, wheezing, labored breathing, diaphoresis, pitting edema, rales in bilateral lower lung fields, tachypnea, apprehension, JVD, and inability to talk.
  - A CPAP or {Bi-PAP} use is encouraged prior to the initiation of drug therapy.
  - A If patient has SBP > 100, **Nitroglycerin 0.4 mg SL** up to 3, 1 every 5 minutes.

**NOTE:** At times, pneumonia may look like CHF with pulmonary edema. However, the pneumonia patient is often dehydrated and has an elevated temperature.

## ASTHMA or EMPHYSEMA or COPD

- Consider **Albuterol 2.5 mg** and **Ipratropium 0.5 mg**, nebulized with **O<sub>2</sub> @ 8-10 LPM**.
- If a conscious patient requires intubation:
  - A** Consider **Lidocaine 100 mg IN** half dose per nostril or added to above nebulizer.
  - P** **Lidocaine 1.5 mg/kg nebulized with 8-10 LPM O<sub>2</sub> or IN. Maximum dose is 100 mg.**
- May repeat **Albuterol 2.5 mg nebulized X 2**.
- If patient is intubated, **Albuterol 2.5 mg** by nebulizer into the ETT. If **Ipratropium** not given before intubation, add to first **Albuterol**.
- A** A patient who has received a breathing treatment should be transported for evaluation.
- A** For any patient who is bronchial constricted: **CPAP or {Bi-PAP}**
- After intubation of an asthma patient, limit rate of ventilation to avoid auto-PEEP and hypotension, provided that you can adequately oxygenate the patient at below rate:
  - A** 8-10 breaths per minute for adults
  - P** **10-15 breaths per minute for pediatric patients.**
- Consider bilateral needle decompression if:
  - Patient arrests.
  - Patient has unilateral or bilateral diminished breath sounds and is hemodynamically unstable.
- For asthmatics in distress:
  - P** If < 15 kg, **EpiPen Jr or Epi (1:1,000) 0.01 mg/kg IM (max 0.15 mg).**
  - P** If ≥ 15 kg and < 30 kg, Adult EpiPen or Epi (1:1,000) 0.01 mg/kg IM (max 0.3 mg)
  - P** ♦ May repeat **Epi (1:1,000) 0.01 mg/kg IM (max 0.5 mg) after 5 minutes.**
    - If ≥ 30 kg, give both **Adult EpiPen and EpiPen Jr or Epi (1:1,000) 0.5 mg IM**
    - ♦ May repeat **Epi (1:1,000) 0.5 mg IM** after 5 minutes.
- Solu-Medrol (METHYLPREDNISOLONE) is intended to augment standard therapy for anaphylaxis, allergic reaction, and to address airway edema and inflammation in asthma. No significant change in patient condition in the field should be expected from the administration of Solu-Medrol. This medication is intended for cases that are of a more urgent nature. A general guideline would be not to initiate an IV only to administer this medication when patient condition otherwise does not warrant an IV start. There is definite, time dependent benefit to Solu-Medrol making field administration of significant value. Solu-Medrol will be given to all patients treated within the allergic reaction or anaphylaxis protocol only after all other applicable first-line medications have been delivered.
  - A** **Solu-Medrol 80 mg IV.**
  - P** **Solu-Medrol 2 mg/kg IV, max dose 80 mg.**

### DO NOT EXPECT FIELD RESULTS FROM SOLU-MEDROL.

**NOTE:** National guidelines now recommend higher Epinephrine dosing for asthma and anaphylaxis in the 0.5 mg range as an initial dose for the average adult. That is the reason for the orders change to use either both of the EpiPens in the drug bag (0.3 mg + 0.15 mg = 0.45 mg) or ~ 0.5 mg IM.

## ALLERGIC REACTION or ANAPHYLAXIS

- Epinephrine is the mainstay of anaphylaxis in allergic reaction treatment. Diphenhydramine alone is not appropriate. Epinephrine is particularly important in cases of any airway edema, hypotension, or when multiple body systems are involved. Advanced age is not a contraindication to epinephrine.
- If allergic reaction:
  - P** If < 15 kg, **EpiPen Jr or Epi (1:1,000) 0.01 mg/kg IM (max 0.15 mg).**
  - P** If ≥ 15 kg and < 30 kg, **Adult EpiPen or Epi (1:1,000) 0.01 mg/kg IM (max 0.3 mg)**
  - P** ♦ **May repeat Epi (1:1,000) 0.01 mg/kg IM (max 0.5 mg) after 5 minutes.**
    - If ≥ 30 kg, give both **Adult EpiPen and EpiPen Jr or Epi (1:1,000) 0.5 mg IM**
    - May repeat **Epi (1:1,000) 0.5 mg IM** after 5 minutes.
- If applicable, apply cold pack.
- If patient deteriorating or unresponsive, consider early intubation, possibly with smaller than normal ETT.
- If patient is wheezing: **Albuterol 2.5 mg and Ipratropium 0.5 mg** in nebulizer with O<sub>2</sub> flowing at 8-10 LPM.
- If a conscious patient requires intubation, consider:
  - Applying **Lidocaine Jelly** to the ET tube.
  - A** **Lidocaine 100 mg IN:** half dose per nostril or nebulized with 8-10 LPM O<sub>2</sub>
  - P** **Lidocaine 1.5 mg/kg nebulized or IN with 8-10 LPM O<sub>2</sub>. Maximum dose is 100 mg.**
- **Albuterol** may be repeated x 2.
- If patient is intubated, **Albuterol 2.5 mg** by nebulizer into the ETT. If **Ipratropium** not given before intubation, add to first **Albuterol**.
- A** If hypotensive, **IV fluid** to maintain SBP >100.
- P** If hypotensive, **IV fluid IV 20 ml/kg to maintain adequate perfusion.**
- A** **Diphenhydramine 50 mg IM or IV**
- P** **Diphenhydramine 1 mg/kg IM or IV (max dose 50 mg)**
- A** If patient remains hypotensive after IV fluid, **Epi (1:10,000) 0.1 mg, slow IV**, every 3 minutes up to 0.5 mg.
- A** For patients unresponsive to **Epi**, administer **Glucagon 1mg IV**. If no IV, **Glucagon 1 mg IM**.
- Solu-Medrol (METHYLPREDNISOLONE) is intended to augment standard therapy for anaphylaxis, allergic reaction, and to address airway edema and inflammation in asthma. No significant change in patient condition in the field should be expected from the administration of Solu-Medrol. This medication is intended for cases that are of a more urgent nature. A general guideline would be not to initiate an IV only to administer this medication when patient condition otherwise does not warrant an IV start. There is definite, time dependent benefit to Solu-Medrol making field administration of significant value. Solu-Medrol will be given to all patients treated within the allergic reaction or anaphylaxis protocol only after all other applicable first-line medications have been delivered.
  - A** **Solu-Medrol 80 mg IV.**
  - P** **Solu-Medrol 2 mg/kg IV, max dose 80 mg.**

## HYPOGLYCEMIA

- If glucose < 60, or there is strong suspicion of hypoglycemia despite glucometer readings:
  - A** Administer **D10, 250 ml** at wide open rate, (250 ml = 25 g of Dextrose)
  - P** **D10 (5 ml/kg), maximum single dose of 250 ml.**
  - P** **For newborn, D10, 2 ml/kg if BS < 40.**
    - Document amount of **D10** administered in mls.
    - If unable to establish vascular access, **Glucagon, 1 mg IM.**
    - **D10** may be repeated in ten minutes if blood sugar remains < 60.
- Maintain normothermia. Unconscious diabetics are often hypothermic.
- In a diabetic patient with an insulin pump and a glucose < 60, treat the hypoglycemia.

**NOTE:** Take extra tubing and medication reservoir or vials to the receiving facility for patients with insulin pumps.

**For a diabetic patient with an insulin pump who is hypoglycemic, treat the hypoglycemia. DO NOT DISCONNECT OR TURN OFF PUMP.**

**NOTE:** Oral glucose is indicated for any conscious but disoriented patient with BS < 60, or a strong suspicion of hypoglycemia despite blood sugar readings. Oral glucose may be administered carefully under the tongue or between the gum and cheek of an unresponsive patient who must be placed in the lateral recumbent position to promote drainage of secretions away from the airway.

## DIABETIC EMERGENCIES: REFUSAL OF TRANSPORT

- A** Patients **18** years of age or older may be permitted to refuse transport after treatment. Follow these guidelines:
  - Repeat physical examination and vital signs. Patient must be alert and oriented (A&O) x3.
  - Warn the patient that there is a significant risk of going back into hypoglycemia, especially if on oral hypoglycemics.
  - Advise the patient to eat something substantial immediately.
  - Advise the patient to contact their family physician as soon as possible to minimize future episodes.
  - Advise the patient to stay with someone.
  - Follow normal patient refusal procedures including documentation of all above points.
  - Continue D10 infusion (minimum of 250 ml) during the refusal process to provide a “buffer” and reduce the risk of refractive hypoglycemia.

**NOTE:** Send a copy of the run sheet to the EMS Coordinator of the hospital that replaces your Drug Bag and supplies.

## MAINTENANCE OF EXISTING MEDICATION PUMPS

**Do not stop the flow of medication except under direct orders from Medical Control. There are some drugs such as Flolan that could kill the patient if stopped. If the patient is experiencing an allergic reaction, call Medical Control.**

## SEIZURES

- BVM and nasopharyngeal airway during seizure as needed.
- A** If seizing, **Midazolam 10 mg, IN** (5 mg in each nostril) **or 2 mg slow IV**, or **4 mg IM**
- A** Persistent seizing, **Midazolam 5 mg IN** (2.5 mg in each nostril) **or 2 mg slow IV** or **4 mg IM**.
- P** If seizing, **Midazolam 0.2 mg/kg IN** (max dose 4 mg) or **Midazolam 0.1 mg/kg slow IV**, (max dose 2 mg) or **Midazolam 0.2 mg/kg IM** (max dose 4 mg).
- P** If still seizing, repeat one-half of all initial Midazolam doses except **NO IM REPEAT.**
- If glucose < 60, or there is strong suspicion of hypoglycemia, treat for hypoglycemia.
- Maintain normothermia.
- When obtaining history be sure to include the following:
  - Description of seizures, areas of body involved, and duration
  - Other known medical history (e.g., head injury, diabetes, drugs, alcohol, stroke, heart disease)

## EXTRAPYRAMIDAL (DYSTONIC) REACTIONS

- A patient who is currently on a phenothiazine (e.g., Phenergan, Thorazine, Compazine) or a butyrophenone (e.g., Haldol, Droperidol) and exhibiting signs of acute muscle spasm or motor restlessness may be suffering from an Extrapyrimal Reaction.
- Physical examination findings may include any of the following:
  - Oculogyric crisis (spasmodic deviation of eyes in all directions generally fixed upward.)
  - Buccolingual crisis (protrusion of tongue with slurred speech)
  - Trismus (closing of the jaw due to spasm of the muscles also called lockjaw.)
  - Difficulty in speaking
  - Facial grimacing
  - Torticollis crisis (stiff neck with deviation of the head with the chin pointing to the other side)
  - Opisthotonus (extreme back arching)
  - Tortipelvic crisis—typically involves hip, pelvis, and abdominal wall muscles, and causes difficulty with walking.
  - Mental status is unaffected.
  - Vital signs are usually normal.
  - Remaining physical examination findings are normal.
- Initiate IV of IV fluid to maintain adequate BP.
- If glucose < 60, or there is strong suspicion of hypoglycemia, treat for hypoglycemia.
- A** Consider **Diphenhydramine 50 mg IV or IM**.
- P** **Diphenhydramine 1 mg/kg IV or IM** (max dose 50 mg)



## OVERDOSE or POISONING

- ♦ EMS personnel should contact MCP for suspected poisonings. Poison Control is intended for use by the general public.

### Narcotic Overdose

- If patient has a pulse, **Naloxone** should be administered *before* inserting an ETT.
- Consider patient restraint before administration of **Naloxone**:
  - A If respirations are impaired or there is suspicion of narcotic overdose, administer **Naloxone**, up to **4 mg IN, 2 mg IV or 4 mg IM**.
  - A When given IV or IN, the onset of action is approximately 2 minutes.
  - A Consider repeat IV dosing after 2 minutes if no or inadequate (poor respiratory effort, hypoxemia, hypotension) response is noted.
  - A May repeat Naloxone doses in 2 minutes.
- P Naloxone:**
  - ≤ 20 kg **0.1 mg/kg IN, IV, IM** (max dose 2 mg), may repeat x one
  - > 20 kg **2 mg, IN, IV, IM**, may repeat as needed
  - **Naloxone slow IV** is preferred, but it may be given **IN** or **IM** before **IV** is established.
  - Titrate to adequate respirations.
  - If using **IN** route and respirations don't improve after 2 minutes, establish **IV** and administer **IV** dose.
- Consider other causes of altered mental status such as hypoglycemia, head trauma, sepsis, and stroke.
- After administration of **Naloxone**, patient transport by EMS is encouraged.
- Naloxone is not felt to be effective in the reversal of cardiac arrest from opioid overdose. Airway control, ventilation, and quality CPR are still the mainstay of treatment. Administration during cardiac arrest should be IV or humeral IO.
- Ondansetron (Zofran) is NOT to be given prophylactically with Naloxone.**

### Stimulant Overdose (cocaine, methamphetamines, amphetamines, crack cocaine):

- A If chest pain:
  - **Nitroglycerine 0.4 mg SL**, if SBP > 100, **every 5 minutes to a total of three pills** with vital signs between doses
  - **Midazolam 10 mg, IN** (5 mg in each nostril) or **2 mg slow IV**, or **4 mg IM**
  - Repeat **Midazolam 5 mg IN** (2.5 mg in each nostril) or **2 mg slow IV or 4 mg IM**.

### Tricyclic Overdose:

- A ♦ **Sodium Bicarbonate 100 mEq, slow IV**
- P ♦ Sodium Bicarbonate 1 mEq/kg IV**
- A ♦ Repeat **Sodium Bicarbonate 50 mEq, slow IV** for persistent QRS prolongation.
- P ♦ Sodium Bicarbonate 0.5 mEq/kg IV**
- Tricyclic Antidepressant Examples:
  - Amitriptyline (Elavil, Endep, Etrafon, Limbitrol)
  - Nortriptyline (Pamelor, Aventyl)
  - Amoxapine (Asendin)
  - Clomipramine (Anafranil)
  - Desipramine (Norpramine)
  - Doxepin (Sinequan)
  - Imipramine (Tofranil)
  - Protriptyline (Vivactil)
  - Trimipramine (Surmontil)

**NOTE:** Overdose with tricyclic antidepressant medications may be evidenced by bradycardia, tachycardia, hypotension or prolongation of the QRS complex. Risk of rapid deterioration or sudden onset VFib is high.

### Calcium Channel Blocker Overdose:

**A ♦ Calcium Chloride, 1 gm slow IV**

**P ♦ Calcium Chloride 10% 0.2 ml/kg (20 mg/kg) slow IV (max dose 500 mg)**

• ♦ **Glucagon 1 mg IM or IV**

• Calcium Channel Blocker examples:

- |                                 |                                       |
|---------------------------------|---------------------------------------|
| ○ Amlodipine (Norvasc)          | ○ Isradipine (Dynacirc)               |
| ○ Diltiazem (Cardizem, Dilacos) | ○ Nifedipine (Procardia, Adalat)      |
| ○ Felodipine (Plendil)          | ○ Verapamil (Calan, Isoptin, Verelan) |

### Beta Blocker Overdose:

• ♦ **Glucagon 1 mg IM or IV**

• Beta Blocker examples

- |   |                                  |
|---|----------------------------------|
| ○ Acebutolol (Sectral)  | ○ Metoprolol (Topral, Lopressor) |
| ○ Atenolol (Tenormin)   | ○ Nadolol (Corgard)              |
| ○ Carvedilol (Coreg)  | ○ Pindolol (Viskin)              |
| ○ Corzide, Inderide, Lopressor, HCT,<br>Tenoretic, Timolide, Ziac | ○ Propranolol (Inderal)          |
| ○ Labetalol (Normodyne, Trandate)                                 | ○ Sotalol (Betapace)             |
|   | ○ Timolol (Blocadren)            |

## ABDOMINAL PAIN

- Ensure an abdominal exam which includes inspection, auscultation and palpation is performed and documented on every patient with abdominal pain.
- Assess and document pain using the OPQRST acronym:
  - O = Onset
    - Was the onset sudden or gradual?
  - P = Provocation and Palliation
    - What causes it?
    - What makes it better or worse?
  - Q = Quality
    - What kind of pain is it?
  - R = Region and Radiation
    - Where is the pain located?
    - Does it radiate?
  - S = Severity and Scale
    - Does it interfere with activities?
    - How does it rate on a severity scale of 1 to 10?
  - T = Timing
    - When did it begin?
    - How often does it occur?
- A** Consider **Ondansetron 4 mg slow IV**, preferred route for nausea or active vomiting. If no IV, may use 4 mg dissolving tablet or administer the IV form PO.
- P** **Ondansetron 0.1 mg/kg IV (max 4 mg).**
- A** For pain relief, including unilateral flank pain, consider Pain Control Protocol.
- P** ♦ **For abdominal pain**

## **OBSTETRICAL EMERGENCIES**

- **ABSOLUTELY NO PREGNANT PATIENTS TO DAYTON CHILDREN'S HOSPITAL**
- Consider the possibility of Ectopic Pregnancy in females of child-bearing age.
- Aggressively treat for hypovolemic shock (do not rely on standard vital sign parameters).
- Give psychological support to patient and family.
- Ask for first day of last menstrual period.
- Be sure to take all expelled tissue with you to the hospital.
- Pregnant patients  $\geq 20$  weeks gestation should be taken to maternity department;  $< 20$  weeks gestation should go to the emergency department.
- Pregnant trauma patients should be rapidly transported to an Adult Trauma Center with labor and delivery capabilities.

## **CARDIAC ARREST IN PREGNANCY**

- Causes of cardiac arrest include: pulmonary embolism, trauma, hemorrhage, congenital or acquired cardiac disease.
- Load and go to closest hospital and follow all cardiac arrest protocols en route.
- To minimize effects of the fetus pressure on venous return, apply continuous manual displacement of the uterus to the left, or place a pillow under the right abdominal flank and hip.
- Administer chest compressions slightly higher on the sternum than normal.

## **THIRD TRIMESTER BLEEDING**

- Aspirin is contraindicated in third trimester.
- Place patient in left lateral recumbent position.
- Apply continuous manual displacement of the uterus to the left, or place a pillow under the right abdominal flank and hip.

## **CHILDBIRTH**

### **General Considerations**

- Transport to a hospital with obstetrical capabilities unless delivery is imminent (the baby is crowning during a contraction).
- Visualize the perineal area only when contractions are less than five minutes apart.
- Establish an IV for patients in active labor.
- Place a gloved hand inside the vagina only in the case of breech delivery with entrapped head, or a prolapsed umbilical cord.
- Apply gentle pressure on the baby's head with a flat hand to prevent an explosive delivery.
- Run reports must be completed for each patient. The newborn is a separate patient from the mother.

### **Specific Care**

- Obtain history of patient condition and pregnancy, including contraction duration and interval, due date, first day of last menstrual period, number of pregnancies, number of live births, prenatal care, multiple births, possible complications, and drug use.
- Keep newborn warm.
- Cut the umbilical cord, and then place the baby to begin breast feeding and help stimulate the body's release of oxytocin to reduce vaginal bleeding.
- Obtain one, five and ten minute APGAR scores if time and patient condition permit.

**NOTE:** Fundal Height refers to the level of the upper part of the uterus.

### **Changes in fundal height during pregnancy:**

Above the symphysis pubis:	>12-16 weeks gestation
At the level of the umbilicus	20 weeks
Near the xiphoid process	within a few weeks of term

### **DELIVERY COMPLICATIONS**

- Place mother on O<sub>2</sub> by NRB.

#### **Cord around Baby's Neck:**

- As baby's head passes out of the vaginal opening, feel for the cord.
- Initially try to slip cord over baby's head.
- If too tight, clamp cord in two places and cut between clamps.

#### **Breech Delivery:**

- When an appendage or buttocks first becomes visible, transport patient immediately to the nearest facility.
- If the head is caught, support the body and insert two fingers forming a "V" around the mouth and nose.

#### **Excessive Bleeding:**

- Treat for shock.
- Post-delivery, massage uterus firmly and put baby to mother's breast.

#### **Prolapsed Cord:**

- When the umbilical cord is exposed prior to delivery, check cord for pulse.
- Transport immediately with hips elevated and a moist dressing around cord.
- Insert two fingers to elevate presenting part away from cord, distribute pressure evenly if occiput presents.
- Do not attempt to reinsert cord.

## NEWBORN CARE & RESUSCITATION

### General Considerations

- P** As soon as the baby is born:
  - Dry and warm.
  - Maintain airway. Place in the sniffing position (1" towel under shoulders).
  - Suction only infants in distress, until airway is clear of all secretions.
- P** If the newborn delivers with meconium-stained amniotic fluid but is vigorous, with strong respirations, good muscle tone, and heart rate > 100 BPM; follow the same suctioning procedures as for infants with clear fluid.
- P** If the newborn delivers with meconium-stained amniotic fluid and is depressed, has poor respiratory effort, decreased muscle tone, or heart rate < 100 BPM, suction the trachea before taking other resuscitative steps. Lower airway suction is achieved by intubating the infant and suctioning directly through the ET Tube, re-intubate with a new tube each time.
- P** Bulb suctioning is preferred. Mechanical suction may be used on infants only if the suction pressure does not exceed 100mmHg or 136 cmH<sub>2</sub>O.
- P** If drying and suctioning has not provided enough tactile stimulation, try flicking the infant's feet or rubbing the infant's back. If this stimulation does not improve the infant's breathing, then BVM assist may be necessary.
- P** Avoid direct application of cool oxygen to infant's facial area as this may cause respiratory depression due to a strong mammalian dive reflex present immediately after birth.
- P** Use length-based resuscitation tape (e.g., Broselow Tape).

### Specific Care

- P** After delivery of the infant;
  - Assess the airway and breathing.
  - Dry.
  - Position head lower than body.
- P** Ventilate with BVM at 40-60/min:
  - To increase HR if < 100
  - For apnea or persistent central cyanosis.
- P** HR < 60 begin CPR.
  - Compress at 120/min.
  - Compression to Ventilation ratio of 3:1
  - **Epinephrine 1:10,000, 0.01 mg/kg IV**
  - If no response, repeat **Epinephrine 1:10,000 IV**, every 3-5 minutes.
- P** If hypovolemic, **IV fluid 10 ml/kg** over 5-10 minutes
- P** Consider **Naloxone 0.1 mg/kg**; slow IV, every 3 minutes until respirations improve.
- P** **NEWBORN: D10 (2 ml/kg)** if blood glucose < 40

Obtain **APGAR** scores at 1, 5, and 10 minutes post-delivery

SCORE	0	1	2
Appearance	Blue or pale	Body pink; extremities blue	Completely pink
Pulse	Absent	Slow (< 100)	> 100
Grimace	No response	Grimace	Cough or sneeze
Activity	Limp	Some flexion of extremities	Active motion
Resp. effort	Absent	Slow or Irregular	Good crying

## **VIABLE FETUS**

**A** fetus is viable if:

> 23 weeks gestation. Follow normal resuscitative procedures.

Eyelids not fused

If available, must be > 500 grams

If en-caul, open the sac and check for viability.

Contact MCP

## **SAFE HARBOR**

**P** Voluntary Separation of Newborn Infant

**P** Safe Harbor (Ohio House Bill 660) is designed to allow desperate parents to separate from their babies to hospitals, EMS, or law enforcement agencies, confidentially.

**P** Stipulations of separation:

- Infant can be no older than be 30 days old.
- Infant can have no signs of abuse or neglect

**P** History which should be obtained:

- Date and time of birth
- Any pertinent family medical history
- Information regarding prenatal care
- Information concerning the birth.
- Information should be obtained in a manner, which will not lead to the revealing of the identity of the parents. Information collected should be based on patient (infant) care needs and assure confidentiality.

**P** Transport the infant to the hospital.

## **FEVER**

**P** Transport all infants < 2 months of age with a history or reported temperature of > 38.0<sup>0</sup> C (100.4<sup>0</sup> F) or < 35.6<sup>0</sup> C (96.0<sup>0</sup> F).

## **APPARENT LIFE THREATENING EVENT (ALTE)**

An Apparent Life Threatening Event involves any infant < 1 year of age that is witnessed with a frightening event by an observer and involves some combination of the following:

- Apnea
- Choking or gagging
- Color change (cyanosis, pallor)
- Change in muscle tone (limpness, sometimes rigidity)

**\*Children who experience an ALTE event often times have a normal exam on assessment. However, they should be transported to the hospital for further assessment. It is possible they have a serious underlying condition and the observed symptoms may reoccur. Assume the history given by the caregiver is accurate. Be persistent about the seriousness of the event and the need to transport.**

- Also referred to as a BRUE (Brief Resolved Unexplained Event)
- Support ABCs
- Obtain a medical history- most common causes of ALTE include: gastroesophageal reflux disease (GERD), nervous system disorders (such as seizures or brain tumors), and infections (such as meningitis). Less common causes include heart disorders, metabolic disorders, child abuse, and narrowing or blockage of the airways. A cause cannot be determined in 50% of ALTE cases.
- Perform a complete a Head-to-Toe physical exam.
- Keep warm, transport to the hospital

### **THE FOLLOWING SHOULD BE NOTED, BUT NOT LIMITED TO:**

#### **Document symptoms of the event given by the observer:**

- Was the child apneic, cyanotic or limp during event?
- Infant's color, respirations and muscle tone
- Was seizure-like activity noted?
- Was any resuscitation attempted or did event resolve spontaneously?
- How long did the event last?

#### **Past Medical History:**

- Recent trauma, infection (e.g., fever, cough)
- History of gastroesophageal reflux (GERD)
- History of congenital heart disease
- History of seizures
- Medication history
- Birth defects

#### **Examination/Assessment:**

- Head-to-Toe exam for trauma, bruising, or skin lesions
- Check anterior fontanel: is it bulging, flat or sunken?
- Pupillary exam
- Respiratory exam for rate, pattern, work of breathing and lung sounds
- Cardiovascular exam symmetry of brachial and femoral pulses
- Neuro exam for level of consciousness

Observe for repeat of reported occurrences

## PEDIATRIC ABUSE or NEGLECT

- P** Report all alleged or suspected child abuse or neglect to the appropriate agency. Ohio Revised Code requires providers to report incidents of abuse to their county's public children services agency or a municipal or county peace officer. Hospitals have copies of the EMS Social Services Referral Form, supplied by GDAHA, for documenting cases of abuse. Use of this form can help providers in providing information needed to their reporting agency, as well as provide for a continuum of care with hospital social services departments.

**Simply notifying hospital personnel about concerns of maltreatment does not meet mandated EMS reporting responsibilities.**

Pediatric Public Social Services Agencies			
County	Phone	After Hours Phone	Fax
Butler	(513) 887-4055	(513) 868-0888	(513) 887-4260
Champaign	(937) 484-1500	Contact County SO (937) 484-6092	(937) 484-1506
Clark	(937) 327-1700	(937) 324-8687	(937) 327-1910
Darke	(937) 548-7129	(937)-548-2020	(937) 548-8723
Greene	(937) 562-6600	(937) 372-4357	(937) 562-6650
Miami	(937) 335-4103	Contact County SO (937) 440-3965	(937) 339-7533
Montgomery	(937) 224-5437	(937) 224-5437 (same as daytime)	(937) 276-6597
Preble	(937) 456-1135	(937) 456-1135 (same as daytime)	(937) 456-6086
Shelby	(937) 498-4981	Contact County SO (937) 498-1111	(937) 498-1492
Warren	(513) 695-1558	(513)695-1600	(513) 695-1800

## ADULT ABUSE or NEGLECT

- A** EMS MUST, by law, report all alleged or suspected adult abuse or neglect to the appropriate agency. Ohio Revised Code requires providers to report incidents of abuse to their county's adult protective services agency or local law enforcement as soon as possible. **Notifying hospital personnel about concerns of maltreatment does NOT meet the mandated EMS reporting responsibilities.**
- A** Hospitals have copies of the EMS Social Services Referral Form, supplied by GDAHA, for documenting cases of abuse. GDAHA (228-1000 or [www.gdaha.org](http://www.gdaha.org)). Use of this form can help providers in providing information needed to their reporting agency, as well as provide for a continuum of care with hospital social services departments. Document on the run sheet, all efforts that EMS made to report the suspected abuse; include name of agency notified, method used, and name of person contacted.

Adult Public Social Services Agencies			
County	Phone	After Hours Phone	Fax
Butler	(513) 887-4081	Not Listed (County SO: 513-785-1000)	(513) 785-5969
Champaign	(937) 484-1500	Contact County SO (937) 484-6092	(937) 484-1506
Clark	(937) 327-1700	(937) 324-8687	(937) 327-1910
Darke	(937) 548-7129	(937)-548-2020	(937) 548-4928
Greene	(937) 562-6315	Not Listed (County SO: 937-562-4800)	(937) 562-6177
Miami	(937) 440-3471	Contact County SO (937) 440-3965	(937) 335-2225
Montgomery	(937) 225-4906	Not Listed (County SO: 937-225-4357)	(937) 496-7464
Preble	(937) 456-1135	(937) 456-1135 (same as daytime)	(937) 456-6086
Shelby	(937) 498-4981	Contact County SO (937) 498-1111	(937) 498-1492
Warren	(513) 695-1420	(513) 425-1423	(513) 695-2940



## PATIENT CAPACITY, CONSENT, PSYCHIATRIC and COMBATIVE PATIENTS

Per Ohio Revised Code, an EMT, AEMT or a Paramedic may not “pink slip” an individual (transport a person to the hospital against their will for mental health evaluation) who is alert and oriented even if they are threatening harm to themselves or others. Only a health officer such as a police officer, crisis worker, psychiatrist or licensed physician can “pink slip” a person. The GMVEMSC strongly recommends that each EMS department, in consultation with its medical director and local law enforcement, have a procedure to deal with these types of situations.

This does not preclude EMS from taking action to prevent imminent harm to the patient or others, if it is safe to do so.

- Determine patient capacity and consent.
  - Obtain medical history:
    - Suicidal or violent history
    - Previous psychiatric hospitalization, when and where
    - Location where patient receives mental health care
    - Medications
    - Recreational drugs/alcohol: amount, names
  - Do not judge, just treat.
  - Transport all patients who are not making rational decisions and who are a threat to themselves or others for medical evaluation. Threat of suicide, overdose of medication, drugs or alcohol or threats to the health and well-being of others are considered not rational.
  - Consider a patient to be incapable to make medical decisions if they are:
    - Suicidal
    - Confused
    - Severely developmentally or mentally disabled
    - Intoxicated
    - Injured/ill with an altered mental status
    - Physically/verbally hostile
    - Unconscious
  - Consider and treat possible medical causes for patient’s condition:
    - Hypoxia
    - Hypoglycemia
    - Drug intoxication, side effects, drug withdrawal
    - Seizures and postictal states
    - Intracranial hemorrhage
  - Consider staging until police have made the scene safe.
  - Search patient for weapons.
  - Do not transport a restrained patient in the prone position with hands and feet behind their back or sandwiched between backboards or other items.
  - Recheck often a restrained patient’s ability to breathe and distal circulation.
  - Have the ability at hand to remove restraints if the patient vomits or develops respiratory distress.
  - Explain the need for restraint to the patient. Severe agitation is a medical emergency, and should be treated aggressively with medication.
  - Document thoroughly the restraints used, on which limbs, and the justification for restraints.
  - Combative patients, including those with excited delirium:
    - A **Ketamine 250 mg IM** (anterolateral thigh, wait 2 minutes, if desired effect is not achieved, repeat **250 mg** in opposite thigh).
    - A Or **Ketamine 100 mg slow IV**.
    - A After 10 minutes and an additional drug bag is available, may repeat **Ketamine 250 mg IM** (anterolateral thigh, wait two minutes, if desired effect is not achieved, repeat **250 mg** in opposite thigh).
    - A Or repeat **Ketamine 100 mg IV** after 5 minutes.
- And OR:**
- A **Midazolam 10 mg IN** (5 mg each nostril), or **Midazolam 2 mg slow IV** or **Midazolam 4 mg IM**.

A Or repeat **Midazolam 10 mg IN** (5 mg in each nostril) after 5 minutes.

A Or repeat **Midazolam 2 mg IV** after 5 minutes.

A Or repeat **Midazolam 4 mg IM** after 10 minutes.

P Consider **Ketamine**, if patient is age 8 or greater, **1 mg/kg slow IV** (max dose 100 mg) or **Ketamine 5 mg/kg IM** (max dose 250 mg per site with max total of 500 mg).

P Or **Midazolam 0.2 mg/kg IN** (max dose 4 mg) or **Midazolam 0.1 mg/kg slow IV** (max dose 2 mg), or **0.2 mg/kg IM** (max dose 4 mg) as a chemical restraint.

P ♦ Call MCP for repeat **Ketamine, Midazolam**.

A If an excited delirium patient goes into arrest:

- ♦ Consider **Sodium Bicarbonate 100 mEq IV**

A In most cases transport a mental health patient to the facility where the individual has been previously treated since they will have the patient's records.

In all other cases, patients should be transported to the closest ED.

P Pediatric patients with mental health issues can be transported to Dayton Children's Hospital.

- Our region has limited inpatient hospital beds for mental/behavioral health (MH/BH) patients. Most hospitals in our region do not have an inpatient MH/BH unit.
- In many cases resulting from a general 9-1-1 call for MH/BH issues, the patient will be treated and released, and can adequately be cared for in **any** ED. Further, all of these patients require medical screening.
- It is difficult for law enforcement or EMS to triage MH/BH patients who require inpatient treatment from those who don't.
- When patients have been seen on the same day by a MH/BH professional (e.g., Crisis Care, Eastway, etc.) who indicates to EMS that the patient will need inpatient hospitalization, the MH/BH professional should provide appropriate paperwork at the time of transport, and may indicate where the patient should be transported, with one option being the closest hospital.
- When calls are received directly from adult patients, take the patient preferentially to a facility where the individual has previously been treated and where the patient's medical records and providers are available.
- In all other cases, adult patients should be transported to the closest ED.
- Pediatric patients (< age 16) with MH/BH issues, including those with underlying medical issues, should be transported to Dayton Children's Hospital Emergency Department.
- Exceptions to the above:
  - It is medically necessary to transport the patient to the closest hospital for stabilization.
  - It is unsafe to transport the patient to the preferred/recommended facility due to adverse weather or ground conditions or excessive transport time.
  - Transporting the patient to the preferred/recommended facility would cause a critical shortage of local EMS resources.
  - Patient requests transport to a different facility.

## SALT TRIAGE SYSTEM (MCI)

The **SALT** (Sort, Assess, Life-Saving Intervention, Treatment/Transport) triage system was developed by the Centers for Disease Control and Prevention (CDC) to address limitations in START and other triage systems. It has been endorsed by numerous national EMS groups. It is designed to reduce triage time and has an additional triage category to better utilize resources, and CDC has proposed SALT as the national standard for MCI triage.

Use **SALT** triage to assess any significant number of victims rapidly. It can be used easily and effectively by all EMS personnel. Triage materials, such as new tags, were provided to EMS agencies throughout our region by a federal grant through Dayton MMRS.

### Primary and Secondary Triage Prior to Transport

- **Initial Triage:**

- Use triage ribbons (color-coded strips), not triage tags, during initial triage. One should be tied to an upper extremity in a **VISIBLE** location (on the right wrist, if possible).
  - **RED** – Immediate
  - **YELLOW** – Delayed
  - **GREEN** – Minimal
  - **GRAY** – Expectant\*
  - **BLACK** – Dead (both ribbons and triage tags use a black & white Zebra stripe rather than black for easier visibility in low light).
  - **ORANGE** and Polka Dot Ribbon - used in addition to one of the above ribbons to indicate victim has been contaminated with a hazardous material. The dots are to make the Orange easier to distinguish from Red.
- Move as quickly and safely as possible, making quick decisions. Remember that the victim will be re-triaged, probably multiple times, and the category may be revised, up or down, whenever needed.
- Over-triage can be as harmful as under-triage. If everyone is tagged red, those who are truly red will receive delayed treatment, delayed transport, and delayed definitive care.

**NOTE:** Expectant does NOT mean dead.

- It means the patient is unlikely to survive given the current resources.
- Treatment and transport should be delayed until more resources, field or hospital, are available. If there are delays in the field, consider requesting orders for palliative care, e.g., pain medications if time and resources allow.

- **Secondary Triage:**

- Secondary Triage **must** be performed on all victims prior to transport.
- Treatment Area may also be the Casualty Collection Point (CCP), or the CCP may be separate.
  - Patients should be reassessed periodically, including when moved to a CCP, or when their condition or resources change.
- Utilize Triage Tags and complete pertinent and available information on the tag.
  - Affix the tag to the victim **using the triage ribbon**.
  - Tags are applied after patients enter the Treatment Area or CCP, or by Transport Group if the patient is being directly removed without going to the Treatment Area.
- Orange Ribbons (indicating contaminated patients) are removed during decon.
  - EMS always has responsibility for performing primary decontamination prior to transport, however, the hospital must be aware of both contamination and decontamination.
  - When contaminated patients are discovered, each of those patients initially receives two ribbons: one with a triage category (Red, Yellow, Green, Gray, or Black Zebra, and the other the Orange polka-dot ribbon.
  - Make sure to decon under the ribbons.
  - After patients are deconned, the orange ribbon is removed

- Triage Tags for such patients get two check marks on the Orange strip: both Dirty and Decontaminated. That way the hospitals know the patient has had field decon, but may still be somewhat “dirty”.
- **Notify hospitals of an MCI involving victim contamination.** Consider use of the Regional Hospital Notification System.
- Use Triage Tags with individual barcodes consistent with this Standing Order and the Ohio patient tracking system (OHTrac).
- Priority for transport is determined in the Treatment Area or by the Transport Group.
- Patient allocation, that is, distribution of patients among various hospitals, is one of EMS’ most crucial tasks.
  - **Do not overload any hospital**, regardless of transport distance to other hospitals.
  - In an MCI, many trauma patients will need to be transported to non-Trauma Centers. **All hospitals** will accept and stabilize trauma patients during MCIs.
  - As Transport assigns patient allocation, consider the likelihood that the closest hospitals may be overwhelmed by patients who were not transported by EMS.
  - In large scenarios, consider activation of the Forward Movement of Patients Plan.
    - An introduction to Forward Movement of Patients is included in these Standing Orders under the heading Crisis Standards of Care in Massive Events. Full information on the process can be found in the Dayton MMRS Regional MCI Plan Template.

## **SORT, ASSESS, LIFE-SAVING INTERVENTION, TREATMENT/TRANSPORT PROCESS**

### **S – Sort**

- Global Sorting: Action 1
  - Action: “Everyone who can hear me please move to [designated area] and we will help you” (use loudspeaker if available)
  - Goal: Group ambulatory patients using voice commands
  - Result: Those who follow this command – last priority for individual assessment (Green)
  - Assign someone to keep them together (e.g., PD, FD, a bystander) and notify Incident Command or EMS Group/Branch of number of patients and their location. ***Do not forget these victims.*** Someone must re-triage them as soon as possible.
  - In smaller incidents, such as a motor vehicle crash with a few victims where you do not want any of them to move on their own, skip Action 1, and go to Global Sorting Action 2
- Global Sorting: Action 2
  - Action: “If you need help, wave your arm or move your leg and we will be there to help you as soon as possible”
  - Goal: Identify non-ambulatory patients who can follow commands or make purposeful movements
  - Result: Those who follow this command – second priority for individual assessment
- Global Sorting: Result
  - Casualties are now prioritized for individual assessment
    - Priority 1: Still, and those with obvious life threat
    - Priority 2: Waving or purposeful movements
    - Priority 3: Walking
- Begin assessing all non-ambulatory victims where they lie, performing the four Life Saving Interventions (LSIs) as needed, but only within your scope of practice, and only if the equipment is readily available.
- Each victim must be triaged as quickly as possible.

### **Assess:**

- **Is the patient breathing?**
  - If not, open the airway. In children, consider giving two rescue breaths.
  - If the patient is still not breathing, triage them to **BLACK**, using a zebra-striped ribbon. Do not move the patient except to gain access to a living patient.
  - If patient is breathing, conduct next assessment.

- **Assess for the following:**
  - Can the patient follow commands or make purposeful movements?
  - Does the patient have a peripheral pulse?
  - Is the patient not in respiratory distress?
  - Is hemorrhaging under control?
    - If the answer to **any** of those questions is **no** and the patient **IS likely to survive** given current resources, tag them as **RED (Immediate)**.
    - If the answer to **any** of those questions is **no** and the patient is **NOT likely to survive** given current resources, tag them as **GRAY (Expectant)**.
    - If the answer to **all** of those questions is **yes** but injuries are not minor and require care, tag patient as **YELLOW (Delayed)**.
      - **YELLOWs** have serious injuries and need care, though not as urgently as REDs. On secondary triage, some Yellows will need higher priority transport than others.
    - If the answers to **all** of those questions is **yes** and the injuries are minor, tag patient as **GREEN (Minimal)**.
- **Two mnemonics for the four Assess Questions:**
  - CRAP:
    - C – Follows Commands
    - R – No Respiratory Distress
    - A – No (uncontrolled) Arterial bleeding
    - P – Peripheral Pulse Present
  - A second mnemonic is the use of good or bad. Don't be confused by the double negatives in two of the questions. Instead, think of the questions in terms of "bad" or "good". If the answer to the questions is "bad" (i.e., can't follow commands, absent peripheral pulse, respiratory distress, or uncontrolled hemorrhage are all "bad"), then the patient is tagged either RED or GRAY.

### **Life Saving Interventions:**

- **Only** correct life-threatening problems during triage.
  - Control major hemorrhage
  - Open airway (if child, consider giving two rescue breaths)
  - Needle chest decompression
  - Auto injector antidotes

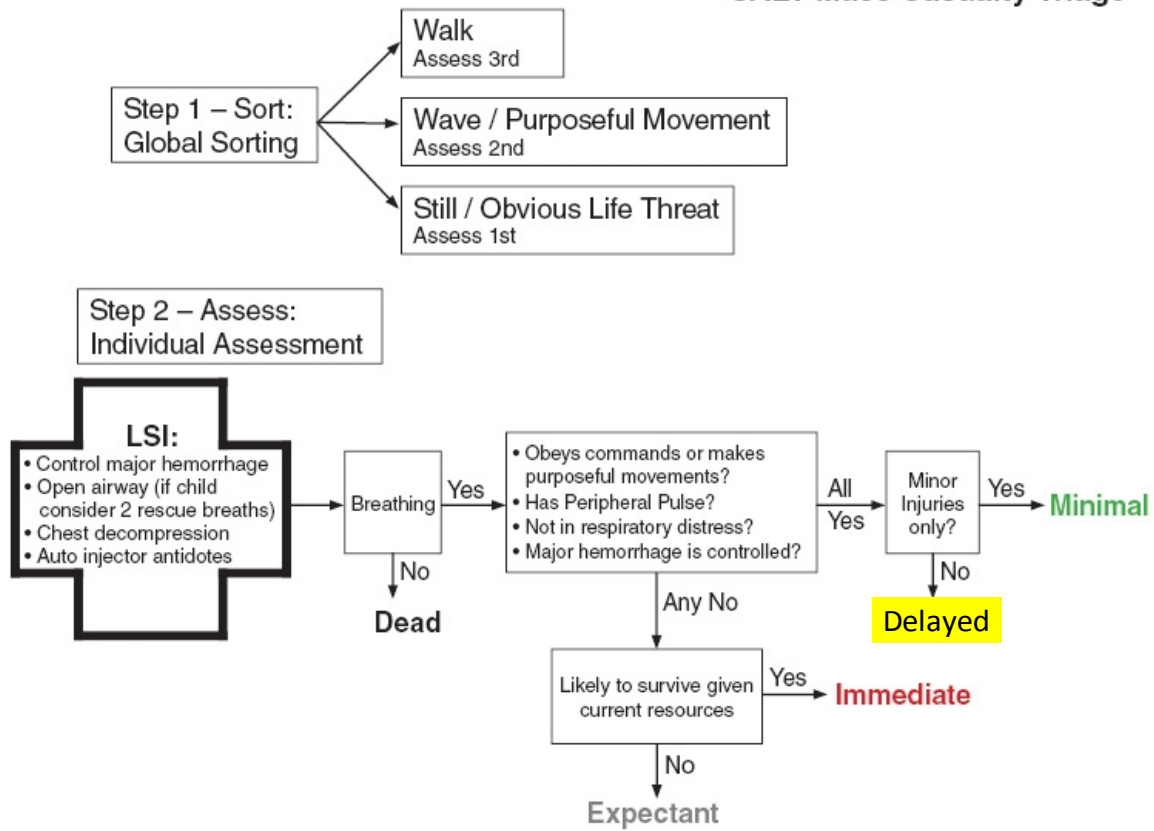
### **Treatment/Transport:**

- Transport/treatment priority is typically given to **RED (Immediate)**, **YELLOW (Delayed)**, then **GREEN (Minimal)**.
  - **GRAY (Expectant)** patients should be treated/transported as resources allow.
- Patients should be reassessed periodically, including when moved to the CCP, or when their condition or resources change.

### **Special Considerations:**

- Even after applying Triage Tags, the main indicator of patient condition is the Triage Ribbon. If the patient's condition or the triage priority changes, indicate that on the tag. **Continue to use the same tag, even if the condition changes repeatedly, changing the ribbon to indicate the patient's current condition.**

## SALT Mass Casualty Triage



## CRISIS STANDARDS OF CARE IN MASSIVE EVENTS

Some incidents are so large as to require extraordinary EMS procedures. Those scenarios are sometimes referred to as Mass Casualty Events (MCEs), instead of Mass Casualty Incidents (MCIs). This Standing Order introduces EMS procedures which could be utilized in very large emergency scenarios, or when the duration is extended.

“Crisis Standards of Care” is a new term, but not a new concept. EMS uses altered standards during triage. With concerns about pandemics, there is more planning for possible crises. Crisis Standards of Care during an MCE may be partially issued by the State, and could result in a temporary expansion of the EMS scope of practice.

In some circumstances, EMS may be authorized to triage selected patients for transport to other healthcare facilities. These could include Urgent Care Centers, an “Acute Care Center” (ACC) or a “Neighborhood Emergency Help Center” (NEHC), or a Disaster Medical Assistance Team (DMAT).

Dayton MMRS is required to have a plan called, “Forward Movement of Patients.” The intent of this plan is to relieve the burden on local hospitals by transporting patients, possibly directly from the scene, to more distant hospitals.

In the event of an MCE, especially one lasting days or longer, Greater Miami Valley EMS Council, with the approval of the Regional Physicians Advisory Board (RPAB), may promulgate “Just in Time Standing Orders” (JITSO). With approval from Ohio Department of Public Safety, these orders might include triage standards for transport to other healthcare facilities and other crisis standards of care; possibly exceeding the standard scope of practice for EMS.

A regional protocol for Functional Needs Shelter Triage has been added to the Optional Standing Orders Manual and is also available at [gmvemsc.org](http://gmvemsc.org) on the Training Materials page. The protocol is used to help determine whether individuals with functional needs can be safely sheltered in a Red Cross Shelter during a disaster.

This Shelter Triage Protocol is a pre-approved Just-In-Time Standing Order (JITSO), authorized by the RPAB for use by an EMS agency assisting the Red Cross with shelter Triage. It is intended to be printed and given to paramedics, nurses, and other healthcare personnel at the time of a shelter operation.

At the option of local department chiefs and medical directors, the same protocol can be used during a disaster to determine patients who would be more appropriate for transport to Red Cross Shelters than to hospitals. That concept was endorsed by RPAB, and was used on the East Coast during Hurricane Sandy. In those cases, EMS should, if possible, contact the shelter before transporting. If locations or contact information for shelters is not known, contact the County EMA or the Red Cross. When transporting these non-emergency patients to shelters, it is critical that the patients bring their medications and medical equipment with them.

## HAZ-MAT

### Initial Actions

- Personnel safety
  - Consider potential for secondary devices.
  - PPE
  - Personnel & Equipment staging
- Call for additional resources.
  - (Medic Units, Engines for personnel/resources/Decon, **Haz-Mat**, Law Enforcement, etc.)
- Field Decontamination
  - Remove **all** contaminated clothing. This action may remove as much as 85% of solid or liquid and virtually all of gaseous contaminants.
  - Thoroughly wash with {Dawn} dishwashing detergents paying special attention to skin folds and other areas where simple irrigation may not remove it.
  - If a patient has been contaminated with any fuel, irrigate well. For example, diesel fuel can cause chemical burns if left in contact with the skin.
  - Do not transport a patient until gross decon is completed.
  - Obtain permission from hospital upon arrival **before** entering with a potentially contaminated patient or crew.
  - Decontaminate EMS vehicle prior to leaving hospital.
- Contact Medical Control and the hospital immediately to allow time for their set-up of decontamination equipment.
  - Provide the following information:
    - Estimated number of confirmed or potential adult and pediatric patients
    - Signs and symptoms exhibited by the patients
    - Name and identification information of the contaminant if known, or as much information as possible
    - Form of the contaminant (liquid, gas, etc.) if known
    - Routes of exposure of the patients (percutaneous, inhalation, ingestion, etc.) if known
    - Additional anticipated decontamination needs if necessary
  - ♦ In the event of an MCI involving cyanide or nerve agents, request an “Antidote free” order, allowing you to treat all of the patients on the scene with the appropriate antidote, rather than calling for patient orders individually.

### Hazardous Drug: Exposures and Spills

- Hazardous drug situations include:
  - Patients who have continuous IV chemotherapy at home.
  - Patients who have just had IV chemotherapy at the clinic or hospital and their body fluids could have traces of hazardous drug for 48 hours.
  - Patients taking oral chemotherapy drugs.
- Potential routes of exposure include:
  - Absorption through skin or mucous membranes
  - Accidental injection by needle stick or contaminated sharps
  - Inhalation of drug aerosols, dust, or droplets
  - Ingestion through contaminated food, tobacco products, beverage, or other hand-to-mouth behavior
- EMS should don PPE whenever there is a risk of hazardous drug being released into the environment.
  - Handling leakage from tubing, syringe, and connection sites
  - Disposing of hazardous drugs and items contaminated by hazardous drugs
  - Handling the body fluids of a patient who received hazardous drugs in the past 48 hours
  - Cleaning hazardous drug spills
- Guidelines for PPE:
  - Gloves: Double gloves are recommended. Latex gloves provide no chemical protection. Nitrile gloves are recommended for routine patient care of Haz-mat patients including chemo patients. Change gloves every 30 minutes.
  - Disposable non-permeable gowns



- Respirators: NIOSH-approved respirator mask
- Eye and face protection: wear a face shield whenever there is a possibility of splashing.
- Procedures:
  - Use universal precautions when handling any body fluids of a patient who has received chemotherapy within 48 hours.
  - Accidental skin exposure: Remove contaminated garments, place in leak-proof plastic bag, and immediately wash contaminated skin with soap and water. Rinse thoroughly.
  - Accidental eye exposure: immediately flush eye with saline solution or water for at least 30 minutes or until patient transport is completed.
  - Wipe up liquids with an absorbent pad or spill-control pillow.
  - Disposal of hazardous drugs and materials contaminated with hazardous drugs per MSDS or HazMat Team direction
  - Report and document spills as required.
- For more information, contact:
  - The homecare agency that is supplying the infusion.
  - The physician who ordered the infusion.
  - A hospital pharmacy, if necessary (there should be a label on the IV bag with the drug's name, concentration and dosage).
  - Consult with the appropriate HazMat team.

### **Hazmat: Biological**

- ♦ {In preparation for the possibility of a bioterrorist attack, Departments may store a supply of **Ciprofloxacin (Cipro)** or **Doxycycline**. They can provide prophylaxis against Anthrax, Cholera, and some protection against Plague.}
- Dayton MMRS maintains a supply of **Cipro** and **Doxy** sufficient to provide treatment for the first three days for all firefighters, EMS personnel, law enforcement officers, EMA personnel, public safety dispatchers, public health personnel, and coroner's personnel, and their immediate families for use in a bioterrorist attack. These may be obtained when needed by contacting **937-333-USAR (8727)**.

### **HazMat: Cyanide**

- See Burns and Smoke Inhalation

### **HazMat: Hydrofluoric Acid (Hf)**

- Deaths have been reported from burns involving < 3% Body Surface Area. Ensure safety of EMS.
- Begin decon and irrigate the chemical burn with water as quickly as possible. When feasible, use {**Magnesium Sulfate solution (Epsom salt)**} as an additional irrigating solution for affected skin (not for eyes or mucous membranes).
  - Getting water on the burn is more urgent than the use of Epsom salt. **DON'T DELAY IRRIGATION or DECON!** Flush affected eyes and skin with copious amounts of water or **IV fluids** for a minimum of 30 minutes or until patient transport is completed. If available, use {**Epsom salt solution**} on the skin for at least 30 minutes.
- If ingested, do not induce vomiting. Dilute with water or milk, and give {**3-4 ounces of magnesium-containing antacid** (i.e., **Maalox** or **Mylanta**)}.
- Intubate if unconscious or at *first sign* of pulmonary edema or respiratory distress.
- {Perform a 12-lead EKG} and monitor for prolonged QT interval, and cardiac arrest.
- Apply {**magnesium-containing antacid (Maalox or Mylanta)**} topically to burned areas. Omit topical treatment if industry has already applied topical agents.
- Consider Pain Control Protocol.
- ♦ If patient with HF exposure experiences tetany or cardiac arrest, administer **Calcium Chloride 1 g (10 ml) 10%, IV**. **Calcium Chloride 10%** should be considered a first line drug in cardiac arrest associated with Hydrofluoric Acid. Only ABCs, defibrillation, intubation and **Epinephrine** should precede its administration.
- ♦ If victim was exposed to high concentration HF (> 40%), discuss prophylactic **Calcium Chloride 10% 4 ml (400 mg), slow IV** with MCP.

### **HazMat: Organophosphate or Nerve Agent Exposure and Treatment**

### General Considerations:

- Signs and Symptoms:
  - SLUDGEMM: Salivation, Lacrimation, Urination, Defecation, GI Upset, Emesis, Miosis, Muscle Twitching
- Mild to moderate cases should be treated with one or two doses of **Atropine** and **2-PAM**
- Severe cases will generally require repeating every 5 minutes up to 3 doses.
- Atropine in these circumstances is **not** for bradycardia, which may or may not be present.
- Primary endpoints for treatment are diminished airway secretions (lungs are clear to auscultation), hypoxia improves, airway resistance decreases, and dyspnea improves
- Organophosphate poisonings may require more Atropine 3 DuoDotes).
- Ohio law and GMVEMSC Standing Orders permit First Responders and EMTs to administer Organophosphate/nerve agent antidotes by auto-injector only.
- Nerve agent or organophosphate antidotes are to be used to treat symptomatic patients, not given prophylactically

### Specific Care: Organophosphate or Nerve Gas Poisoning

- Oxygen
- Treat any case of known or suspected Organophosphate or Carbamate (e.g., insecticides such as Parathion or Malathion); or nerve agent (e.g., Tabun, Sarin, Soman, VX) exposure as below:
- ♦ Administer **Atropine** every 5 minutes, as available until lungs are clear to auscultation. **Atropine** may be given IV, IM, IO or by **AtroPen** auto-injector for children, or by **DuoDote**.
- ♦ Adults and children > 40 kgs, give **DuoDote**, or **Atropine 2 mg, IV, IM**
- P ♦ Children 20 – 40 kgs, give **1.0 mg Atropine**, or the **1.0 mg Atropen auto-injector**.
- P ♦ Children < 20 kgs, give **0.5 mg Atropine**, or the **0.5 mg Atropen auto-injector**.
- ♦ Follow **Atropine** with **2-PAM (Pralidoxime) 600 mg IM**. If **DuoDote** was used, no second auto-injector is needed.
- P ♦ Infants and young children **Pralidoxime, 25-50 mg/kg IV drip or IM, if available**.
- Treat seizures with **Midazolam** or **Diazepam Auto-injector (CANA)**.

### Administering the Nerve Agent Antidote

- Anterolateral thigh is the recommended auto-injector site for both adults and pediatrics.
- Procedures for DuoDotes, pediatric AtroPens, and Diazepam auto-injectors are similar to administration of the Epi-Pen.

### Antidote Resources:

- {EMS Departments are authorized to stockpile large quantities of **Atropine**, **2-PAM**, auto-injectors, and supplies (e.g., needles, syringes)}.
- GMVEMSC drug bags include:
  - **2 DuoDotes (Atropine (2 mg) and 2-PAM (600 mg) administered through a single auto-injector)**.
  - **2 Pediatric AtroPens (1 each: 0.5 mg, 1.0 mg)**
  - 1 Multi-dose 1 mg vial of **Atropine**
- **Dayton MMRS maintains additional supplies of organophosphate and cyanide antidotes in each county in Ohio Homeland Security Region 3.**
  - To obtain Dayton MMRS antidotes: call **937-333-USAR (8727)**. **The closest department with an antidote cache will respond as a mutual aid request.**
  - Dayton MMRS antidotes may be requested for incidents too small to require a CHEMPACK.
  - If requesting a CHEMPACK, **simultaneously call 937-333-USAR (8727)** and request MMRS antidotes.

### CHEMPACK Resources:

- Containers with enough antidotes to treat about 500 victims of a nerve agent or organophosphate incident
- CHEMPACK procurement:
  - ♦ Obtain MCP approval

- ♦ In an MCI, contact OSP Central Dispatch **866-599-LERP (5377)** and request a CHEMPACK and indicate that it meets both of the following criteria:
  - The Organophosphate or nerve agent has been identified, or patients are exhibiting signs and symptoms of exposure.
  - **AND** the need for antidotes is greater than the available resources.
  - Simultaneously contact **937-333-USAR (8727)** and request additional Nerve Agent Antidotes:
    - Regional MMRS drug cache in each county to be used for incidents too small for a CHEMPACK
    - Has additional drugs that are not available in the CHEMPACK (e.g., Cyanide antidotes)
- OSP Central Dispatch will:
  - Notify closest CHEMPACK hospital
  - Dispatch Troopers to deliver the CHEMPACK to the MCI's staging area.
  - Troopers will expect EMS to sign a form indicating receipt.
- CHEMPACK contains:
  - **Atropine**—blocks effects of excess acetylcholine
    - 0.5 mg AtroPen auto-injectors (for patients < 20 kgs)
    - 1.0 mg AtroPen auto-injectors (for patients 20-40 kgs)
    - Multi-dose vials
  - **Pralidoxime Chloride (2-PAM)**—reduces levels of acetylcholine
    - 600 mg auto-injectors
    - Multi-dose vials
  - **Diazepam (Valium)**—treats seizures.
    - **Convulsive Antidote, Nerve Agent (CANA)** (10mg **Diazepam** auto-injector)
  - Multi-dose CHEMPACK types (both contain same drugs)
  - Hospital CHEMPACK contains more multi-dose vials for more precise dosing of children and long-term patients. Hospital CHEMPACKs are partitioned into thirds, each being marked with a red, yellow, or blue dot. Hospitals have the option to keep the red dot materials for potential use at their hospital. If a hospital opens its CHEMPACK, it must notify OSP Central Dispatch. (Hospitals may also request material from Dayton MMRS by calling **937-333-USAR (8727)**).
  - EMS CHEMPACK contains more auto-injectors for ease of administration in the field.
- Limitations of CHEMPACKs:
  - Only useful against nerve agents or organophosphate
  - Only to be utilized when other resources are inadequate for number of victims.
  - CHEMPACKs opened contrary to guidelines will not be replaced by CDC and will result in the loss of a \$250,000 asset.

### **Hazmat: Pepper Spray**

- **{Sudecon Wipes}** can assist in the decontamination of patients or public safety personnel who have been sprayed with Pepper Spray.

## **REGIONAL HOSPITAL NOTIFICATION SYSTEM (RHNS)**

Our area now has a Regional Hospital Notification System. The purpose is to provide one number for EMS, hospitals, and EMAs to call that will make rapid, simultaneous notifications in a Mass Casualty Incident or Event (MCI/MCE), or other major emergency.

The system can be used when an incident could involve a significant number of the region's hospitals. To activate the system, an incident commander calls **937-333-USAR (8727)**, and requests a "Regional Hospital Notification." The agency calling must ask for a Dispatch Supervisor, and should provide the information below:

- Name of agency
- Nature of emergency
- Location of emergency
- General statement on severity, such as approximate number of victims
- Any other information to be conveyed

The Montgomery County Regional Dispatch Center (RDC) will immediately put out a computerized message to the RHNS Group with that information.

## ABBREVIATIONS

Some abbreviations are case sensitive while others are content sensitive. Any words that can be readily abbreviated using a period have been left out of this list.

abdomen	abd
abdominal aortic aneurysm	AAA
abortion	AB
acute coronary syndrome	ACS
acute myocardial infarction	AMI
acute pulmonary edema	APE
acute renal failure	ARF
acute respiratory distress/syndrome	ARD/ARDS
administer rectally	p.r.
advanced cardiac life support	ACLS
advanced directive	AD
advanced life support	ALS
after	̄
against medical advice	AMA
alcohol	ETOH
alert & oriented	A&O
alert/verbal/pain/unresponsive	AVPU
antecubital fossa	AC
arteriosclerotic heart disease	ASHD
as necessary or needed	prn
as soon as possible	ASAP
aspirin	ASA
at	@
at bedtime	h.s.
atrial fibrillation	a-fib
atrial flutter/ tachycardia	AF/AT
atrioventricular	AV
automatic external defibrillator	AED
automatic transport ventilator	ATV
backboard	BB
bag-valve mask	BVM
basic life support	BLS
before	ā
below the knee amputation	BKA
births, number of	para
black	B
blood pressure	BP
blood sugar	BS
body substance isolation	BSI
body surface area	BSA
bowel movement	BM
bradycardia	brady
breaths per minute	bpm
by mouth	po
by or through	per
cancer	CA
capillary refill time	CRT
carbon dioxide	CO <sub>2</sub>
carbon monoxide	CO

centimeter	cm.
cerebral palsy	CP
cerebrospinal fluid	CSF
cerebrovascular accident	CVA
cervical immobilization device	CID
cervical spine	C-spine
change	Δ
chest pain	CP
chief complaint	CC
chronic obstructive pulmonary disease	COPD
chronic renal failure	CRF
circulatory/sensory/motor	CSM
clear to auscultation bilaterally	CTAB
complaining of	c/o
congestive heart failure	CHF
coronary artery bypass graft	CABG
coronary artery disease	CAD
cubic centimeter	cc.
date of birth	DOB
dead on arrival	DOA
decreasing	↓
degree(s)	°
delirium tremens	DTs
Dextrose in water – 50%	D50
Dextrose in water - 10%	D10
diabetes mellitus	DM
diagnosis	Dx
dilation & curettage	D&C
discontinue	d/c
disease	DZ
do not resuscitate	DNR
drop (s)	gtt (s)
dyspnea on exertion	DOE
electrocardiogram	ECG / EKG
emergency department	ED / ER
endotracheal tube	ETT
epinephrine	EPI
Equal to or greater than	≥
Equal to or less than	≤
esophageal detection device	EDD
esophageal obturator airway	EOA
estimated	Est.
estimated time of arrival	ETA
every	̄
external jugular vein	EJV
fever of unknown origin	FUO
for example	e.g.
foreign body	FB
four times a day	qid

fracture	fx
French	Fr.
gallbladder	GB
gastrointestinal	GI
gauge	Ga
Glasgow Coma Scale	GCS
gram	g or gm
greater than	>
gunshot wound	GSW
hazardous materials	HazMat
head, ears, eyes, nose, throat	HEENT
Headache	H/a
heart block	HB
heart rate	HR
history	Hx
hypertension	HTN
Incident Command	IC
increasing	↑
inferior	inf.
insulin dependent diabetes	IDDM
intercostal space	ICS
intracranial pressure	ICP
intramuscular	IM
intranasal	IN
intraosseous	IO
intravenous	IV
intravenous push	IVP
joule	J
jugular venous distension	JVD
Kendrick Extrication Device	KED
kilogram	kg
labor & delivery	L&D
last normal menstrual period	LNMP
left	(L)
Left lower/upper extremity	LLE/LUE
Left lower/upper lobe	LLL/ LUL
left lower/upper quadrant	LLQ/LUQ
left bundle branch block	LBBS
less than	<
lights and siren	L&S
liters per minute	lpm
liter	L.
loss or level of consciousness	LOC
mass casualty event	MCE
mechanism of injury	MOI
medial	med.
medical control physician	MCP
metered dose inhaler	MDI
microgram	mcg.
milliequivalent	mEq
milligram	mg.
milliliter (same as cc.)	ml.
motor vehicle collision	MVC
multiple casualty incident	MCI

multiple sclerosis	MS
myocardial infarction	MI
nasal cannula	NC
nasopharyngeal airway	NPA
nausea & vomiting	N&V
newborn	NB
nitroglycerine	NTG
no known drug allergies	NKDA/NKA
non-rebreather mask	NRM
nonsteroidal anti-inflammatory	NSAID
normal saline	NS
normal saline lock	NSL
normal sinus rhythm	NSR
not applicable / available	n/a
nothing by mouth	NPO
O2 % of arterial blood	SpO2
obstetrics	OB
oropharyngeal airway	OPA
over the counter	OTC
overdose	OD
packs per day	p/d
parts per million	ppm
past medical history	PMH
patient	pt.
pelvic inflammatory disease	PID
penicillin	PCN
peptic ulcer disease	PUD
peripheral inserted central cath	PICC
pharyngo tracheal lumen airway	PtL
pregnancies, number of	Gravida
premature ventricular complex	PVC
prior to my arrival	PTA
pulmonary embolism	PE
pulse	P
pulse, motor, sensation	PMS
pulseless electrical activity	PEA
pupils (=), round, reactive to light & accommodation	PERRLA
right bundle branch block	RBBB
right lower/upper extremity	RLE/RUE
right lower/upper lobe	RLL/RUL
right middle lobe	RML
rapid sequence induction	RSI
respiratory rate	RR
returned to service	RTS
rheumatic heart disease	RHD
right	R
right lower/upper quadrant	RLQ/ RUQ
secondary / second degree	2°
sedate to intubate	StI
sexually transmitted disease	STD
shortness of breath	SOB
signs/symptoms	S/S
sino-atrial	SA

sinus bradycardia	SB
sinus tachycardia	ST
standard operating procedure	SOP
standing orders	SO
ST elevation MI	STEMI
subcutaneous	SQ
sublingual	SL
sudden infant death syndrome	SIDS
supraventricular tachycardia	SVT
symptoms	Sxs
systolic blood pressure	SBP
tachycardia	tach(y)
temperature	T
temporomandibular joint	TMJ
that is	i.e.
three times a day	tid
tibia	Tib
times	×
to keep open	TKO
tourniquet	TQ
tracheal deviation	TD
transport	Tx
transcutaneous pacing	TCP
transfer	x-fer
transient ischemic attack	TIA
treatment/medication	Rx
tuberculosis	TB
twice a day	bid
unconscious	unc.
unequal / not equal	≠
Unified command	UC
unknown	unk.
upper/lower	U/L
upper respiratory infection	URI
urinary tract infection	UTI
ventricular fibrillation	VF/ VFib
ventricular tachycardia	VT/ VTach
vital signs	VS
warm & dry	w/d
week	wk.
weight	wt.
white	W
with	ċ
within normal limits	WNL
without	š or w/o
Wolff Parkinson-White	WPW
year	yr.
years old	y/o or yo

## RIGHTS OF MEDICATION ADMINISTRATION

1. Right Medication
  - a. Make sure that the medication is the correct medication indicated by the GMV Standing Orders and check it against the medication label.
  - b. Double-check the generic vs. non-generic names of medications. Many names are similar and have a potential for error. If you aren't sure, reference your SO Manual or Quick Reference Guide!
  - c. Check the expiration date on the label.
2. Right Patient:
  - a. Confirm patient ID and confirm absence of allergies or other contraindications for your patient.
  - b. In multiple patient or mass casualty situations, confirm that the medication is being delivered to the correct patient.
3. Right Dose:
  - a. Check the SO dose against the medication label for the **correct concentration**.
  - b. Recheck dosage calculations and verify accuracy.
  - c. Confirm that the correct dose has been drawn up.
  - d. Use your references!
4. Right Route:
  - a. Check the standing order and the medication label for the correct route.
  - b. Confirm the route of administration for the medication; IM, IV, PO, IN, PR, IO, Neb, ocular.
  - c. Confirm that the dose is correct for the chosen route, since some dosages vary depending on the route.
  - d. Make sure the route is accessible; e.g., is the IV site patent?
5. Right Time:
  - a. Give the medication over the proper time duration per the Standing Orders.
6. Right Documentation:
  - a. Document medication, dose, time of administration and duration of administration, route, and patient response.

## RUN DOCUMENTATION REQUIREMENTS

Every crew transporting a patient is expected to provide a full run sheet to the hospital.

An abbreviated version of a run report, sometimes called a "quick sheet" may be left at the time of transport, but the hospital **MUST** receive a full, final copy of the run sheet within three hours (with rare exceptions, e.g., major incidents). When a quick sheet is used, it **MUST** include (at a minimum) all the following:

- Patient's full name
- Age
- Chief complaint
- History of the Present Illness or MOI
- PMH
- Medications
- Allergies
- Vital signs with times
- Prehospital assessment and interventions along with the timing of any medication or intervention and patient response to such interventions



**ADENOSINE**  
**(Adenocard)**

**PACKAGED:** 6 mg (1 in drug bag) and 12 mg (2 in drug bag) prefilled syringes

**INDICATION:**

Stable PSVT

**ADULT:**

6 mg rapid IV as quickly as possible

If not successful, may repeat 12 mg rapid IV.

If not successful, may repeat 12 mg rapid IV.

All doses of Adenosine are followed by 20 ml bolus of IV fluid.

Go directly to 12 mg if patient with history of PSVT advises it takes 12 mg. May repeat x one.

**PEDI:**

0.1 mg/kg rapid IV followed by 10 ml rapid saline flush. Max single dose 6 mg.

If unsuccessful, 0.2 mg/kg rapid IV followed by 10 ml rapid saline flush. Max single dose 12 mg. May repeat x one.

**THERAPEUTIC ACTION:**

Decreases electrical conduction through the AV node without causing negative inotropic effects

Acts directly on SA node to decrease chronotropic activity

**CONTRAINDICATIONS:**

Second or third degree AV block or sick sinus syndrome

Hypersensitivity to Adenosine

**PRECAUTIONS AND SIDE EFFECTS:**

Lightheadedness, paresthesia, headache, diaphoresis, palpitations, chest pain, hypotension, shortness of breath, transient periods of sinus bradycardia sinus pause, or asystole, ventricular ectopy, nausea, metallic taste. May produce bronchoconstriction in patients with asthma and in patients with bronchopulmonary disease

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

**ALBUTEROL**  
**(Proventil)**

**PACKAGED:** 2.5 mg in 3 ml plastic ampule (4 in drug bag)

**INDICATIONS:**

Asthma, Emphysema, COPD  
Bronchospasm in Asthma, COPD  
Allergic reaction with wheezing  
Hyperkalemia with crush syndrome

**ADULT:**

2.5 mg (3 ml), nebulized with O<sub>2</sub> at 8-10 LPM.  
Combine Ipratropium with first dose of Albuterol.  
May repeat Albuterol up to 2 times for a total of 3 doses  
All 4 for hyperkalemia

**PEDI:**

2.5 mg (3 ml), nebulized with O<sub>2</sub> at 8-10 LPM.  
Combine Ipratropium with first dose of Albuterol.  
May repeat Albuterol up to 2 times for a total of 3 doses

**THERAPEUTIC ACTION:**

Bronchodilator

**CONTRAINDICATIONS:**

Prior hypersensitivity reaction to Albuterol  
Cardiac dysrhythmias associated with tachycardia.

**PRECAUTIONS AND SIDE EFFECTS:**

Once initiated, the patient should be removed by EMS.  
Side effects are usually dose related: restlessness, apprehension, dizziness, palpitations, tachycardia, and dysrhythmias. May precipitate angina pectoris and dysrhythmias.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

**AMIODARONE**  
**(Cordarone)**

**PACKAGED:** 150 mg in 3 ml vial, 50 mg/ml (3 in drug bag)

**INDICATIONS:**

VFib or Pulseless VTach  
Stable Wide Complex VT

**ADULT:**

VFib or Pulseless VTach: 300 mg IV or IO. May repeat ½ initial dose (150 mg) no faster than 10 min.  
Or under VFib or Pulseless VTach, if patient converts with ROSC from a ventricular arrhythmia and no anti-arrhythmic has been given, then administer Amiodarone 150 mg in 250 ml NS, IV over 10 minutes using 60 drop/ml tubing.

Stable Wide Complex Tachycardia: IV Infusion—add 150 mg to 250 ml bag of NS with microdrip tubing run wide open (over 10 min) using an 18 gauge angio.

**PEDI:**

VFib/Pulseless VTACH: 5 mg/kg IV/IO. Max first dose 300 mg  
May repeat 5 mg/kg in 10 min. if VFib persists or reoccurs. Max repeat dose 150 mg  
Stable Wide Complex Tachycardia: N/A

**THERAPEUTIC ACTION:**

Antidysrhythmic agent with multiple mechanisms of action

**CONTRAINDICATIONS:**

Pulmonary congestion  
Cardiogenic shock  
Hypotension  
Sensitivity to Amiodarone

**PRECAUTIONS AND SIDE EFFECTS:**

Hypotension, headache, dizziness, bradycardia, AV conduction abnormalities, flushing, abnormal salivation  
Continuous EKG monitoring is required.

**REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

**ASPIRIN**  
**(Abbreviated as ASA)**

**PACKAGED:** 81mg tablets in blister pack, times 4

**INDICATION:**

Suspected cardiac chest pain, must be at least 25 years old.  
Give as soon as possible to the patient with AML.

**ADULT:**

324 mg = 4 chewable 81 mg tablets—MUST CHEW!

**PEDI:**

N/A

**THERAPEUTIC ACTION:**

Anti-platelet

**CONTRAINDICATIONS:**

Hypersensitivity to salicylates  
Active ulcer disease  
Bleeding disorders  
Third Trimester

**PRECAUTIONS AND SIDE EFFECTS:**

Stomach irritation, heartburn or indigestion, nausea or vomiting, allergic reaction

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** N/A

## ATROPINE

**PACKAGED:** 1mg in 10ml prefilled syringe; (3 in drug bag)  
1 mg in 1 ml vial; (HM bag in drug bags)  
2 mg AtroPen auto-injector; (in Chempack, Drug Caches and HM bag in drug bags)  
1 mg AtroPen auto-injector (in Chempack, Drug Caches and HM bag in drug bags)  
0.5 mg AtroPen auto-injector (in Chempack, Drug Caches and HM bag in drug bags)  
Multidose vial 8 mg in 20 ml, 0.4 mg/ml; (in Chempack)  
Duodote: Auto-injector Atropine 2 mg and 2-Pam 600 mg

**NOTE:** Atropine is one component of the Duodote (in with the HazMat Drugs in GMVEMSC Drug Bags).

### INDICATIONS:

Symptomatic bradycardia, asystole, PEA with slow rate  
Organophosphate or Nerve Agent poisoning (regardless of cardiac rate)

### ADULT:

Bradycardia: 0.5 mg IV up to 3 mg

Asystole, PEA with bradycardia: 1 mg, IV/IO  
For asystole or slow PEA (repeat every 5 minutes up to 3 doses)

Organophosphate or Nerve Gas poisoning: 2 mg IV, IO or IM every 5 min or Duodote until lungs are clear to auscultation. There is no max dose for Atropine for Organophosphate or Nerve Agent poisoning.

### PEDI:

Bradycardia: 0.02 mg/kg IV or IO (minimum single dose of 0.1 mg, max single dose 0.5 mg) every 5 min. Max total dose 1 mg

Organophosphate or Nerve Gas poisoning: Atropine or (AtroPen) auto-injector  
< 20 kgs: 0.5 mg Atropine, IV, IM or (AtroPen) Auto-injector  
20 - 40 kgs: 1.0 mg Atropine, IV, IM or (AtroPen) Auto-injector  
> 40 kgs: 2.0 mg Atropine, IV, IM or (AtroPen) Auto-injector  
There is no max dose for Atropine for Organophosphate or Nerve Agent poisoning.

### THERAPEUTIC ACTION:

Anticholinergic

### CONTRAINDICATIONS:

**None for severe organophosphate exposure.**

Tachycardia, hypersensitivity to atropine, obstructive disease of GI tract, obstructive neuropathy, unstable cardiovascular status in acute hemorrhage with myocardial ischemia, narrow angle glaucoma, thyrotoxicosis

### PRECAUTIONS AND SIDE EFFECTS:

Tachycardia, paradoxical bradycardia when pushed too slowly or when used at doses less than 0.5 mg, palpitations, dysrhythmias, headache, dizziness, anticholinergic effects (dry mouth, nose, skin, photophobia, blurred vision, urinary retention, constipation), nausea, vomiting, flushed, hot, dry skin, allergic reactions. Atropine causes papillary dilation rendering the pupils nonreactive. Pupil response may not be useful in monitoring CNS status.

### REQUIRES MCP:

#### ADULT:

Bradycardia, Asystole / PEA—No  
Organophosphate Nerve Agent Poisoning—Yes

#### PEDI:

Brady—No  
Organophosphate Nerve Agent Poisoning—Yes

## CALCIUM CHLORIDE 10%

**PACKAGED:** 1 gram in 10 ml vial, 100 mg/ml

### INDICATIONS:

Renal dialysis patient in cardiac arrest or ♦ bradycardia

Calcium Channel Blocker OD

Hydrofluoric Acid exposure with tetany OR cardiac arrest.

Tetany may present as: overactive neurological reflexes, spasms of the hands and feet, cramps, and laryngospasm.

Prophylactically, after exposure to Hydrofluoric Acid

Crush Syndrome

### ADULT:

Cardiac Arrest, CCB OD and Hydrofluoric Acid exposure with tetany or cardiac arrest: 1 g (10 ml) IV

♦ Renal dialysis patient in bradycardia: 1 g IV

### PEDI:

Cardiac Arrest, CCB OD: 20 mg/kg IV (max dose 500 mg in Calcium Channel Blocker OD)

Hydrofluoric Acid Exposure Prophylaxis: 400 mg IV (4 ml)

### THERAPEUTIC ACTION:

Antagonizes cardiac toxicity in hyperkalemia associated with dialysis patients. Reverses symptoms of Calcium Channel Blocker

### CONTRAINDICATIONS:

### PRECAUTIONS AND SIDE EFFECTS:

Bradycardia (may cause asystole), hypotension, metallic taste, severe local necrosis and sloughing following IV infiltration; may produce vasospasm in coronary and cerebral arteries. Hypertension and bradycardia may occur with rapid administration. Do not administer with **Sodium Bicarbonate** because if the two substances are mixed, a precipitate develops. Flush tubing between drugs.

### REQUIRES MCP:

**ADULT:** Arrest—No

Renal dialysis patient in bradycardia---Yes

Calcium Channel Blocker OD—Yes

Hydrofluoric Acid Exposure—Yes

Prophylaxis—Yes

**PEDI:** Arrest—No

Calcium Channel Blocker OD—Yes

## CALCIUM GLUCONATE

### JITSO

**PACKAGED:** 1 gram in 10 ml vial, 100 mg/ml

#### **INDICATIONS:**

Renal dialysis patient in cardiac arrest or bradycardia.

Calcium Channel Blocker OD

Hydrofluoric Acid exposure with tetany OR cardiac arrest.

Tetany may present as: overactive neurological reflexes, spasms of the hands and feet, cramps, and laryngospasm.

Prophylactically, after exposure to Hydrofluoric Acid

#### **ADULT:**

Cardiac Arrest, CCB OD and Hydrofluoric Acid exposure with tetany or cardiac arrest: 1 g (10 ml) IV

Hydrofluoric Acid Exposure Prophylaxis: 400 mg IV (4 ml)

#### **PEDI:**

Cardiac Arrest & OD: 20 mg/kg IV (max dose 500 mg in Calcium Channel Blocker OD)

#### **THERAPEUTIC ACTION:**

Antagonizes cardiac toxicity in hyperkalemia associated with dialysis patients. Reverses symptoms of Calcium Channel Blocker

#### **CONTRAINDICATIONS:**

#### **PRECAUTIONS AND SIDE EFFECTS:**

Bradycardia (may cause asystole), hypotension, metallic taste, severe local necrosis and sloughing following IV infiltration; may produce vasospasm in coronary and cerebral arteries. Hypertension and bradycardia may occur with rapid administration. Do not administer with **Sodium Bicarbonate** because if the two substances are mixed, a precipitate develops. Flush tubing between drugs.

#### **REQUIRES MCP:**

**ADULT:** Arrest--No

Calcium Channel Blocker OD—Yes

Renal dialysis patient in bradycardia - Yes

Hydrofluoric Acid Exposure—Yes

Prophylaxis—Yes

**PEDI:** Arrest—No

Calcium Channel Blocker OD—Yes

**{CIPROFLOXACIN}**  
**(Cipro)**

**PACKAGED:** Tablet

**INDICATION:**

As prophylaxis against Anthrax, Cholera or Plague

**ADULT:**

500 mg tablet by mouth, twice a day

**PEDI:**

Dosage will be specified at time of incident.

**THERAPEUTIC ACTION:**

Antibiotic

**CONTRAINDICATIONS:**

Allergy to quinolones

Tendon pain or inflammation

Pediatrics

Pregnancy

**PRECAUTIONS AND SIDE EFFECTS:**

Atrial flutter, hypotension, PVCs, QT prolongation, Torsade De Pointes, Tendon pain/inflammation

**REQUIRES MCP:**

**ADULT:** Yes

**PEDI:** Yes



## **D10**

**PACKAGED: 500 ml of D10W, contains 50 g Dextrose**

### **INDICATIONS:**

Diabetic with mental status changes  
Evidence of hypoglycemia in cardiac arrest  
Generalized hypothermia with or without arrest  
Altered level of consciousness of unknown cause  
Seizures with BS < 60  
No blood sugar monitor is available or a strong suspicion of hypoglycemia despite BS readings.

### **ADULT;**

**D10** 250 ml IV at wide open rate  
May repeat in 10 min. if pt. fails to respond or BS remains < 60.  
Max dose is 500 ml.

### **PEDI:**

**D10**, 5 ml/kg  
Max dose is 250 ml

### **NEWBORN:**

**D10** 2 ml/kg if BS < 40

### **THERAPEUTIC ACTION:**

Principal form of carbohydrate utilized by the body

### **CONTRAINDICATIONS:**

Known or suspected CVA in the absence of hypoglycemia

### **PRECAUTIONS AND SIDE EFFECTS:**

Warmth, pain, burning from medication infusion, hyperglycemia, thrombophlebitis  
May precipitate severe neurologic symptoms in thiamine deficient patients

### **REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

**DIAZEPAM  
(Valium)  
(JITSO provisional for Versed shortage)**

**PACKAGED:** 10 mg in 2 ml vial (1 in drug bag), 5 mg/1ml

**INDICATIONS:**

Seizures

SBP > 100 or hemodynamically significant tachycardia (HR>100) after recent cocaine/crack use.

**ADULT:**

Seizures: 5 mg slow IV; may repeat dose once.

Cocaine or crack use: 5 mg slow IV, may repeat dose once.

**PEDI:**

Seizures: 0.2 mg/kg slow IV over 2 min. (max. dose 5 mg IV)

OR 0.5 mg/kg rectally, (max. dose 10 mg. rectally)

May repeat 0.2 mg/kg slow IV over 2 min up to 5 mg max slow IV.

**THERAPEUTIC ACTION:**

Treats alcohol withdrawal and grand mal seizure activity; used to treat anxiety and stress.

**CONTRAINDICATIONS:**

**PRECAUTIONS AND SIDE EFFECTS:**

Hypotension, reflex tachycardia (rare), respiratory depression, ataxia, psychomotor impairment, confusion, nausea, may cause local venous irritation

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

**DIAZEPAM  
(Valium) CANA Pen**

**PACKAGED:** 10 mg auto-injector

Seizures associated with Organophosphate or Nerve Agent MCI

**NOTE:** Available in CHEMPACK and Drug Cache

**DOSE:**

**ADULT:** 10 mg IM Auto-injector

**PEDI:** 10 mg IM Auto-injector.

**REQUIRES MCP:**

**ADULT:** Yes

**PEDI:** Yes

**DIPHENHYDRAMINE  
(Benadryl)**

**PACKAGED:** 50 mg in 1ml vial

**INDICATIONS:**

Allergic reaction or Anaphylaxis

In anaphylaxis patient who goes into arrest if not already given

Extrapyramidal Reaction

**ADULT:**

50 mg IM or slow IV

**PEDI:**

1 mg/kg (max dose 50 mg) IM or slow IV

**THERAPEUTIC ACTION:**

Prevents the physiologic actions of histamine by blocking histamine receptors

**CONTRAINDICATIONS:**

**PRECAUTIONS AND SIDE EFFECTS:**

Dose related drowsiness, sedation, disturbed coordination, hypotension, palpitations, tachycardia, bradycardia, thickening of bronchial secretions, dry mouth and throat

Use cautiously in patients with CNS depression or lower respiratory diseases such as asthma.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

## **DOPAMINE (JITSO)**

**PACKAGED:** Premixed 250 ml bag, 400 mg/250 ml, 1600 mcg/ml

### **INDICATIONS:**

Shock with or without Pulmonary Edema  
Bradycardia with BP < 100

### **ADULT:**

Shock: Dopamine drip, 5 to 20 mcg/kg/min of 400 mg/250 ml; increase by increments of 5 mcg/kg/min.  
Bradycardia: Start at 5 mcg/kg/min; increase up to 20 mcg/kg/min. Titrate to keep BP > 100.

**DO NOT EXCEED 20 mcg/kg/min.**

### **PEDI:**

Shock: Dopamine drip, 5 to 20 mcg/kg/min of 400 mg/250 ml; start at 5 mcg/kg/min. Titrate to maintain adequate perfusion.

### **THERAPEUTIC ACTION:**

Acts on alpha, beta and dopaminergic receptors in dose dependent fashion; increases cardiac output in higher doses

### **CONTRAINDICATION:**

None in the emergency setting.

### **PRECAUTIONS AND SIDE EFFECTS:**

Dose related tachydysrhythmias, hypertension, increased myocardial oxygen demand (ischemia). Infuse through large stable vein to avoid possibility of extravasation injury. Correct hypovolemia prior to using Dopamine.

### **REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

## **{DOXYCYCLINE}**

**PACKAGED:** Tablet

**INDICATION:**

As prophylaxis against Anthrax, Cholera & Plague

**ADULT:**

100 mg tablet by mouth, twice a day

**PEDI:**

Dosage will be specified at time of incident.

**THERAPEUTIC ACTION:**

Antibiotic

**CONTRAINDICATIONS:**

Pregnancy

Allergy to other Tetracycline antibiotics.

Age < 8

**PRECAUTIONS AND SIDE EFFECTS:**

May make birth control pills less effective.

Use with caution in patients with liver disease, kidney disease and asthma.

Can cause headache, blurred vision and flu symptoms

**REQUIRES MCP:**

**ADULT:** Yes

**PEDI:** Yes

## **DUODOTE**

**PACKAGED:** Auto-injector 2 mg Atropine and 600 mg Pralidoxime Chloride (2-Pam)

**NOTE:** Available in CHEMPACK and Drug Cache

### **INDICATION:**

Organophosphate or Nerve Agent poisoning

### **ADULT:**

Single auto-injector containing 2 mg Atropine and 600 mg 2-Pam > 40 kgs  
(See individual drug listing for specific information on drugs)

### **PEDI:**

Single auto-injector containing 2 mg Atropine and 600 mg 2-Pam > 40 kgs

### **THERAPEUTIC ACTION:**

Anticholinergic as a result of WMD MCI; also reactivates cholinesterase.

### **CONTRAINDICATIONS:**

### **PRECAUTIONS AND SIDE EFFECTS:**

Tachycardia, paradoxical bradycardia when pushed too slowly or when used at doses less than 0.5 mg, palpitations, dysrhythmias, headache, dizziness, anticholinergic effects (dry mouth, nose, skin, photophobia, blurred vision, urinary retention, constipation), nausea, vomiting, flushed, hot, dry skin, allergic reactions

Atropine causes papillary dilation rendering the pupils nonreactive. Pupil response may not be useful in monitoring CNS status.

Use with caution in myasthenia gravis, renal impairment, pregnancy, lactation or children.

### **REQUIRES MCP:**

**ADULT:** Yes

**PEDI:** Yes

## EPINEPHRINE EPIPEN

**PACKAGED:** 1:10,000—1 mg/10ml (6 in drug bag) 10 ml prefilled syringe  
1:1,000—30 ml vial, 1 mg/ml  
Auto-injector: Adult 0.3 mg  
Or JR. 0.15 mg

### INDICATIONS:

VF, pulseless VT, asystole, PEA

Asthma in severe distress

Anaphylaxis or allergic reaction in patients who remain hypotensive after fluid bolus

### ADULT:

VF, pulseless VT, asystole and PEA:

1 mg IV 1:10,000, repeat every 3-5 minutes

Asthma, anaphylaxis:

If  $\geq 30$  kg, give both Adult EpiPen and EpiPen Jr or Epi (1:1,000) 0.5 mg IM

◆ May repeat in 5 minutes

Allergic Reaction, Anaphylaxis in patients who remain hypotensive after fluid bolus: 0.1 mg, 1:10,000, slow IV, every 3 minutes, up to 0.5 mg.

### PEDI:

VF, PULSELESS VT, Asystole and PEA, Bradycardia:

0.01 mg/kg of 1:10,000 IV; repeat every 3-5 min.

Asthma, Anaphylaxis:

**P** If  $< 15$  kg, **EpiPen Jr or Epi (1:1,000) 0.01 mg/kg IM** (max 0.15 mg).

**P** If  $\geq 15$  kg and  $< 30$  kg, Adult EpiPen or Epi (1:1,000) 0.01 mg/kg IM (max 0.3 mg)

**P** ◆ May repeat **Epi (1:1,000) 0.01 mg/kg IM** (max 0.5 mg) after 5 minutes.

### THERAPEUTIC ACTION:

Directly stimulates alpha and beta adrenergic receptors in dose-related fashion; causes bronchodilation, vasoconstriction, and increased cardiac output.

### CONTRAINDICATIONS:

### PRECAUTIONS AND SIDE EFFECTS:

Headache, nausea, restlessness, weakness, dysrhythmias, including ventricular tachycardia and ventricular fibrillation, hypertension, precipitation of angina pectoris, tachycardia

May increase myocardial oxygen demand

Syncope has occurred following epinephrine administration to asthmatic children.

### REQUIRES MCP:

**ADULT:** For arrest—No.

For repeat in asthmas, anaphylaxis --Yes

**PEDI:** For arrest—No

For repeat in asthmas, anaphylaxis —Yes

## **{ETOMIDATE}**

**PACKAGED:** 40 mg in 20 ml, 2 mg/ml

**INDICATION:**

To provide sedation prior to Sedate to Intubate procedure

**ADULT:**

0.3 mg/kg IV; may repeat within 2 minutes if patient resistant to intubation.

Average dose is 15 mg - 25 mg.

**PEDI:**

N/A

**THERAPEUTIC ACTION:**

Short-acting, IV sedative hypnotic

**CONTRAINDICATIONS:**

Hypersensitivity

Pediatrics

**PRECAUTIONS AND SIDE EFFECTS:**

Bradycardia, respiratory depression, sinus tachycardia, tachypnea, hypotension, nausea, vomiting

**REQUIRES MCP:**

**ADULT:** No. Must be authorized by department Medical Director

**PEDI:** N/A



**FENTANYL  
(SUBLIMAZE)**

**PACKAGED:** 100 mcg/2 mL (50 mcg/ml) vial

**INDICATIONS:**

Suspected Cardiac Chest Pain, Trauma Emergencies, Extremity Fractures, Dislocations, Sprains, Frostbite, Abdominal Pain, Haz-Mat: Hydrofluoric Acid (Hf)

**ADULT:**

Fentanyl 50-100 mcg IN, repeat no sooner than 15 minutes.

Fentanyl administered up to 50 mcg slow IV/IO provided SBP > 100.

Repeat dose: may repeat up to 50 mcg after 5 minutes provided SBP > 100.

If unable to establish IV, Fentanyl 50 mcg IM; Repeat no sooner than 15 minutes and is only indicated when transport is greater than 15 minutes.

**PEDI:**

**P FENTANYL IS NOT TO BE ADMINISTERED TO ANYONE < 2 YEARS OF AGE.**

**P** For severe pain relief when the patient is conscious and alert the first choice is:

- **Fentanyl 1 mcg/kg IN**, max dose 100 mcg.
- May repeat **Fentanyl 1 mcg/kg IN** after 15 minutes, if an additional drug bag is available.
  
- Consider **Fentanyl 1 mcg/kg, slow IV**, max dose 100 mcg, provided appropriate normal SBP ( $80 + 2 \times \text{age in years}$ ).
- May repeat **Fentanyl 1 mcg/kg, slow IV** after 15 minutes, max dose 100 mcg, if still in pain and appropriate SBP.

**P** If unable to obtain IV: **IM FOR PEDS IS A LAST RESORT.**

- Give **Fentanyl 1 mcg/kg IM**, max dose 100 mcg
- Repeat dose of **Fentanyl 1 mcg/kg IM**, max dose 100 mcg, repeat no sooner than 15 minutes.

**THERAPEUTIC ACTION:**

Provides analgesia, reduces cardiac preload by increasing venous capacitance and decreasing afterload

**CONTRAINDICATIONS:**

Hypersensitivity to drug/class/components

**PRECAUTIONS AND SIDE EFFECTS:**

Apnea

CNS depression

Chest wall rigidity ("wooden chest syndrome") may occur preventing adequate chest wall excursion and ventilation. This syndrome typically occurs with high doses (6-7 mcg/kg) or with rapid administration. Reversible with naloxone.

Bradycardia which may be transient. Ensure adequate ventilation and oxygenation first. Treat with atropine only after these have been ensured. Use atropine only if the bradycardia is symptomatic and hemodynamically significant, and per the bradycardia protocol.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** Yes for repeat doses

Yes, for abdominal pain in peds

## GLUCAGON

**PACKAGED:** 1 mg dose.

Combine liquid and powder vials, then administer. (1 in drug bag)

### INDICATIONS:

Hypoglycemia if no IV access

Generalized hypothermia without arrest

Altered level of consciousness of unknown cause

Seizures with BS < 60

No blood sugar monitor is available or a strong suspicion of hypoglycemia despite BS reading and no IV access.

Calcium Channel Blocker or Beta Blocker OD

Allergic reaction/Anaphylaxis unresponsive to Epinephrine

### ADULT:

Hypoglycemia with no IV: 1 mg IM.

Calcium Channel Blocker or Beta Blocker OD: 1 mg IV or IM.

Allergic Reaction/Anaphylaxis unresponsive to Epinephrine: 1 mg IV or IM

### PEDI:

Hypoglycemia with no IV: 1 mg IM

Calcium Channel Blocker or Beta Blocker OD: 1 mg IV or IM

### THERAPEUTIC ACTION:

Increases breakdown of glycogen to glucose and stimulates glucose synthesis thereby raising blood sugar.

### CONTRAINDICATION:

### PRECAUTIONS AND SIDE EFFECTS:

Tachycardia, hypotension, nausea and vomiting, urticaria

Should not be considered a first line choice

### REQUIRES MCP:

#### ADULT:

Hypoglycemia, Allergic Reaction/Anaphylaxis—No

Calcium Channel Blocker or Beta Blocker OD—Yes

#### PEDI:

Hypoglycemia--No

Calcium Channel Blocker or Beta Blocker OD—Yes

## **HYDROXOCOBALAMIN (Cyanokit)**

**PACKAGED:** Kit with specific instructions. Cyanokits are available in caches located in each county in Homeland Security Region 3.

### **INDICATION:**

Known or strongly suspected cyanide intoxication, or smoke inhalation with suspected cyanide component. For non-arrested patients, cyanide antidotes are indicated if there is a known or strongly suspected cyanide exposure. The patient may have been exposed to smoke from structure fires and presents with altered mental status, seizures, shock, or difficulty breathing.

### **ADULT:**

5 gram vial via slow IV infusion over 15 minutes

Must not be used in conjunction with other Cyanide antidotes

May be repeated 1 time if patient is critical but not in arrest

- A** ♦ Follow package directions.
  - Reconstitute: Place the vial in an upright position.  
Add 200 mL of 0.9% Sodium Chloride injection to the vial using the transfer spike. Fill to the line.
  - Mix: The vial should be repeatedly inverted or rocked, not shaken, for at least 60 seconds prior to infusion.
  - Infuse Vial: Use vented intravenous tubing, hang and infuse over 15 minutes.
  - One 5 g vial is a complete starting dose.

- P** ♦ Pediatric dose is 70 mg/kg IV over 15 minutes; max dose of 5 g; may repeat a dose of 35 mg/kg; max dose 2.5 g, depending on severity of poisoning and clinical response.

### **THERAPEUTIC ACTION:**

Binds to cyanide molecules and is eliminated as waste

### **CONTRAINDICATION:**

None

### **PRECAUTIONS AND SIDE EFFECTS:**

Do not administer other cyanide antidotes to the same patient.

May cause hypertension

### **REQUIRES MCP:**

**ADULT:** Yes, unless arrest situation. Must also be authorized by department Medical Director.

**PEDI:** Yes, unless arrest situation.

**IPRATROPIUM**  
**(Atrovent)**

**PACKAGED:** 0.5 mg in 2.5 ml plastic ampule (1 in drug bag)

**INDICATIONS:**

Bronchospasm in Asthma, COPD, Emphysema  
Allergic reaction/Anaphylaxis with wheezing

**ADULT:**

0.5 mg (2.5 ml), nebulized with O2 at 8-10 LPM  
Combined with first dose of Albuterol

**PEDI:**

0.5 mg (2.5 ml), nebulized with O2 at 8-10 LPM  
Combined with first dose of Albuterol

**THERAPEUTIC ACTION:**

Causes bronchodilation by anticholinergic effect

**CONTRAINDICATION:**

**PRECAUTIONS AND SIDE EFFECTS:**

Once initiated, the patient should be removed by EMS.  
Use with caution in patients with narrow-angle glaucoma and lactating mothers.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

## **KETAMINE (KETALAR)**

**PACKAGED:** 500 mg/10 mL (50 mg/mL)

### **INDICATIONS:**

- Chemical restraint for combative patient, including Excited Delirium
- Sedation prior to Rapid Sequence Intubation
- Pain control

### **ADULT:**

- {Sedate to intubate, rapid sequence intubation: **100 mg (2 mL)** slow IV.} Repeat IV at 5 minutes.
- Combative patient including those with excited delirium: **250 mg IM** anterolateral thigh, wait 2 minutes, if desired effect is not achieved, repeat **250 mg IM** opposite leg.

Or **100 mg slow IV**.

After 10 minutes and an additional drug bag is available, may repeat **250 mg IM**, wait 2 minutes if desired effect is not achieved, repeat **250 mg IM** opposite leg.

Or repeat **100 mg slow IV**.

For pain:

- Consider **Ketamine 25 mg IV**.
  - May repeat **Ketamine 25 mg IV**, after 15 minutes.

A If unable to obtain IV:

- Give **Ketamine 25 mg IN or 50 mg IM**.
  - May repeat **Ketamine 25 mg IN or 50 mg IM**, after 15 minutes.

### **PEDI:**

- Limited to use in patients age 8 or greater.
- Chemical restraint for combative patient, including Excited Delirium: **1 mg/kg slow IV** (max dose 100 mg).
- Or **5 mg/kg IM** (max dose 500 mg, which is two doses of 250 mg)

### **PHARMOLOGIC EFFECTS**

- Ketamine is a Schedule III Phencyclidine (PCP) derivative that is rapid acting and produces a “dissociative” anesthesia in which the patient’s consciousness is detached from their nervous system. Due to its “dissociative” properties, Ketamine is a potent analgesic.
- Minimal cardiac depression occasionally reported with high doses administered rapidly IV. May transiently increase heart rate and blood pressure by central sympathetic stimulation.
- Ketamine is a bronchodilator and causes minimal to no respiratory depression.
- Because it has a minimal effect on blood pressure, it has therapeutic advantages over many narcotics and sedatives in patients who are hypotensive.
- May be given as an adjunct to narcotic pain medication, particularly in patients at risk for hypotension or respiratory depression.

### **CONTRAINDICATIONS:**

- Suspected cardiac chest pain
- Hypertensive Crisis
- When significant elevations in BP might prove harmful:
  - Acute Myocardial Infarction, angina
  - Aortic dissection

### **PRECAUTIONS AND SIDE EFFECTS:**

- An emergence reaction may occur near end of medication half-life, when patient is awakening (hallucinations, delirium, confusion, excitement, irrational behavior)
- May require administration of midazolam prior to wearing off.
- Catecholamine release (hypertension, tachycardia)
- Hypersalivation (the ketamine drool)
- Nausea, vomiting, particularly prevalent in pediatrics.

REQUIRES MCP: Adult= no

Pedi: no, repeat = yes

#### CLINICAL PEARLS

- **\*\*\*\*HIGH ALERT: KETAMINE IS SUPPLIED IN 500 MG VIALS. YOU WILL NOT ADMINISTER THIS WHOLE VIAL IV. THERE IS A MAJOR DIFFERENCE BETWEEN DOSES IN CERTAIN INDICATIONS AND BY DIFFERENT ROUTES. CHECK YOUR MATH BEFORE YOU GIVE THIS DRUG.\*\*\*\***

May re-medicate after 10 minutes as effects wear off.

Because of dissociative effect, patient may appear awake, with eyes open, though will not directly respond to stimuli.

Airway protective reflexes typically remain intact after administration, and Ketamine typically does not cause respiratory depression, which makes it appropriate for patients undergoing sedation who will not be intubated.

## **LIDOCAINE 2%**

**PACKAGED:** 100 mg in 5 ml syringe, 20 mg/ml, 2 in bag

### **INDICATIONS:**

Intubation on conscious patient

For pain caused by pressure of intraosseous fluid administration

### **ADULT:**

Intubation on conscious patient: 100 mg (5 ml) nebulized, or 50 mg (2.5 ml) in each nostril IN with MAD.

Pain associated with IO infusion: 1.5 mg/kg up to 100 mg via IO

### **PEDI:**

Intubation on conscious patient: 1.5 mg/kg nebulized (max dose 100 mg or 5 ml)

Pain associated with IO infusion: 0.5 mg/kg via IO

### **THERAPEUTIC ACTION:**

Decreases automaticity

### **CONTRAINDICATION:**

Hypersensitivity

Second or third degree heart block in absence of an artificial pacemaker

### **PRECAUTIONS AND SIDE EFFECTS:**

Lightheadedness, confusion, blurred vision, hypotension, cardiovascular collapse, bradycardia, altered level of consciousness, irritability, muscle twitching, seizures with high doses

Use extreme caution in patients with hepatic disease, heart failure, marked hypoxia, severe respiratory depression, hypovolemia or shock, incomplete heart block or bradycardia and atrial fib.

### **REQUIRES MCP:**

**ADULT:** No

**Pedi:** No

## **LIDOCAINE 2% GEL**

**PACKAGED:** 2% gel in a tube

**INDICATION:**

Lubrication of airway adjunct on conscious patient

**ADULT:**

Apply to airway adjunct.

**PEDI:**

Apply to airway adjunct.

**THERAPEUTIC ACTION:**

Suppresses stimulation of the upper airway activity such as, swallowing, gagging or coughing that can cause cardiovascular stimulation and elevation in intracranial pressure

**CONTRAINDICATION:**

**PRECAUTIONS AND SIDE EFFECTS:**

None

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No



**{MAGNESIUM-CONTAINING ANTACID}  
(Maalox or Mylanta)**

**PACKAGED:** Varies

**INDICATIONS:**

Ingestion of Hydrofluoric Acid  
Hydrofluoric Acid on skin

**ADULT:**

Following dilution with water or milk, have patient drink 3-4 oz. Maalox or Mylanta.  
Following irrigation, apply topically to burned area unless industry has already applied topical agents.

**PEDI:** N/A

**THERAPEUTIC ACTION:**

Neutralize acid and increases the pH

**CONTRAINDICATIONS:**

None in the emergency setting.

**PRECAUTIONS AND SIDE EFFECTS:**

Use with caution in neonates, geriatric patients, renal impairment  
Hypercalcemia, hypermagnesemia, nausea, vomiting, hypotension

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** N/A

**METHYLPREDNISOLONE  
(SOLU-MEDROL)**

**PACKAGED:** 40 mg in 1 ml. (2 ampules in bag)

**INDICATIONS:**

Severe allergic reactions  
Anaphylaxis  
Asthma  
COPD  
Emphysema

**ADULT:**

**A Solu-Medrol 80 mg IV.**

**PEDI:**

**P Solu-Medrol 2 mg/kg IV, max dose 80 mg.**

**THERAPEUTIC ACTION:**

Potent anti-inflammatory steroid  
Accelerates detoxification of cyanide

**CONTRAINDICATION:**

None

**PRECAUTIONS AND SIDE EFFECTS:**

Cardiac arrhythmias, syncope

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** Yes for repeat.

- Solu-Medrol (METHYLPREDNISOLONE) is intended to augment standard therapy for anaphylaxis, allergic reaction, and to address airway edema and inflammation in asthma. No significant change in patient condition in the field should be expected from the administration of Solu-Medrol. This medication is intended for cases that are of a more urgent nature. A general guideline would be not to initiate an IV only to administer this medication when patient condition otherwise does not warrant an IV start. There is definite, time dependent benefit to Solu-Medrol making field administration of significant value. Solu-Medrol will be given to all patients treated within the allergic reaction or anaphylaxis protocol only after all other applicable first-line medications have been delivered.

**A Solu-Medrol 80 mg IV.**

**P Solu-Medrol 2 mg/kg IV, max dose 80 mg.**

**MIDAZOLAM  
(Versed)**

**PACKAGED:** 10 mg in 2 ml vial, (5 mg/ml) (2 in drug bag)

**INDICATIONS:**

Conscious patient requiring cardioversion

Conscious patient requiring pacing

For seizure IN

After intubation, if patient is resisting and SBP is normal for age.

As chemical restraint for combative patient

**ADULT:**

Cardioversion, Pacing: 2 mg slow IV

Seizures: 10 mg IN (5 mg in each nostril) or 2 mg slow IV or 4 mg IM

If seizure persists: Repeat 5 mg IN or 2 mg slow IV or 4 mg IM

Chemical restraint: 10 mg IN or 2 mg slow IV or 4 mg IM

**PEDI:**

Sedation: 0.1 mg/kg (max dose 2 mg) slow IV

Seizures: 0.2 mg/kg IN (max dose 4 mg) or 0.1 mg/kg slow IV (max dose 2 mg) or 0.2 mg/kg IM (max dose 4 mg)

If still seizing: Repeat one-half of initial Midazolam doses except **NO IM ROUTE REPEAT**

Chemical restraint: Call MCP for repeat doses. 0.2 mg/kg IN (half dose each nostril, max dose 4 mg) or 0.1 mg/kg slow IV (max dose 2 mg), or 0.2 mg/kg IM (max dose 4 mg)

**THERAPEUTIC ACTION:**

Provides sedation

**CONTRAINDICATIONS:**

**PRECAUTIONS AND SIDE EFFECTS:**

Be prepared to monitor respirations and intubate and ventilate if necessary.

Use with caution with lactating mothers.

Geriatric & debilitated patients require lower doses & are more prone to side effects.

Provide continuous monitoring of respiratory & cardiac function.

Can cause respiratory depression.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No for seizures, Yes for chemical restraint

## MORPHINE

### JITSO

**PACKAGED:** 5 mg in 1ml vial (2 in drug bag)

**INDICATIONS:**

Pain relief in suspected cardiac chest pain, trauma emergencies, extremity fractures, dislocations, sprains, frostbite, abdominal pain, Haz-Mat Hydrofluoric Acid (HF), unilateral back pain and other painful conditions.

**ADULT:**

Up to 5 mg slow IV based on patient's weight, provided SBP > 100.

Repeat Dose: May repeat up to 5 mg

If unable to establish IV, Morphine 5 mg IM

**PEDI:**

Pain relief in trauma emergencies, extremity fractures, dislocations, sprains, frostbite, pulmonary edema, abdominal pain, Haz-Mat Hydrofluoric Acid (HF) peds > 2 years old

0.1 mg/kg slow IV (max dose 5 mg) provided appropriate SBP.

Repeat Dose: 0.1 mg/kg, may repeat up to 5 mg.

If unable to establish IV, Morphine IM 0.1 mg/kg, max 5 mg

**THERAPEUTIC ACTION:**

Provides analgesia, reduces cardiac preload by increasing venous capacitance and decreasing afterload

**CONTRAINDICATIONS:**

Hypersensitivity to narcotics

Hypotension

Head injury, increased ICP

Severe respiratory depression

Patients who have taken MAO inhibitors within 14 days

**PRECAUTIONS AND SIDE EFFECTS:**

Hypotension, tachycardia, bradycardia, palpitations, syncope, facial flushing, respiratory depression, euphoria, bronchospasm, dry mouth, allergic reaction

Use with caution in the elderly, those with asthma, and in those susceptible to CNS depression.

May worsen bradycardia or heart block in inferior MI (vagotonic effect)

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** Yes for repeat doses

## **NALOXONE (Narcan)**

**PACKAGED:** 2 mg in 2 ml vial, 1 mg/ml (6 in drug bag)

**NOTE:** Naloxone administration should be to improve respirations in an unresponsive patient with a hypoventilation condition, and not to awaken an unconscious patient. It should be given slowly to titrate to effect. Narcan can precipitate narcotic withdrawal, with all of its problems. If the patient has a pulse, Naloxone should be given before intubation.

After administration of **Naloxone**, patient transport by EMS is encouraged, even if patient becomes responsive.

### **INDICATIONS:**

Respirations depressed or high index of suspicion of narcotic overdose  
Suspicion of drug abuse in cardiac arrest

### **ADULT:**

2 mg IN, 4 mg IN if 2 mg has not been working in your area.

If respirations don't improve after 2 minutes, establish IV and administer 2 mg slow IV, if no or inadequate (poor respiratory effort, hypoxemia, hypotension) response is noted.

May repeat Naloxone doses in 2 minutes.

Or 4 mg IM. Titrate to adequate respirations.

### **PEDI:**

#### **Naloxone:**

≤ 20 kg **0.1 mg/kg slow IN, IV, IM** (max dose 2 mg) may repeat x one

> 20 kg **2 mg, slow IN, IV, IM**, may repeat as needed

**Naloxone slow IV** is preferred, but it may be given IN before IV is established.

Titrate to adequate respirations.

If using IN route and respirations don't improve after 2 minutes, establish IV and administer IV dose.

### **THERAPEUTIC ACTION:**

A competitive narcotic antagonist

### **CONTRAINDICATIONS:**

Hypersensitivity

Use with caution in narcotic-dependent patients who may experience withdrawal syndrome (including neonates of narcotic-dependent mothers).

### **PRECAUTIONS AND SIDE EFFECTS:**

Tachycardia, hypertension, dysrhythmias, nausea and vomiting, diaphoresis, blurred vision, opiate withdrawal

May not reverse hypotension

Caution should be exercised when administering to narcotic addicts (may precipitate withdrawal with hypertension, tachycardia and combative behavior).

### **REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

**NITROGLYCERINE**  
**(Abbreviated as NTG in the orders)**  
**(Nitrostat)**

**PACKAGED:** Dark brown glass bottle, 0.4 mg SL tablet

**INDICATIONS:**

Use only on patients who are at least 25 years old or have been prescribed Nitroglycerine.

Cardiac related chest pain

Pulmonary edema with systolic BP over 100 mmHg

Crack or Cocaine overdose with chest pain

**ADULT:**

0.4 mg SL every 5 min for continued chest pain up to a total of 3 tablets

**PEDI:**

N/A

**THERAPEUTIC ACTION:**

Vasodilator which decreased preload and to a lesser extent, afterload

**CONTRAINDICATIONS:**

Hypersensitivity

Hypotension

Use of sexual enhancement drugs in last 24 hours

Taking Revatio (a pulmonary hypertension medication)

Head injury

**PRECAUTIONS AND SIDE EFFECTS:**

Transient headache, reflex tachycardia, hypotension, nausea & vomiting, postural syncope, diaphoresis

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** N/A

**NOREPINEPHRINE  
(LEVOPHED)**

**PACKAGED:** 4 mg/4ml for dilution in 250 ml of IV fluids

**NOTE:** Protect from light.

**INDICATIONS:** For blood pressure control in acute hypotensive states in the non-trauma patient. As an adjunct in the treatment of cardiac arrest and profound hypotension.

**ADULT:** Add 4 mg to 250 ml of IV fluids. Infuse starting at 30 drops per minute (max 45 drops) with 60 drop tubing and titrate to effect. Increase by 5 drops every 5 minutes.

**PEDI:** ♦ Contact MCP for dosing and administration guidance.

**THERAPEUTIC ACTION:** Peripheral vasoconstrictor. Positive inotrope (increases cardiac contractility) and chronotrope (increases heart rate).

**CONTRAINDICATIONS:** Should not be given to patients who are hypotensive from acute hemorrhage.

**PRECAUTIONS AND SIDE EFFECTS:**

**THIS DRUG MUST BE DILUTED BEFORE ADMINISTRATION.**

Avoid hypertension. Administer in free-flowing IV and watch for infiltration. If extravasation occurs, stop the infusion immediately as necrosis may occur due to vasoconstrictive action of the drug. Leave the catheter in place so that a reversal agent can be given through the infiltrated catheter.

The infusion must be stopped immediately if it free flows and call MCP.

Do not use the solution if its color is pinkish or darker than slightly yellow or if it contains particles.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** Yes

**NORMAL SALINE  
(SODIUM CHLORIDE SOLUTION)**

**PACKAGED:** Flexible non-latex plastic materials, generally 0.9% solution with a pH of 5.5

**INDICATIONS:**

Solution for fluid and electrolyte replenishment

Hypovolemia

Flushing of wounds

Shock

Pulmonary edema with systolic BP over 100 mmHg

Sepsis

**ADULT:**

Non traumatic shock without pulmonary edema: 500 ml

Non traumatic shock with pulmonary edema: 250 ml

Sepsis: 1 L

Penetrating trauma to chest or abdomen: enough fluid to obtain a radial pulse

Crush syndrome: if hypotensive 1 L

Heat exposure: 500 ml

**PEDI:**

20 ml/kg

**CONTRAINDICATIONS:**

**PRECAUTIONS AND SIDE EFFECTS:**

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No



## **NORMOSOL-R**

**PACKAGED:** Flexible non-latex plastic materials, generally solution with a pH of 6.6

### **INDICATIONS:**

Solution for fluid and electrolyte replenishment

Hypovolemia

Flushing of wounds

Shock

Pulmonary edema with systolic BP over 100 mmHg

Crack or Cocaine overdose with chest pain

### **ADULT:**

Non traumatic shock without pulmonary edema: 500 ml

Non traumatic shock with pulmonary edema: 250 ml

Sepsis: 1 L

Penetrating trauma to chest or abdomen: enough fluid to obtain a radial pulse

Crush syndrome: if hypotensive 1 L

Heat exposure: 500 ml

### **PEDI:**

20 ml/kg

### **THERAPEUTIC ACTION:**

### **CONTRAINDICATIONS:**

### **PRECAUTIONS AND SIDE EFFECTS:**

Hyperkalemia

### **REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

**ONDANSETRON**  
**(Zofran)**

**PACKAGED:** 4 mg in 2 ml vial, (2 mg/ml) (1 in drug bag)

**INDICATION:**

For nausea or active vomiting

**ADULT:**

Consider **Ondansetron 4 mg slow IV**, preferred route for active vomiting as pt may need hydration. If no IV, may use 4 mg dissolving tablet or administer the IV form PO.

**PEDI:**

Ondansetron **0.1 mg/kg IV** (max 4 mg).

**THERAPEUTIC ACTION:**

Stimulation of 5-HT 3 receptors causes transmission of sensory signals to the vomiting center via vagal afferent fibers to induce vomiting. By binding to 5-HT 3 receptors, Ondansetron blocks vomiting mediated by serotonin release.

**CONTRAINDICATION:**

Known hypersensitivity to Ondansetron

**PRECAUTIONS AND SIDE EFFECTS:**

Sudden blindness of 2-3 minute duration has occurred. It is suggested that the speed of delivery may contribute to the blindness.

Constipation, diarrhea, fever, headache

**REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

**ONDANSETRON**  
**(Zofran)**

**PACKAGED:** 4 mg tablet

**INDICATION:**

For nausea or active vomiting

**ADULT:**

4 mg SL

**PEDI:**

**Ondansetron 4 mg PO** if pt  $\geq 12$  y/o and wt is  $\geq 40$  kg.

Transport time should be considered prior to administration.

**THERAPEUTIC ACTION:**

Stimulation of 5-HT 3 receptors causes transmission of sensory signals to the vomiting center via vagal afferent fibers to induce vomiting. By binding to 5-HT 3 receptors, Ondansetron blocks vomiting mediated by serotonin release.

**CONTRAINDICATION:**

Known hypersensitivity to Ondansetron

**PRECAUTIONS AND SIDE EFFECTS:**

During pregnancy it should only be used where clearly needed.

Sudden blindness of 2-3 minutes duration has occurred. It is suggested that the speed of delivery may contribute to the blindness.

Constipation, diarrhea, fever, headache.

**REQUIRES MCP:**

**ADULT: No**

**PEDI: No**

## ORAL GLUCOSE

**PACKAGED:** Tube; concentration varies, check label

### **INDICATIONS:**

Hypoglycemia, if no IV access or available Glucagon

Generalized hypothermia without arrest

Altered level of consciousness of unknown cause

Seizures with BS < 60, no BS monitor available; or strong suspicion of hypoglycemia despite BS reading and no IV access.

### **ADULT:**

1 tube

May be repeated in 10 min. if BS remains < 60

### **PEDI:**

1 tube

May be repeated in 10 min. if BS remains < 60

### **THERAPEUTIC ACTION:**

Raise blood glucose concentration

### **CONTRAINDICATION:**

Inability to control the airway.

### **PRECAUTIONS AND SIDE EFFECTS:**

Use caution when giving to unresponsive patients.

Hyperglycemia

### **REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

## **PLASMALYTE-A or ISOLYTE**

**PACKAGED:** Flexible non-latex plastic materials, generally solution with a pH of 7.4

### **INDICATIONS:**

Solution for fluid and electrolyte replenishment

Hypovolemia

Flushing of wounds

Shock

Pulmonary edema with systolic BP over 100 mmHg

Crack or Cocaine overdose with chest pain

### **ADULT:**

Non traumatic shock without pulmonary edema: 500 ml

Non traumatic shock with pulmonary edema: 250 ml

Sepsis: 1 L

Penetrating trauma to chest or abdomen: enough fluid to obtain a radial pulse

Crush syndrome: if hypotensive 1 L

Heat exposure: 500 ml

### **PEDI:**

20 ml/kg

### **THERAPEUTIC ACTION:**

### **CONTRAINDICATIONS:**

### **PRECAUTIONS AND SIDE EFFECTS:**

Hyperkalemia

### **REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

## **PRALIDOXIME (2-PAM)**

**PACKAGED:** 600 mg auto-injector

### **INDICATION:**

To be used following Atropine in organophosphate, or nerve agent poisoning. Both for treatment of civilian patients at the scene, as well as for protection of public safety personnel who walk into scene & become unexpectedly contaminated.

### **ADULT:**

600 mg IM auto-injector

### **PEDI:**

Children > 20 kg: 600 mg IM auto-injector

### **THERAPEUTIC ACTION:**

Reactivates cholinesterase after poisoning with anticholinesterase agents, (Organophosphate or Nerve Gas)

Reverses muscle paralysis after organophosphate poisoning

### **CONTRAINDICATION:**

Hypersensitivity

### **PRECAUTIONS AND SIDE EFFECTS:**

Use with caution in myasthenia gravis, renal impairment, pregnancy, children. Can spread to child through breast feeding

### **REQUIRES MCP:**

**ADULT:** Yes

**Pedi:** Yes

## SODIUM BICARBONATE

**PACKAGED:** 50 mEq in 50 ml syringe, 1 mEq/ml, 2 in drug bag

### INDICATIONS:

Not for routine arrests  
Renal dialysis patient in asystole or PEA cardiac arrest  
Known tricyclic overdose  
Crush Syndrome

### ADULT:

Arrest in renal dialysis patient: 100 mEq IV  
Tricyclic antidepressant OD: 100 mEq IV  
May repeat dose of 50 mEq for persistent or prolonged QRS  
Consider for the excited delirium patient who goes into arrest  
Crush syndrome:

**A Sodium Bicarb 100 mEq IV**

**P Sodium Bicarb 1mEq/kg IV**

### PEDI:

Arrest in renal dialysis patient: 1 mEq/kg IV  
Tricyclic antidepressant OD: 1 mEq/kg IV.  
May repeat dose of 0.5 mEq/kg for persistent or prolonged QRS

### THERAPEUTIC ACTION:

Buffers metabolic acidosis

### CONTRAINDICATIONS:

### PRECAUTIONS AND SIDE EFFECTS:

Metabolic alkalosis, hypoxia, rise in intracellular PCO<sub>2</sub> and increased tissue acidosis, electrolyte imbalance (hypernatremia), seizures, tissue sloughing at injection site

### REQUIRES MCP:

#### ADULT:

Renal dialysis Arrest – No  
Tricyclic OD – Yes  
Excited delirium arrest - Yes

#### PEDI:

Arrest – No  
Tricyclic OD – Yes

## **SODIUM NITRITE**

### **JITSO**

**PACKAGED:** Container with Sodium Nitrite 300 mg in 10 ml vial

**NOTE:** Antidotes are available in each County by contacting (937) 333-USAR

**INDICATION:**

Patients with known or suspected Cyanide poisoning

**ADULT:**

Sodium Nitrite: 300 mg (10 ml) 3% solution slow IV

**PEDI:**

N/A

**SODIUM NITRITE:**

**THERAPEUTIC ACTION:**

Oxidizes hemoglobin which then combines with cyanide to form an inactive compound,

**CONTRAINDICATION:**

Nitrite/nitrate allergy

**PRECATIONS AND SIDE EFFECTS:**

Methemoglobinemia if given in excessive amounts

**REQUIRES MCP:**

**ADULT:** Yes

**PEDI:** Not appropriate for use in the field



## **SODIUM THIOSULFATE**

**PACKAGED:** 12.5 gm in 50 ml vial  
Stored in caches.

### **INDICATIONS:**

Conscious patient with known or suspected Cyanide poisoning  
Smoke Inhalation with suspected cyanide component  
Cardiac arrest from known or suspected Cyanide poisoning or smoke inhalation

### **ADULT:**

12.5 gm (50 ml) 25% solution slow IV

### **PEDI:**

Children > 25 kg: 12.5 gm (50 ml) 25% solution slow IV

Children < 25 kg: 412.5 mg/kg (1.65 ml/kg) of 25% solution (max dose 12.5 g (50 ml))

### **THERAPEUTIC ACTION:**

Accelerates detoxification of cyanide

### **CONTRAINDICATION:**

None

### **PRECATIONS AND SIDE EFFECTS:**

Possible hypotension

### **REQUIRES MCP:**

**ADULT:** Yes, unless arrest situation

**PEDI:** Yes, unless arrest situation

## **TETRACAINE**

**PACKAGED:** 0.5%/ml eye drop bottle

**INDICATION:**

Prior to eye irrigation in cases of chemical injury to the eye and in other situations with significant eye pain without possibility of penetrating trauma to eye.

**ADULT:**

2 drops in each affected eye

**PEDI:**

2 drops in each affected eye

**THERAPEUTIC ACTION:**

Provides rapid, brief, superficial anesthesia by inhibiting conduction of nerve impulses from sensory nerves

**CONTRAINDICATIONS:**

Hypersensitivity to Tetracaine

Open injury to eye.

**PRECAUTIONS AND SIDE EFFECTS:**

May cause burning or stinging sensation or irritation

Can cause epithelial damage and systemic toxicity

Incompatible with mercury or silver salts often found in ophthalmic products.

**REQUIRES MCP:**

**ADULT:** No

**PEDI:** No

## **VASOPRESSIN JITSO**

**PACKAGED:** 20 units/ml, 2 ml

### **INDICATION:**

Asystole, PEA

- CPR 1-2 minutes
- { 12 -lead EKG }
- **Vasopressin 40 units IV**
  - If IV is established, Vasopressin is permitted after either first or second dose of Epinephrine.
- CPR 1-2 minutes
- Consider **Atropine 1 mg IV** for asystole or slow PEA (repeat every 3 minutes up to 3 doses)
- CPR 1-2 minutes
- Epinephrine 1 mg IV, repeat every 3 minutes, no sooner than 10 minutes after Vasopressin.
- Continue CPR and repeat treatment as indicated.
- Consider treatable causes.

### **ADULT:**

40 units IV

### **PEDI:**

N/A

### **THERAPEUTIC ACTION:**

Potent peripheral vasoconstrictor. May be used as an alternative pressor to Epinephrine in the treatment of adult shock-refractory VF and PEA.

### **CONTRAINDICATIONS:**

### **PRECAUTIONS AND SIDE EFFECTS:**

May produce cardiac ischemia and angina.

### **REQUIRES MCP:**

**ADULT:** No

**PEDI:** N/A

**GREATER MIAMI VALLEY EMS COUNCIL  
YEAR 2018 PARAMEDIC SKILL SHEETS**

**PARAMEDICS:** Use these skill sheets and protocol to study for Skills Testing.

**SKILLS TESTERS:** Record Pass/Fail on Individual's Test Summary Sheet. Use these and additional adult/pediatric mega code sheets as guidelines for grading. It is only necessary to make enough copies of this packet for testers (those who have gone through Skills Evaluator sessions).

**Adult Mega Code** - Separate Paramedic Mega Code sheets used for testing.

ACLS Medications (verbal - covered in Mega Code)

Manual External Defibrillator (covered in Mega Code)

Orotracheal Intubation of Non-trauma Patient -----110

Automated External Defibrillator ----- 116

LMA-----125

**Pediatric Mega Code** - Separate Paramedic Mega Code sheets used for testing.

Orotracheal Intubation -----113

Use of Length / Weight Based Tape (covered in Mega Code)

**IV and Medications**

Nebulizer with Bag-Valve Device -----118

Complex Medication Administration -----121

Special Venous Access -Central Venous Catheter, Dialysis Catheter, or PICC Line -----119

Special Venous Access - Dialysis Fistula ----- 120

CPAP-----109

Intraosseous Infusion -----117

**Trauma**

Inline Orotracheal Intubation of the Trauma Patient -----111

Nasotracheal Intubation -----112

Needle Cricothyrotomy -----114

Chest Decompression -----115

**Optional Skills**

Acquisition of 12-lead EKG-----123

12-lead EKG Interpretation -----124

# **Adult Protocol Skill Evaluation** **CPAP Assessment and Application**

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

Level:    \_\_\_ EMT    \_\_\_ AEMT    \_\_\_ Paramedic

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
<b>Prepares patient:</b>			
Takes or verbalizes appropriate PPE precautions			
Assures adequate blood pressure 100 Systolic			
Positions patient in a position that will optimize ease of ventilation			
<b>Assesses patient to identify indications for CPAP:</b>			
Asthmatic			
Congestive heart failure			
Pulmonary edema			
COPD			
<b>Assesses patient to identify contraindications for CPAP:</b>			
Unconscious, unresponsive, inability to protect airway or inability to speak			
Inability to sit up			
Respiratory arrest or agonal respiration			
Nausea/vomiting			
Hypotension – Systolic <100			
Suspected pneumothorax			
Cardiogenic shock			
Penetrating chest trauma			
Facial anomalies/trauma/burns			
Closed head injury			
Active upper GI bleeding or history of recent gastric surgery			
Pt must be age 16 or older			
<b>Selects, checks and assembles equipment:</b>			
Assembles mask and tubing according to manufacturer instructions			
Coaches patient how to breathe through mask			
Connects CPAP unit to suitable O2 supply and attaches breathing circuit to device			
Turns on oxygen			
Sets device parameters, if applicable (goal of 10 cm /H <sub>2</sub> O)			
<b>Performs procedure:</b>			
Places mask over patients mouth and nose (leave EtCO <sub>2</sub> in place, if applicable)			
Goal of 10 cm H <sub>2</sub> O for treatment			
Coaches patient to breathe normally			
<b>Frequently reassesses patient for desired effects</b>			
Decreased ventilatory distress			
SpO <sub>2</sub> >92%			
Decreased adventitious lung sounds			
Absence of reactions (barotrauma, pneumothorax)			
Records settings/readings and documents appropriately			

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: OROTRACHEAL INTUBATION OF THE NON-TRAUMA PATIENT**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic

\_\_\_\_\_ AEMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for endotracheal intubation, with emphasis on situations in addition to cardiac arrest.			
B. List the equipment required to perform endotracheal intubation.			
C. List the potential complications of endotracheal intubation.			
D. Open the airway.			
E. Pre-oxygenate patient during preparations to intubate.			
F. Demonstrate the performance of cricoid pressure.			
G. Assemble equipment.			
H. Insert laryngoscope.			
I. Elevate the mandible.			
J. Insert the proper size ET tube.			
K. Remove the stylet.			
L. Document ETT at 20-22 cm at front teeth.			
M. Inflate the cuff with 5 to 10 ml. of air.			
N. Ventilate the patient.			
O. Confirm tube placement, using Capnography, Colorimetry or EDD. Be able to discuss the indications and limitations of each device.			
P. Confirm tube placement with at least 5 methods of verification and document the outcomes. <ul style="list-style-type: none"> <li>• Auscultation of epigastrium, anterior chest, midaxillary areas, epigastrium again</li> <li>• Condensation in the ETT</li> <li>• Visualization of tube passing between vocal cords</li> <li>A Depth of insertion of 20-22 cm marking at the teeth</li> <li>• Chest rise and fall</li> <li>• Improvement in patient's color</li> <li>• Improved pulse-ox readings</li> </ul>			
Q. Secure tube in place & reassess placement after any movement of patient.			
R. Consider applying cervical collar to prevent extubation			

**EQUIPMENT:**

- |                                  |                            |  |
|----------------------------------|----------------------------|--|
| 1. Proper size endotracheal tube | 4. Magill forceps          | 9. Commercial tube holder or proper taping method. |
| 2. Stylet                        | 5. 10 ml. syringe          | 10. Confirmation Device                            |
| 3. Laryngoscope Blade & handle   | 6. Suction equipment       | 11. C-collar                                       |
|                                  | 7. Stethoscope             | 12. Adult Intubation Manikin                       |
|                                  | 8. Gloves & Eye protection |  |

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, G, and O. If you need a reminder, the material is readily available in any standard textbook.

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: IN-LINE OROTRACHEAL INTUBATION OF THE TRAUMA PATIENT**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic

\_\_\_\_\_ AEMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for endotracheal intubation, with emphasis on situations in addition to cardiac arrest.			
B. List the equipment required to perform endotracheal intubation.			
C. List the potential complications of endotracheal intubation.			
D. Open the airway using c-spine precautions.			
E. Pre-oxygenate patient during preparations to intubate.			
F. Demonstrate performance of cricoid pressure.			
G. Assemble equipment.			
H. Insert laryngoscope.			
I. Elevate the mandible.			
J. Insert the ET tube.			
K. Remove the stylet.			
L. Document ETT at 20-22 cm at front teeth.			
M. Inflate the cuff with 5 to 10 ml. of air.			
N. Ventilate the patient.			
O. Confirm tube placement, using Capnography, Colorimetry, or EDD. Be able to discuss the indications and limitations of each device.			
P. Confirm tube placement with at least 5 methods of verification and document the outcomes. <ul style="list-style-type: none"> <li>• Auscultation of epigastrium, anterior chest, midaxillary areas, epigastrium again</li> <li>• Condensation in the ETT</li> <li>• Visualization of tube passing between vocal cords</li> <li>A Depth of insertion of 20-22 cm marking at the teeth</li> <li>• Chest rise and fall</li> <li>• Improvement in patient's color</li> <li>• Improved pulse-ox readings</li> </ul>			
Q. Secure tube in place & reassess placement after any movement of patient.			
R. Apply cervical collar.			

**EQUIPMENT:**

- |                                  |  |                              |
|----------------------------------|--|------------------------------|
| 1. Proper size endotracheal tube | 5. 10 ml. syringe                                  | 10. Confirmation device      |
| 2. Stylet                        | 6. Suction equipment                               | 11. C-collar                 |
| 3. Laryngoscope blade & handle   | 7. Stethoscope                                     | 12. Adult intubation manikin |
| 4. Magill forceps                | 8. Gloves & eye protection                         |                              |
|                                  | 9. Commercial tube holder or proper taping method. |                              |

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, G, and O. If you need a reminder, the material is readily available in any standard textbook

# ADULT PROTOCOL SKILL EVALUATION

## SUBJECT: NASOTRACHEAL INTUBATION

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: Paramedic

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for nasotracheal intubation.			
B. List the equipment required to perform nasotracheal intubation.			
C. List the potential complications of nasotracheal intubation.			
D. Open the airway.			
E. Pre-oxygenate patient during preparations to intubate.			
F. If patient's condition is potentially due to trauma, maintain C-spine precautions.			
G. Assemble equipment, select the appropriate ET tube. (Usually 7.0 or larger)			
H. As you insert the ET tube into the most patent nostril.			
I. Pass the tube along the floor of the nostril until it passes into the back of the throat.			
J. Advance tube slowly forward monitoring air flow via tube and from the patient's mouth. (Use BAAM device if available, listen for increased sounds of whistle)			
<ul style="list-style-type: none"> <li>If using an Endotrol, flexing the tube with its control loop will help align it with the trachea.</li> </ul>			
<ul style="list-style-type: none"> <li>If the tube enters into the esophagus, there will be no air flow through the tube, air flow will continue through the mouth. The patient may gag.</li> </ul>			
<ul style="list-style-type: none"> <li>If the tube enters into the trachea, air flow will continue through the tube. There may be slight flow through the mouth. The patient may cough. Have the patient take in a deep breath.</li> </ul>			
K. If using BAAM, there should be a definite increase in the sound of the whistle. Document and remove the BAAM.			
<ul style="list-style-type: none"> <li>Once the tube is in the trachea, inflate the cuff with 5-10 ml of air. Tape the ETT in place after assuring proper position.</li> </ul>			
L. Ventilate the patient.			
M. Confirm tube placement, specifying at least 5 methods of verification: <ul style="list-style-type: none"> <li>Auscultation of epigastrium, anterior chest, midaxillary areas, epigastrium again</li> <li>Condensation in the ETT</li> <li>Visualization of tube passing between vocal cords</li> <li>Depth of insertion ~ 25 cm marking at the nares</li> <li>Chest rise and fall</li> <li>Improvement in patient's color</li> <li>Improved pulse-ox readings</li> </ul>			
N. Secure tube in place & reassess placement after any movement of patient.			
O. Consider application of a cervical collar.			

### EQUIPMENT:

- |  |  |                              |
|--|--|------------------------------|
| 1. Proper size endotracheal tube (7.0, 7.5, 8.0) | 5. 10 ml. syringe                                  | 10. Confirmation device      |
| 2. Lubricant                                     | 6. Suction equipment                               | 11. C-collar                 |
| 3. Laryngoscope blade & handle                   | 7. Stethoscope                                     | 12. Adult intubation manikin |
| 4. Magill forceps                                | 8. Gloves & eye protection                         | 13. BAAM device              |
|  | 9. Commercial tube holder or proper taping method. |                              |

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, and M. If you need a reminder, the material is readily available in any standard textbook



**PEDIATRIC PROTOCOL SKILL EVALUATION**  
**SUBJECT: PEDIATRIC OROTRACHEAL INTUBATION**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic

\_\_\_\_\_ AEMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for endotracheal intubation, with emphasis on situations in addition to cardiac arrest.			
B. List the equipment required to perform endotracheal intubation.			
C. List the potential complications of endotracheal intubation.			
D. Open the airway.			
E. Pre-oxygenate patient during preparations to intubate.			
F. Assemble equipment, select proper size ETT and laryngoscope blade (use length-based tape).			
G. Insert laryngoscope.			
H. Elevate the mandible.			
I. Insert the ET tube.			
J. Remove the stylet.			
K. Document ETT depth at front teeth. Tube marking at teeth = 3 x tube size			
L. Ventilate the patient.			
M. Confirm tube placement, using Capnography, Colorimetry, or EDD. Be able to discuss the indications and limitations of each device. • EDD is contraindicated in pregnancy, or children under 5 y/o or 20 kg.			
N. Confirm tube placement with at least 5 methods of verification and document the outcomes. • Auscultation of epigastrium, anterior chest, midaxillary areas, epigastrium again • Condensation in the ETT • Visualization of tube passing between vocal cords <b>P</b> Depth of insertion = tube size x 3 • Chest rise and fall • Improvement in patient's color • Improved pulse-ox readings			
O. Secure tube in place & reassess placement after any movement of patient.			
P. Consider applying cervical collar/towel roll to prevent extubation.			

**EQUIPMENT:**

- |                                  |  |
|----------------------------------|--|
| 1. Proper size endotracheal tube | 6. Stethoscope                                     |
| 2. Proper size stylet            | 7. Gloves & eye protection                         |
| 3. Laryngoscope blade & handle   | 8. Commercial tube holder or proper taping method. |
| 4. Magill forceps                | 9. Confirmation Device                             |
| 5. Suction equipment             | 10. C-collar or towel roll                         |
|                                  | 11. Pedi intubation manikin                        |

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, F, and M. If you need a reminder, the material is readily available in any standard textbook.

## ADULT PROTOCOL SKILL EVALUATION

### SUBJECT: NEEDLE CRICOTHYROTOMY

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: Paramedic

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for needle cricothyrotomy.			
B. List the equipment required to perform needle cricothyrotomy.			
C. List the potential complications of needle cricothyrotomy.			
D. Attempt to oxygenate patient during preparations for cricothyrotomy.			
E. Assemble equipment.			
F. Place patient in supine position.			
G. Palpate cricothyroid membrane.			
H. Prep area with Betadine wash.			
I. Attach angiocath to syringe.			
J. Insert needle (midline over cricothyroid membrane) at a 45 degree angle, directed caudally. <ul style="list-style-type: none"><li>• If dealing with a trauma patient, stabilize cervical spine and insert needle at 90 degree angle.</li></ul>			
K. Aspirate for air.			
L. Advance catheter and needle into trachea.			
M. Withdraw the needle.			
N. Attach catheter to oxygen tubing.			
O. Ventilate the patient.			
P. Confirm placement, specifying at least three methods of verification. <ul style="list-style-type: none"><li>• Capnography</li><li>• Chest rise and fall</li><li>• Auscultation of breath sounds</li><li>• Improvement in patient's color</li><li>• Improved pulse-ox readings</li></ul>			
Q. Secure tubing.			
R. Suction oropharynx.			

#### EQUIPMENT:

1. Syringe
2. 10 or 14 gauge angiocath
3. Oxygen tubing with Y connector or side port cut in tubing for controlling air flow.
4. Oxygen source with rate of 15-30 liters/minute, 50 psi.

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, and P. If you need a reminder, the material is readily available in any standard textbook

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: CHEST DECOMPRESSION**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic

\_\_\_\_\_ AEMT

Indication is a hemodynamically unstable patient.

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List inclusion criteria: <ul style="list-style-type: none"> <li>• MOI</li> <li>• Respiratory Distress or Failure</li> <li>• Diminished or absent breath sounds</li> <li>• Hemodynamic instability</li> <li>• Trauma arrest <ul style="list-style-type: none"> <li>○ Potential chest injury MOI with diminished/absent breath sounds</li> </ul> </li> <li>• Cardiac arrest in the asthmatic patient with diminished breath sounds either unilateral or bilateral</li> </ul>			
B. List exclusion criteria <ul style="list-style-type: none"> <li>• Lack of inclusion criteria</li> <li>• <b>Needle decompression is not to be performed unless patient is hemodynamically unstable</b></li> </ul>			
C. BSI			
D. Prepare equipment.			
E. Explain procedure to the patient.			
F. Administer high concentration Oxygen			
G. If patient has a sucking chest wound, place non-porous dressing taped on 3 sides over wound so air can escape.			
H. Identify landmarks: Angle of Louis or 2 <sup>nd</sup> or 3 <sup>rd</sup> intercostal space at the mid-clavicular line on the affected side. Insertion site should be just superior to the rib margin.			
I. Prepare the skin with antiseptic.			
J. Insert the needle at a 90 degree angle into the pleural cavity, just above the rib margin. Puncture the skin and advance the needle (perpendicular to chest) until you encounter a “pop” or rush of air.			
K. Remove the needle, keeping the catheter in place. Securely tape the catheter. Watch for kinks			
L. Reassess the patient for signs of improvement or complications <ul style="list-style-type: none"> <li>• Possible complications: <ul style="list-style-type: none"> <li>○ Local hematoma</li> <li>○ Pneumothorax/Hemothorax</li> <li>○ Infection</li> </ul> </li> </ul> <b>NOTE:</b> Insert the needle over (superior to) the rib to avoid striking vital structures such as nerves and vascular structures that lie at the inferior margins of the ribs.			

**EQUIPMENT:**

1. 14 ga 3 1/4” Angiocatheter (preferred)
2. Safety glasses and gloves
3. Stethoscope
4. Alcohol preps
5. Tape

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: AUTOMATED EXTERNAL DEFIBRILLATORS**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL:    \_\_\_\_ Paramedic    \_\_\_\_ AEMT    \_\_\_\_ EMT    \_\_\_\_ First Responder

<b>STEPS</b>	<b>1<sup>st</sup> Test</b>	<b>2<sup>nd</sup> Test</b>	<b>3<sup>rd</sup> Test</b>
A. Perform an initial assessment of the patient.			
B. Begin CPR with 100% oxygen while preparing AED.			
• CPR continuously until AED is set-up and attached to patient			
○ If witnessed arrest: Defibrillate immediately.			
○ If unwitnessed arrest: Perform CPR for 1-2 minutes prior to defibrillation.			
• CPR continuously until AED is attached to patient.			
C. Turn on the AED.			
D. Place the defibrillator pads on the patient.			
E. Stop CPR. Allow AED to analyze rhythm.			
F. If shock is advised, clear all personnel from around the patient, and administer a shock.			
G. Resume CPR with compressions immediately if there is no patient response to the shock.			
H. Repeat steps E, F and G in 1-2 minutes if needed.			

**EQUIPMENT:**

1. A.E.D. per organization type
2. Simulator

**PROTOCOL SKILL EVALUATION**  
**SUBJECT: INTRAOSSEOUS INFUSION**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_Paramedic

\_\_\_\_\_AEMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for intraosseous infusion.			
B. List the potential complications of intraosseous infusion.			
C. Select the appropriate site for children: Anteromedial aspect of proximal tibial shaft, two fingerbreadths below the tibial tuberosity.			
D. Position leg for IO.			
E. Prepare the skin with appropriate antiseptic.			
F. Adjust the depth guard on the needle.			
G. Demonstrate proper insertion of the needle using the device approved by your department.			
H. Remove inner stylet and attach 10 cc syringe with 5 ml IV fluid. Aspirate for blood/marrow. Inject 5 ml of fluid to insure free flow.			
I. Attach IV tubing. Infuse fluid or medication using pressure infuser.			
J. Secure the I.O. Tape the tubing to the skin.			
K. List the signs of possible infiltration.			
L. Indicate proper site and positioning for adult insertion: <ul style="list-style-type: none"> <li>• Proximal tibia: <ul style="list-style-type: none"> <li>○ Two fingerbreadths below the patella and 1-2 cm medial to tibial tuberosity</li> </ul> </li> <li>• Distal tibia: <ul style="list-style-type: none"> <li>○ Flat portion of the distal tibia, just proximal to medial malleolus</li> </ul> </li> <li>• Humeral head: <ul style="list-style-type: none"> <li>○ 45<sup>0</sup> to the frontal plane and 45<sup>0</sup> towards inferior sternum.</li> </ul> </li> <li>• Distal femur—site of last resort: <ul style="list-style-type: none"> <li>○ Anterior midline above external epicondyles, 1-3 cm above femoral plateau.</li> </ul> </li> </ul>			

**EQUIPMENT:**

1. Bone Marrow Aspiration needle (or BIG, EZ IO)
2. Alcohol prep
3. Towels
4. IV Solution and tubing
5. 10 ml. syringe
6. Tape, 4x4s
7. Gloves & eye protection
8. 2 rolls of Kerlix.
9. IO manikin

When preparing for this skill evaluation, be sure that you are able to meet the objectives A, B, C, G, and K. If you need a reminder, the material is readily available in any standard textbook. This skill sheet is a guideline to use; you may tailor it to the appropriate I.O. device carried by your department. Follow manufacturer's recommendations for the device.

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: USE OF NEBULIZER WITH BAG-VALVE DEVICE**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_Paramedic

\_\_\_\_\_AEMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for the use of nebulized drugs with bag-valve device.			
B. Connect bag-valve to nebulizer unit without mouthpiece as shown in drawing.			
C. Connect mask to elbow, then connect elbow to nebulizer as shown in drawing.			
D. Place medications and saline solution in the reservoir well of the nebulizer.			
E. Connect 1st oxygen supply to nebulizer @ 8-10 LPM. and. 2nd oxygen supply to bag-valve @ 12-15 LPM. (If only one oxygen source, attach it to nebulizer.)			
F. Use mask with non-intubated patient or attach elbow to endotracheal tube of intubated patient.			
G. Begin bagging patient, being careful to keep reservoir well of the nebulizer in an upright position.			
H. If only one oxygen source is available, reconnect oxygen tubing to bag-valve device after medication has been administered.			
I. Monitor patient for effects of medications.			

Equipment as shown in the illustration:



**Note:** It is recommended that departments have the inline nebulizer set prepackaged and available for providers.

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: SPECIAL VENOUS ACCESS - CENTRAL VENOUS CATHETER, DIALYSIS**  
**CATHETER, OR PICC LINE**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: Paramedic

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for accessing a Central Venous Catheter, Dialysis Catheter, or PICC line.			
B. Prepare IV fluid and tubing.			
C. Cleanse catheter port with alcohol prep thoroughly. State reason for this.			
D. Attach 10 ml. or larger Luer lock needleless syringe.			
E. Unclamp catheter. Why is this done after attaching the syringe?			
F. Aspirate with very LITTLE force to withdraw 5 ml blood. Why is blood withdrawn?			
G. If you CANNOT aspirate blood, STOP the procedure.			
H. Reclamp catheter. Why is catheter reclamped before removing the syringe?			
I. Remove blood-filled syringe and discard into a sharps container.			
J. Cleanse catheter again with alcohol prep. Why is recleansing so important?			
K. Insert 10 ml or larger Luer lock needleless syringe filled with 10 ml NS.			
L. Unclamp catheter and flush catheter with 10 ml NS using a pulsating technique.			
M. Reclamp catheter & then remove syringe.			
N. Cleanse catheter again with alcohol prep.			
O. Attach IV tubing with Luer-lock connector to access port.			
P. Unclamp catheter. Why is this done after attaching IV tubing?			
Q. Adjust flow rate.			
R. Tape IV tubing securely in place in two places to patient's skin.			
S. Administer medications through IV tubing port, if indicated.			

**EQUIPMENT:**

1. IV tubing with Luer-lock connector and IV fluid
2. Two 10 ml or larger Luer-lock needleless syringes, one with 10 ml NS
3. Minimum of 6 alcohol preps

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: SPECIAL VENOUS ACCESS - DIALYSIS FISTULA**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: Paramedic

<b>STEPS</b>	<b>1<sup>st</sup> Test</b>	<b>2<sup>nd</sup> Test</b>	<b>3<sup>rd</sup> Test</b>
A. List the indications for accessing Dialysis Fistula.			
B. Prepare IV fluid and tubing.			
C. Do NOT use tourniquet, constricting band, or BP cuff on arm with fistula.			
D. Visualize or palpate fistula.			
E. Cleanse skin over fistula thoroughly.			
F. Insert catheter into fistula as you would into a vein, being careful NOT to puncture the back wall. State why.			
G. Withdraw needle holding downward pressure on fistula proximal to needle insertion. State why.			
H. Attach IV tubing to catheter while maintaining downward pressure on fistula. This may require two people.			
I. Adjust flow rate. Use pressure infuser, BP cuff on IV bag, or IV pump to facilitate flow. State why			
J. Tape IV tubing securely in place.			
K. Administer medications through IV tubing port, if indicated.			

**EQUIPMENT:**

1. IV tubing and IV fluid
2. Angiocath needle
3. Alcohol preps
4. Pressure infuser, BP cuff, or IV pump



**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: COMPLEX MEDICATION ADMINISTRATIONS**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic \_\_\_\_\_ AEMT \_\_\_\_\_ EMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
<b>AMIODARONE</b>			
A. List the indications for Amiodarone, and the “six rights”.			
B. List the equipment required to draw up Amiodarone.			
C. List the problems with drawing up Amiodarone & administration.			
D. Discuss contraindications & precautions regarding Amiodarone.			
E. Use large bore (i.e., 19 ga.) needle to draw up Amiodarone to prevent foaming.			
F. Discuss the differences in administration in cardiac arrest vs. non-arrest.			
<b>MIDAZOLAM</b>			
A. List the indications of Midazolam, and the “six rights”.			
B. Discuss contraindications & precautions regarding Midazolam.			
C. Discuss the issue of drug concentration (10 mg/2ml) with Midazolam.			
D. Using a TB syringe, demonstrate drawing up an appropriate amount of simulated Midazolam, and correct administration: 0.4 ml = 2 mg                      0.8 ml = 4 mg			
E. Discuss timing for administration of Midazolam (over 2 minutes).			
<b>DUODOTE</b>			
A. List the indications of DuoDote and the “six rights.”			
B. Don appropriate PPE. If pt. or public safety worker exhibits symptoms of nerve gas exposure, utilize DuoDote.			
C. If nerve agent symptoms are still present after 5 minutes, repeat injections. If symptoms still exist after an additional 5 minutes, repeat injections for a third time. If after the third set of injections, symptoms remain, do not give any more antidotes. Seek medical help.			
<b>EPIPEN ADMINISTRATION</b>			
A. Evaluate the patient, with attention to S&S of anaphylaxis.			
B. Demonstrate or voice infection precautions.			
C. Obtain the EpiPen auto-injector. Indicate when both EpiPens are needed. (Indicate Adult and Pedi doses)			
D. Check the medication for expiration date and for cloudiness or discoloration.			
E. Remove the safety cap.			
F. Select the injection site.			
G. Push the injector firmly against the site.			
H. Properly discard the injector.			
I. Monitor the patient and record the results of the treatment.			
J. Discuss precautions and side effects			
<b>D10</b>			
A. List the indication for use			
B. Demonstrate or voice infection precautions.			

C. Indicate dose and administration Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration.			
E. Discuss precautions and side effects (administer in continuously running IV)			
<b>GLUCAGON</b>			
A. List the indication for use			
B. Demonstrate or voice infection precautions.			
C. Indicate dose and administration Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration.			
E. Discuss precautions and side effects			
<b>NALOXONE</b>			
A. List the indication for use			
B. Demonstrate or voice infection precautions.			
C. Indicate dose and administration Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration.			
E. Discuss precautions and side effects			
<b>FENTANYL</b>			
A. List indications for use			
B. Demonstrate or voice infection precautions			
C. Indicate dose and routes of administration for Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration.			
E. Discuss precautions and side effects			
<b>KETAMINE</b>			
A. List indications for use			
B. Demonstrate or voice infection precautions			
C. Indicate dose and routes of administration for Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration			
E. Discuss precautions and side effects			
<b>SOLUMEDROL</b>			
A. List indications for use			
B. Demonstrate or voice infection precautions			
C. Indicate dose and routes of administration for Adults and Peds			
D. Check the medication for expiration date and for cloudiness or discoloration			
E. Discuss precautions and side effects			

**ADULT PROTOCOL SKILL EVALUATION****SUBJECT: 12-Lead EKG Acquisition**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL:    \_\_\_\_Paramedic    \_\_\_\_ AEMT    \_\_\_\_EMT

<b>STEPS</b>	<b>1<sup>st</sup> Test</b>	<b>2<sup>nd</sup> Test</b>	<b>3<sup>rd</sup> Test</b>
Student will demonstrate how to acquire a 12-lead EKG, completing the following steps within two minutes:			
Expose chest			
Limb lead placement, and placement options			
Precordial (chest) lead placement, with <u>no</u> deviation			
Speed (all ten leads must be placed within two minutes)			
When to acquire according to optional Standing Orders			
Interface with hospital: Notify if you or machine suspect MI Rapid transport			
Monitor quality vs. Diagnostic quality			
Frequency response Must use printed EKG for ST segment analysis			
Calibration			
Paper speeds			
Various limb lead placements			
Importance of anatomical uniformity with precordial leads			
Need for note on chart and EKG if non-standard position			
Negative complex in aVR as “test” for lead placement			
Hair removal			
Artifact, and what to do about it: Skin prep Electrode attachment Patient movement Cable movement Vehicle movement EMI			

**ADULT PROTOCOL SKILL EVALUATION**  
**SUBJECT: 12-Lead EKG Interpretation**

NAME \_\_\_\_\_

DATE \_\_\_\_\_

LEVEL: \_\_\_\_\_ Paramedic

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
<p>Show each paramedic five to ten EKGs. In response to your questions, each paramedic should be able to identify the Components of the EKG following with 90% accuracy or better:</p> <ul style="list-style-type: none"> <li>P-R segment, Q waves, R waves, and S waves</li> <li>J-point, ST segment, T waves, TP segment, etc.</li> <li>QRS complexes</li> <li>Q waves</li> <li>Pathologic (&gt; or = 40 ms.) vs. physiologic (&lt; 40 ms.)</li> <li>ST elevation</li> </ul>			
<p>Paramedics should be able to measure time on the EKG using either seconds or milliseconds, and converting from one to the other with 80% accuracy or better.</p>			
<p>Given a series of EKGs with ST elevation, each paramedic should be able to identify the leads with ST elevation, and localize the area infarct as Anterior, Inferior, Lateral, or Septal with 80% accuracy or better.</p>			
<p>Given a series of EKGs with ST elevation, each paramedic should be able to recognize reciprocal changes (ST depression) with 70% accuracy or better.</p>			
<p>Given examples, the paramedic should be able to discuss the evolution of a myocardial infarction and the EKG changes over time, including the following phases:</p> <ul style="list-style-type: none"> <li>Hyperacute</li> <li>Acute</li> <li>Indeterminate</li> </ul>			
<p>Given a series of three to five EKGs, each paramedic should be able to recognize the following with 60% accuracy or better. You may give the paramedic a clinical presentation along with the EKG.</p> <ul style="list-style-type: none"> <li>LBBB</li> <li>RBBB</li> <li>Ventricular rhythms</li> <li>LVH</li> <li>Ventricular aneurysm</li> <li>Benign early repolarization</li> <li>Pericarditis (S&amp;S: sharp, localizable chest pain, radiates to base of neck, between scapulas)</li> <li>Digitalis (ST depression with sag)</li> </ul>			

## LARYNGEAL MASK AIRWAY

NAME \_\_\_\_\_ DATE \_\_\_\_\_

LEVEL:    \_\_\_\_ Paramedic    \_\_\_\_ AEMT    \_\_\_\_ EMT

STEPS	1 <sup>st</sup> Test	2 <sup>nd</sup> Test	3 <sup>rd</sup> Test
A. List the indications for insertion of an LMA.			
B. Select correct size LMA (See guidelines below).			
C. Check cuff by inserting air, then withdraw air.			
D. Deflate the cuff so that it forms a smooth “spoon-shape”.			
E. Lubricate the posterior surface of the mask with water-soluble lubricant.			
F. Hold the LMA like a pen, with the index finger placed at the junction of the cuff and tube.			
G. Non-Trauma Patient: With the head extended and the neck flexed, carefully flatten the LMA tip against the hard palate. Trauma Patient: With second person maintaining inline stabilization, carefully flatten the LMA tip against the hard palate.			
H. Use the index finger to push cranially, maintaining pressure on the tube with the finger.			
I. Advance the mask until definite resistance is felt at the base of the hypopharynx.			
J. Gently maintain cranial pressure with the non-dominant hand while removing the index finger.			
K. Without holding the tube, inflate the cuff with just enough air to obtain a seal (to a pressure of approximately 60 cm. H <sub>2</sub> O). See the instructions for appropriate volumes. Never overinflate the cuff.			
L. Ventilate & check breath sounds			
M. Confirm sufficient cuff inflation using the End Tidal CO <sub>2</sub> Detector (EDD cannot be used). CAUTION: Do Not give medications via the LMA.			

### EQUIPMENT:

1. LMA (correct size)
2. Water-soluble lubricant
3. 50 ml. syringe
4. Bag-valve mask
5. Stethoscope
6. End tidal CO<sub>2</sub> detector
7. Suction

LMA SELECTION GUIDELINES		
LMA Airway Size	Patient Size	Maximum Cuff Inflation Volumes
1	Neonates/Infants up to 5 kg. (11 lb.)	4 ml. air
1.5	Infants 5 - 10 kg. (22 lb.)	7 ml. air
2	Infants/Children 10 - 20 kg. (44 lb.)	10 ml. air
2.5	Children 20 - 30 kg. (66 lb.)	14 ml. air
3	Children 30 - 50 kg. (110 lb.)	20 ml. air
4	Adults 50 - 70 kg. (154 lb.)	30 ml. air
5	Adults 70 - 100 kg. (220 lb.)	40 ml. air
6	Adults > 100 kg. (220 lb.)	50 ml. air

## **DRUG BAG EXCHANGE PROGRAM**

### **PURPOSE**

To administer and monitor a drug bag exchange program between participating Fire, EMS and Private Ambulance departments and hospitals.

### **DRUG BAG EXCHANGE COMMITTEE**

Co-Chairpersons: 1 Hospital EMS coordinator  
1 Hospital pharmacy representative from each participating county

Members: EMS Coordinator from each participating hospital  
Pharmacy representative from each participating hospital  
Any interested GMVEMSC (Greater Miami Valley EMS Council) member

### **MEETINGS**

Scheduled: Two meetings per year as needed.

Unscheduled: As needed to discuss problem areas

### **OPERATING GUIDELINES**

#### **General**

- There are two types of drug bags: **ALS/BLS** and **BLS** (fanny pack style).
- All drug bags, both ALS/BLS and BLS, are the property of the GMVEMSC
- GMVEMSC drug bags are only for use by EMS providers located or stationed within GMVEMSC's region. Agencies may not use GMVEMSC drug bags for runs originating from stations outside of or responding to an address outside of GMVEMSC's region.
- Except in extreme circumstances, a GMVEMSC drug bag should not be used on multiple runs.
- There is an initiation fee for each new bag that EMS agencies add to the program.
- There is an annual maintenance fee for each ALS/BLS bag and BLS bag.
- There is an approved policy for replacement of lost or stolen drug bags (see Addendum A).
- To maintain the integrity of the drug bag contents, pharmacy departments' seal each compartment of stocked drug bags with a blue plastic device. The seal should only be broken for administration of prehospital emergency medical treatment by approved EMS personnel. After prehospital emergency medical treatment use, the drug bag should be cleaned and re-sealed with the red plastic device contained inside each drug bag compartment.
- The following actions may be taken for any department found to be in non-compliance with the Drug Bag Exchange Program Operating Guideline regarding opening and resealing the drug bag:
  - Notification of the Fire Chief, EMS Administrator, or Private Ambulance Administrator.
  - The governing agency, e.g., city council, trustees, EMFTS for private ambulance service, will be notified that action is being initiated for the Fire, EMS and Private ambulance service.
  - Removal of all drug bags from all locations of said Fire, EMS and Private ambulance service.
  - Written notification to the following that the said service is in violation of the operating policy of the Drug Bag Exchange Program:
    - Medical Director
    - Regional Physician Advisory Board
    - OH State Pharmacy Board
    - OH Division of EMS
    - All hospitals participating in the drug bag exchange program
- GMVEMS Council maintains an information database for all EMS personnel authorized to participate in the Drug Bag Exchange Program.
- Rosters with certification expiration dates for EMS providers are available via an online database for review and updates.

### **PARTICIPATION REQUIREMENTS**

- Active membership in the GMVEMS Council.
- Each agency in GMVEMSC must understand that Council typically communicates with departments and agencies via email, and that some of those messages concern changes to Standing Orders, pharmaceuticals in our Drug Bags, or other critical issues. Council maintains

two lists of emails:

- The GMVEMSC Listserve
- A distribution list of Agency Contacts
- As such, to participate in the Drug Bag Program, each agency must provide a minimum of one functioning email contact for each of those lists (may be the same person or different). Council desires to communicate as freely and effectively as possible, and agencies may provide as many as they like for each list, but must have at least one person who can reliably receive messages. Since in rare cases, these messages may be urgent, we encourage use of the “three-deep” rule: provide Council with three (or more) emails for each list.
- **ADDITIONAL REQUIREMENTS FOR DRUG BAG PROGRAM**
  - The protocol testing compliance letter (Addendum I) must be signed by the Chief within two weeks after completion of the CBT cycle, then faxed to Council.
  - The copy of your license needs to go to Council by April 30 of the calendar year. This is required, as the Pharmacy at each hospital needs your license on file in order to exchange drug bags with your department.
  - Complete drug bag updates when scheduled. This is essential. The Pharmacy Board has made it very clear that updates must be completed on time.
  - Provide a signed letter (Addendum C) from each department or agency acknowledging that they must comply with the requirements. This letter will be kept on file with Council.
- ***No department which participates in the Drug Bag Exchange Program shall possess a DEA License.***
- Area hospital participation according to Council guidelines. (See Addendum B).
- Document medical advisor approval for the use of the GMVEMS Council Operating Protocols with a signed, notarized letter, which is attached to the drug license renewal application form with a copy submitted to Council. Notarized letter is not required for renewal unless medications are added or there is a change in Medical Director from previous year.
- Signed agreement to abide by the GMVEMS Council Operating Guidelines for the Drug Bag Exchange Program (see Addendum C).
- Agreement to complete the GMVEMSC annual skills and annual written test between 1 January and 31 May unless otherwise scheduled by Council (see Non-Compliance Procedures).
- **Maintain all drugs at all times in a clean, temperature-controlled environment per Rule 4729-33-03(E) of the OH State Pharmacy Board Administrative Code. The rules can be seen at: <http://pharmacy.ohio.gov/rules/4729-33-03.pdf>**
- The ideal temperature span is 59-86 degrees F.
- In order to utilize an ALS/BLS or BLS drug bag in the pre-hospital emergency setting, the following equipment must be available, unless otherwise noted.
  - **BLS Provider:**
    - Oxygen
    - Pulse Oximetry
    - Extraglottic Airways
    - CPAP administration and management
    - Oral Glucose
    - Glucometry
    - Ice Packs
    - Suction (manual is acceptable)
    - AED (if approved by Medical Advisor)
  - **ALS Provider:**
    - Oxygen
    - EtCO<sub>2</sub> monitoring and detection for intubated patients (Detection day 1, Waveform by 2021)
    - 12-Lead acquisition, transmission and interpretation by 2021
    - MAD
    - IO and device
    - BAAM
    - Digital intubation

- IV pressure infuser
- Suction (manual is acceptable)
- Monitor or defibrillator or AED & intubation equipment

## LEVELS OF PARTICIPATION

- **Paramedic Level**
  - Each drug bag consists of a navy, standard issue drug bag. A Paramedic can access any of the compartments of bag to obtain medications per their protocol.
  - Each standard issue bag is labeled with a metal tag from 850 – up.
  - Upon completion of a transport, the entire bag is exchanged at the receiving hospital *with the appropriate paperwork following the steps above.*
- **AEMT Level**
  - A side compartment labeled “intermediate”
  - The AEMT can access compartments to obtain medications per their protocol. They cannot access the Center Inside Compartment or the Center Controlled Medication Compartment.
  - Upon completion of a transport, the entire bag is exchanged at the receiving hospital *with the appropriate paperwork following the steps above.*
- **Basic Life Support**
  - **The RED BLS compartment on an ALS/BLS bag or BLS fanny-pack style bag will carry the following medications ONLY:** Nitrostat, EpiPen, EpiPen Jr. and baby Aspirin. The EMT can only access this compartment and the Naloxone compartment to treat their patient per protocol.
  - Each bag is labeled with a numeric code.
  - Upon completion of a transport, the bag is exchanged at the receiving hospital *with the appropriate paperwork following the steps above.*

## EXCHANGE PROCESS

- Each department is assigned to a "home" hospital. The assigned hospital is the central resource for initial fulfillment of medications for the drug bags and wholesale exchanges, replacement, or additions as required by revisions to the GMVEMS Council Standing Orders Protocols. Under normal operating parameters, drug bags can be exchanged at any participating hospital or within the same department.
  - ALS/BLS bags may be exchanged one-for-one with another ALS/BLS bag. BLS bags may be exchanged one-for-one with another BLS bag.
- EMS providers are required to inventory each opened compartment, discard any used sharps and clean any contaminants from bag used, and apply a red seal before exchanging for a replacement bag. The red seal will be looped through the proximal portion of the zipper tab (not the outermost portion of the zipper tab).
- Once you have verified the contents, seal the compartment with the RED tag, **placing the blue seal from the opened compartment back in that compartment**, unless there is a discrepancy. If any old blue seals (from previous runs) are found in the compartment, remove them, and send them to the EMS Coordinator for the receiving hospital. .
- Any discrepancies (missing meds, expired meds, wrong meds or dose, altered or tampered meds, drug bag number discrepancy, etc.) that are identified shall be reported to the GMVEMSC using the Drug Bag Discrepancy Report. (See discrepancy procedure)
- The primary care provider for the patient is responsible for the inventory of the drug bag prior to sealing it. If two departments have accessed a drug bag, they should jointly seal the drug bag.
- Each hospital designates a specific location for the exchange of drug bags. EMS personnel are **required** to complete the Sign In and Out log when exchanging a drug bag. Once sealed, any provider can exchange the drug bag.
- Except when the patient must be removed to a non-participating drug bag exchange hospital or the patient was a non-removal, the drug bag must be exchanged at the time of patient delivery to



the hospital. In the case of the exceptions listed, the drug bag must be exchanged at a participating hospital within 8 hours.

- Every crew transporting a patient is expected to provide a completed run sheet to the hospital upon delivery or within 3 hours.
- EMS Providers are responsible for ensuring that all blue seals on the new bag are intact when logging out an exchanged bag.

### **WASTED DRUG PROCEDURE**

- **Some hospitals also require the use of the GMVEMSC approved Controlled Drug Usage Form in addition to documentation on the run sheet. This GMVEMSC approved form must be filled out for any controlled drug use, even if there is no wastage.** This information shall be on both the original EMS department form and the hospital copy for reference if needed.
- A copy of the run report must be left with the drug bag for the pharmacist.
- Fentanyl, Ketamine, Morphine, Versed and Valium are controlled drugs. If a medication is only partially administered, the paramedic or AEMT must account for the all of the unused portion.
- To insure the medications are properly accounted for, all paramedics and AEMTs will document:
  - The drug name
  - The amount used
  - The amount wasted
  - The signature of a second witness if there is wastage.
- The second witness can be a member of the EMS crew, as many hospital employees are no longer permitted to witness or sign for drug wastage.

### **GENERAL NON-COMPLIANCE PROCEDURES**

- Each department and department medical director(s) will be notified if the annual written test and skills check-off has not been completed within the prescribed time period.
- The Ohio State Board of Pharmacy will be notified that a department or individual members of a department have not completed the annual written test and skills check-off within the prescribed time period.
- Hospital EMS coordinators and pharmacy departments will receive a list of departments or individuals within a department that are not in compliance with the operating guidelines. At the end of the testing season, if a department does not have 100% of their personnel completing both skill and written tests (or explanations for individuals not in compliance) noted in the Standing Orders database, then appropriate action, up to and including the removal of department from the Drug Bag program, may be taken by the chair of the drug bag committee.
- If copy of drug license(s) is not received by due date, GMVEMS Council notifies EMS department medical director. GMVEMS Council reserves the right to initiate the non-compliance action process for any Fire/EMS/Private Ambulance service that does not provide documentation for drug license(s) renewal.

### **DRUG BAG DISCREPANCIES**

- **EMS providers are required to inventory each opened pouch prior to applying the red seal.**
- All discrepancies (missing meds, expired meds, wrong med or dose, altered or tampered meds, drug bag number discrepancy, etc.) that are identified shall be reported to GMVEMSC using the Drug Bag Discrepancy Report (Addendum E).
- **If at any time, an EMS provider encounters a discrepancy they will:**
  - Notify their EMS Officer of the discrepancy.
  - If the discrepancy was discovered after opening the bag, retain the blue seal and the hospital sticker that was attached to the drug bag in question.
  - If the EMS provider is at the hospital, he/she will log the bag in using the normal procedure at that hospital while retaining the blue seal.
  - He/she will advise the pharmacist or EMS Coordinator of the discrepancy and that they will be initiating the Discrepancy form as described below (pharmacist may request a copy of the

Discrepancy form).

- The EMS Officer may contact the EMS Coordinator if assistance is needed.

### **Discrepancies Involving Controlled Drugs or Potential Tampering:**

- When an issue arises concerning any of the following, a collaborative effort between the EMS organization or provider and the Hospital EMS Coordinator or Pharmacist shall be made in an attempt to resolve the issue:
  - A controlled drug (Fentanyl, Ketamine, Valium, Versed, or Morphine)
  - A stolen, missing or lost bag
  - Any medication that appears to have been altered or tampered with.
- If the issue cannot be resolved, the following steps shall be taken:
  - If the discrepancy was discovered by the EMS organization/provider, the person designated by the organization/provider shall comply with the requirements of OAC 4729-9-15 and GMVEMSC requirements as indicated below.
  - If the discrepancy was discovered by the hospital, the person designated by the hospital shall comply with the requirements of OAC 4729-9-15 and GMVEMSC requirements as indicated below.
- Required reporting for unresolved issues involving Controlled Drug or potential/suspected tampering or lost or stolen drug bags pursuant to Federal and State Laws and GMVEMSC Protocol include:
  - If you have knowledge of or suspect a discrepancy is due to a theft, contact your State of Ohio Board of Pharmacy agent immediately. Advise them you want to report a theft or drug discrepancy. They will connect you with the appropriate person. (OAC 4729-9-15)
  - File a report with the appropriate law enforcement authorities (ORC 2921.22).
  - Notify the Drug Enforcement Agency (DEA) within 24 hours of discovery using DEA Form 106 available electronically at:  
<https://www.deadiversion.usdoj.gov/webforms/app106Login.jsp>. A 30-day extension may be requested in writing from the DEA. (CFR 1301.76(b)).
  - Submit a completed GMVEMSC Drug Bag Discrepancy Report located at Addendum #E, with appropriate supporting documentation, to the GMVEMSC.
- "Dangerous drug" means any of the following:
  - (1) Any drug to which either of the following applies:
    - Under the "Federal Food, Drug, and Cosmetic Act," 52 Stat. 1040 (1938), 21 U.S.C.A. 301, as amended, the drug is required to bear a label containing the legend "Caution: Federal law prohibits dispensing without prescription" or "Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian" or any similar restrictive statement, or the drug may be dispensed only upon a prescription;
    - (b) Under Chapter 3715 or 3719 of the Revised Code, the drug may be dispensed only upon a prescription.
  - (2) Any drug that contains a schedule V controlled substance and that is exempt from Chapter 3719. of the Revised Code or to which that chapter does not apply;
  - (3) Any drug intended for administration by injection into the human body other than through a natural orifice of the human body;
  - (4) Any drug that is a biological product, as defined in section 3715.01 of the Revised Code.

### **Discrepancies Not Involving Controlled Drugs or Potential Tampering**

- Examples may include:
  - Non-controlled drugs that were not in the bag
  - Wrong number of medications or doses
  - Wrong drug concentration
  - Expired medications found
  - No expiration date on tag
  - Medications improperly labeled
  - Empty vials or packages left in bag. **DO NOT PUT ANY USED VIALS BACK IN DRUG BAG**

- Unsealed medications
- Wrong medication administered
- Unsealed pouch discovered
- Bag logged out with red seal (used bag)
- If discovered by EMS, the EMS Officer will initiate the Discrepancy form. They shall provide a copy of the form and the Blue Seal to the Hospital EMS Coordinator and shall fax a copy of the report to the GMVEMSC.
- If the Hospital discovers the discrepancy, the EMS Coordinator will initiate the Discrepancy Form and submit to GMVEMSC. If the EMS Coordinator is able to determine which EMS agency/hospital is responsible for the discrepancy, the agency or hospital will be notified and will receive a copy of the Discrepancy Form and the Blue Seal if applicable.

**The GMVEMSC will:**

- Maintain a record of all discrepancies that occur.
- Follow up with the agencies involved as needed.
- Advise the Drug Bag Chairperson of any and all discrepancies and action taken.

**The Drug Bag Committee Chairperson will:**

- Report at the bi-annual Drug Bag Committee meetings for discussion and resolutions to all discrepancies encountered.
- Assist the Council and or affected departments with any issues or questions that may result.

**DRUG BAG BLUE SEALS**

- **Blue seals:**
  - Blue seals are used by the pharmacy that inventories and restocks the ALS/BLS drug bags. The blue seals will have a hospital sticker attached to the seal that identifies the hospital and pharmacist that inventoried the bag and the expiration date of the next drug to expire. The inner compartment of the ALS bag and Intermediate will be sealed with a blue seal and will have the expiration date noted. The blue seal will be looped through the proximal portion of the zipper tab (not the outermost portion of the zipper tab). EMS should verify the blue seal is intact and has an expiration date before accepting the bag. When EMS opens a drug bag compartment, keep the blue seal in your possession until you have verified the contents are accounted for. Once you have verified the contents, seal compartment with RED tag, placing the blue seal in the compartment, unless there is a discrepancy.

**EMS MUST PLACE THE BLUE SEAL IN THE COMPARTMENT!**
- **Red Seals:**
  - Red seals identify ALS/BLS bags as being used. EMS providers are required to inventory each opened pouch, discard any used sharps and clean any contaminants from bag used and then take red seal from the inside compartment (supplied by pharmacy when restocking the ALS/BLS bag) and seal the used compartment. The red seal will be looped through the proximal portion of the zipper tab (not the outermost portion of the zipper tab).

Hospital Pharmacies should use the same style colored seals to maintain continuity of the system. Hospital pharmacists can purchase these seals through the GMVEMSC office.

Departments are required to have a tracking system that tracks all drug bag exchanges.

## ADDENDUM A

### Lost or Stolen Drug Bag Policy

RE: Lost or Stolen Drug Bags  
APPROVED: October 2017  
PURPOSE: To provide a uniform mechanism for the reporting of lost or stolen drug bags.

#### EMS DEPARTMENT SHALL:

- Anyone with a State of Ohio Board of Pharmacy (SOBP) license must notify the SOBP immediately upon discovery of a theft or possibility of a theft, 614-466-4143.
- Develop and implement an internal search mechanism for lost drug bags. The internal search mechanism should include:
  - Determine if drug bag was left at the scene.
  - Determine if drug bag was not exchanged on last run.
  - Determine if drug bag is in the wrong vehicle.
- The GMVEMSC will seek the assistance of the Drug Bag Co-Chair to check with all hospitals to determine if the bag might be in inventory or be alerted if it shows up at one of the hospitals.
- EMS Officer will initiate the Drug Bag Discrepancy Form and follow instructions for reporting lost or stolen drug bags. Completed paperwork and reports will be submitted to GMVEMSC.
- The GMVEMSC will contact the hospital EMS Coordinator with whom the EMS Department is assigned to work out a drug bag replacement. The EMS Coordinator will contact *GMVEMSC for a drug bag replacement after all paperwork is submitted and GMVEMSC will assess a fee for replacement bag to be paid for by the EMS Department receiving the replacement bag.*

## **ADDENDUM B**

### **HOSPITAL PARTICIPATION POLICY**

APPROVED: 29 November 2001

#### **GENERAL PURPOSE:**

To assure uniformity of hospital pharmacy participation in the DBEP.

#### **The Hospital Shall:**

- Purchase (at cost), fill, and maintain a supply of bags sufficient to meeting the needs of an average day, plus a few extra to meet peak demands for bag replacement.
- Accept responsibility for filling new bags for departments or vehicles as assigned by Council, at hospital expense.
- Assign one licensed pharmacist and an EMS coordinator to attend and participate in the Standing Orders and Drug Bag Exchange Program Committees.
- Agree to pay annual dues and any fees assessed by Council that are approved by the DBEP Committee and the GMVEMSC Council that pertain to the DBEP.

#### **GMVEMSC SHALL:**

- Maintain a current State Drug Licenses for all participants in the DBEP.
- Furnish hospital pharmacy with a current listing of all departmental personnel authorized to access the GMVEMSC drug bags and copy of the protocol.
- Assign departments to hospitals in both a geographic and otherwise equitable fashion.

**ADDENDUM C**

**AGREEMENT LETTER**

*Please type or print legibly*

*DEPARTMENT/SERVICE:* \_\_\_\_\_

*CONTACT PERSON:* \_\_\_\_\_

*TELEPHONE:* \_\_\_\_\_

*FAX:* \_\_\_\_\_

*This department/service agrees to abide by the GMVEMS Council Drug Bag Exchange Program and Standing Orders operating guidelines.*

*SIGNATURE:* \_\_\_\_\_

Fire Chief, EMS Administrator, or Private Ambulance Administrator.

*DATE:* \_\_\_\_\_

**Return to:**

GMVEMSC

241 Taylor, Suite 130

Dayton OH 45402

Phone: 937-228-1288

Fax: 937-228-1035

## **ADDENDUM D**

### **New Member Policy requiring Drug (ALS/BLS) bag for licensure of their ALS/BLS unit**

Those Agencies who have applied for membership and require a GMVEMSC drug bag to license their units may request a GMVEMSC drug Bag to be available 24 hours prior to the Ohio Medical Transportation Board (OMTB) inspection date providing they have done the following:

1. Have applied for a GMVEMSC membership
2. They have provided a copy of their State Pharmacy License
3. Have been given a provisional membership by the GMVEMSC Executive Committee if the inspection is before regularly scheduled Council meeting.
4. Personnel must be checked off on Standing Orders and data entered on GMVEMSC data base.
5. Medical Director must submit a notarized letter to the State Pharmacy Board with License application stating they approve their department to use the GMVEMSC protocols.
  - i. Medical Directors have the right to limit their personnel from using certain medications or procedures within the scope of the GMVEMSC protocols.
  - ii. Medical Directors may elect to change or add medications or procedures to the protocol. The Medical Director must include those protocols in addendum to the GMVEMSC, be responsible for the training and documentation of training in of their protocol as well as purchasing and maintaining those drugs that are not included in the standard inventory of the GMVEMSC ALS or BLS.

The agency has 72 hours to show proof of a temporary permit from the date of inspection to the GMVEMS Council office. If they cannot demonstrate an OMTB permit in that time the Drug bag must be returned to the Hospital to which the agency is assigned or the hospital that provided the drug bag.

# **ADDENDUM E** **GMVEMSC Drug Bag Discrepancy Report**

If at any time an EMS provider encounters a discrepancy they will notify their EMS Officer of the discrepancy. If the discrepancy was discovered after opening the bag, retain the blue seal and the hospital sticker that was attached to the drug bag in question. If the EMS provider is at the hospital, they will log the bag in using the normal procedure at that hospital. They will advise the pharmacist or EMS Coordinator of the discrepancy and that they will be initiating the Discrepancy form as described below (pharmacist may request a copy of the Discrepancy form).

Date of report:\_\_\_\_\_ Bag Number:\_\_\_\_\_ Date Discrepancy discovered:\_\_\_\_\_  
 Discovered by:\_\_\_\_\_ Hospital/EMS Dept making discovery:\_\_\_\_\_

Have blue Hospital seal? YES/NO If yes - Attach seal to report

## **Tracking:**

Date bag was logged out:\_\_\_\_\_ from (hospital)\_\_\_\_\_ To (EMS agency)\_\_\_\_\_ Date Bag turned in: \_\_\_\_\_ to (hospital)\_\_\_\_\_

**Description of the discrepancy:** (Attach addendum if additional space needed)

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**Describe efforts to resolve the discrepancy:** (Attach addendum if additional space needed)

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Was the discrepancy satisfactorily resolved? \_\_\_\_\_ If not, what steps are to be taken:\_\_\_\_\_

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Who will be responsible for any required reporting:\_\_\_\_\_

## **Reporting requirements:**

Was a police report filed? \_\_\_\_\_ Date: \_\_\_\_\_ By whom? \_\_\_\_\_

Was a DEA report filed? \_\_\_\_\_ Date: \_\_\_\_\_ By whom? \_\_\_\_\_

Required documents submitted to GMVEMSC By:\_\_\_\_\_ Date:\_\_\_\_\_

For Drug Bag committee use:

Wrong Med stocked		Bag logged out with red seal	
Expired meds found		Empty vials/packages found	
Wrong dose packaged		Open pouch found	
Missing Meds		Unsealed bottles found	
Wrong number packaged		Med found in wrong compartment	
No exp date on tag		Wrong med administered	
Atrovent/Albuterol not labeled		Lost or stolen bag	
Damaged medications		Other:	
Other:			

*GMVEMSC – White*

*Pharmacy - Yellow*

*EMS Department - Blue*



## **ADDENDUM F**

### **OAC 4729-9-15**

#### **REPORT OF THEFT OR LOSS OF DANGEROUS DRUGS, CONTROLLED SUBSTANCES, AND DRUG DOCUMENTS**

(A) Each prescriber, terminal distributor of dangerous drugs, or wholesale distributor of dangerous drugs shall notify the following upon discovery of the theft or significant loss of any dangerous drug or controlled substance, including drugs in transit that were either shipped from or to the prescriber, terminal distributor of dangerous drugs, or wholesale distributor of dangerous drugs:

- (1) The state board of pharmacy, by telephone immediately upon discovery of the theft or significant loss;
- (2) If a controlled substance, the drug enforcement administration (DEA) pursuant to section 1301.76(b), Code of Federal Regulations;
- (3) Law enforcement authorities pursuant to section 2921.22 of the Revised Code.

(B) Controlled substance thefts must also be reported by using the Federal DEA Report form whether or not the controlled substances are subsequently recovered and/or the responsible parties are identified and action taken against them. A copy of the federal form regarding such theft or loss shall be filed with the State Board of Pharmacy within thirty days following the discovery of such theft or loss.

- (1) An exemption may be obtained upon sufficient cause if the federal form cannot be filed within thirty days.
- (2) A request for a waiver of the thirty-day limit must be requested in writing.

(C) Each prescriber, terminal distributor of dangerous drugs, or wholesale distributor of dangerous drugs immediately upon discovery of any theft or loss of:

- (1) Uncompleted prescription blank(s) used for writing a prescription, written prescription order(s) not yet dispensed, and original prescription order(s) that have been dispensed, shall notify the state board of pharmacy and law enforcement authorities.
- (2) Official written order form(s) as defined in division (Q) of section 3719.01 of the Revised Code shall notify the state board of pharmacy and law enforcement authorities, and the drug enforcement administration (DEA) pursuant to section 1305.12(b), Code of Federal Regulations.

**ADDENDUM G**  
**OAC 4729-33-03 Security and storage of dangerous drugs**

(A) Overall supervision and control of dangerous drugs is the responsibility of the responsible person. The responsible person may delegate the day-to-day tasks to the emergency medical service (EMS) organization personnel who hold appropriate certification to access the dangerous drugs for which they are responsible.

(B) All dangerous drugs must be secured in a tamper-evident setting with access limited to EMS personnel based on their certification status except for sealed, tamper-evident solutions labeled for irrigation use. All registrants shall provide effective and approved controls and procedures to deter and detect theft and diversion of dangerous drugs.

(C) Only paramedics, advanced emergency medical technicians, registered nurses, physicians, and pharmacists who are associated with that EMS organization may have access to any controlled substances maintained by the EMS organization. Other persons employed by the EMS organization may have access to controlled substances only under the direct and immediate supervision of a paramedic, an advanced emergency medical technician as defined in rules 4765-16-01 and 4765-16-02 of the Administrative Code, a registered nurse, or a physician in emergency situations.

(D) Administration of dangerous drugs by EMS personnel is limited to the scope of practice, as determined by the State Board of Emergency Medical Services, for the individual's certification level and the protocols as established by the medical director or when the individual is acting within their certification level pursuant to direct prescriber's orders received over an active communication link.

(E) All dangerous drugs will be maintained in a clean and temperature-controlled environment.

(F) Any dangerous drug that reaches its expiration date is considered adulterated and must be separated from the active stock to prevent possible administration to patients.

(G) Any non-controlled dangerous drug that is outdated may be returned to the supplier where the drug was obtained or may be disposed of in the proper manner.

(I) Destruction of outdated controlled substances may only be done by a State Board of Pharmacy agent or by prior written permission from the State Board of Pharmacy office.

(J) Destruction of partially used controlled substances can be accomplished, with the appropriate documentation, by two licensed health care personnel, one of which must have at least an advanced emergency medical technician , as defined in rules 4765-16-01 and 4765-16-02 of the Administrative Code, level of training.

(K) Any loss or theft of dangerous drugs must be reported upon discovery, by telephone, to the State Board of Pharmacy, local law enforcement and, if controlled substances are involved, to the Drug Enforcement Administration. A report must be filed with the State Board of Pharmacy of any loss or theft of the vehicle or storage cabinets containing dangerous drugs used by the EMS organization.

(L) Any dangerous drug showing evidence of damage or tampering shall be removed from stock and replaced immediately.

## ADDENDUM H

### Ambulance Restocking Policy

EMS Supply Exchange Program  
September 23, 2014

#### History

The member hospitals of GDAHA have supported Emergency Medical Services agencies in the region for decades. In 1998, GDAHA received permission (Advisory Opinion No. 98.7) from the Department of Health & Human Services to continue to exchange drugs (GMVEMSC Drug Bag Program) and supplies with EMS agencies and avoid violating the anti-kickback (safe harbor) statute of the Social Security Act. The hospitals named in the advisory are in the eight (8) county West Central Region: Champaign, Clark, Darke, Greene, Miami, Montgomery, Preble and Shelby.

In December 2001, the Centers for Medicare and Medicaid Services issued an Ambulance Final Rule on Ambulance Restocking Safe Harbor. Elements of the Safe Harbor include: 1) Billing and Claim Submission; 2) Documentation; 3) Not Tied to Referrals; and 4) Compliance with other laws.

#### Current Situation

EMS agencies and personnel need to understand the benefits of the EMS Supply exchange program, as offered by GDAHA members participating in this program. EMS agencies and personnel must also realize that they must adhere to the agreement, particularly the areas highlighted below:

1. **Written records describing each of the medical supplies and/or medications utilized by the patient during the transport.** For all transports to Member Hospitals, the EMS agencies will provide the receiving Hospital Member with copies of such written records **upon arrival at the Hospital.**
2. Participating hospital members will restock EMS agency ambulances, at no charge to EMS agency, with the medical supplies and/or medications which were **utilized by the patient during the transport to the receiving Hospital.**

**Hospitals will not restock items used on patients delivered to another hospital.** It is the responsibility of the EMS agencies to restock items used on patients delivered to a hospital that is not a participant in the Agreement. **Participating hospitals will restock drug bags.**

Hospitals are not required to participate in this restocking program. This is a benefit to EMS Agencies in the region. Restocking an ambulance at a participating hospital for items used on a patient delivered to a hospital not participating in the agreement, will jeopardize this program.

Hospitals will not provide medical supplies to a new ambulance, or an old ambulance being returned to service. These ambulances must be stocked for the first time by the EMS agency.

## **ADDENDUM I**

### **Protocol Testing Compliance**

I, \_\_\_\_\_ (Chief's Name Printed), do hereby certify that all

members of \_\_\_\_\_ (Agency/ Department Name)

have completed the \_\_\_\_\_ (Year) GMVEMSC Protocol Testing as of \_\_\_\_\_ (Date

of Completion) with the exception of the following personnel:

(List anyone who has not completed testing)

\_\_\_\_\_  
Chief's Signature

**GREATER DAYTON AREA HOSPITAL ASSOCIATION  
GREATER MIAMI VALLEY EMERGENCY MEDICAL SERVICES COUNCIL  
GREATER MONTGOMERY COUNTY FIRE CHIEFS' ASSOCIATION  
POLICY STATEMENT FOR  
TEMPORARY REROUTING OF EMERGENCY PATIENTS**

To avoid misunderstanding, all parties are cautioned to use the word “rerouting,” never “closed.”

Patients are never rerouted for patient’s economic considerations.

The following patients are NOT rerouted:

**RESPIRATORY AND/OR CARDIAC ARREST  
CARDIAC & STROKE ALERT CRITERIA PATIENTS  
MAJOR TRAUMA  
MATERNITY  
SERIOUS BURNS  
HIGH RISK NEONATAL  
DIALYSIS PATIENT  
AIR MEDICAL TRANSPORT  
HYPERBARIC  
RECENTLY DISCHARGED PATIENTS (48 hours)**

When conditions exist that may hinder the timely treatment of additional emergency cases, the Designated Hospital Official will declare the “Rerouting of Emergency Patients to be in Effect.” The hospital will update the “GDAHA SurgeNet Web Page.” The Hospital will notify their appropriate dispatch center, identify the hospital, name and title of caller, as needed. The hospital will then notify (by prior agreement, this can be via the SurgeNet Web Page) at least the following organizations:

1. The emergency department of each metropolitan hospital:
  - a. The Dayton Children’s Hospital
  - b. Good Samaritan Hospital
  - c. Grandview Medical Center
  - d. Kettering Medical Center
  - e. Miami Valley Hospital
  - f. Miami Valley Hospital South
  - g. Southview Medical Center
  - h. Sycamore Medical Center
2. The appropriate emergency medical services – refer to individual hospital call list
3. The emergency department of non-metropolitan hospitals:
  - a. Wayne Hospital, Greenville
  - b. Atrium Medical Center, Middletown
  - c. Wilson Memorial Hospital, Sidney
  - d. Springfield Regional Medical Center
  - e. Mercy Memorial Hospital, Urbana
  - f. Upper Valley Medical Center, Troy
  - g. Greene Memorial Hospital, Xenia
  - h. Department of Veterans Affairs - Medical Center
  - i. 88<sup>th</sup> Medical Center, WPAFB

Communicate the following information:

Rerouting of emergency patients is requested by name hospital due to overcrowding. One of the following categories of rerouting may be requested. Hospitals MUST specify what category is being rerouted using the following options:

**Reroute all Emergency Patients  
Reroute all but major trauma (Trauma Centers Only)  
Reroute Intensive and/or Coronary Care Patients Only.**

*After two (2) hours hospitals will be notified by page and/or email to review their reroute status.*

It will be the responsibility of the **rerouting hospital to cancel their rerouting status and:**

1. Update the GDAHA SurgeNet Web Page
2. Use the same notification protocols used to initiate the rerouting procedure as appropriate

**LOCKDOWN:** the hospital has activated its disaster plan because of an internal emergency, bomb threat, or other situation rendering it unable to accept patients.

**INFORMATIONAL CATEGORIES:**

On occasion, hospitals will not be able to handle a certain category of patients. For example:

- CAT Scan is not available; stroke or head trauma patients should be diverted;
- Haz-mat patients should be diverted;
- A physician specialty is not available;

The hospital that is diverting this certain category of patients will not be considered rerouting in these circumstances. This will be shown on the web page as SPECIAL SITUATION – see Notes/Call.

**THREE HOSPITALS NEED TO REROUTE**

In the event that overcrowding and rerouting exists at the same time at two (2) hospitals in close geographic proximity (Addendum A) and the third hospital in the same geographic area needs to reroute, by prior agreement, all hospitals will terminate their rerouting **for a minimum of two hours (Forced Open)**. It will be the responsibility of the third hospital to initiate communication with the other rerouting hospitals' individuals responsible for reroute to review the situation. If any of the rerouted hospitals can stop rerouting they will do so, to avoid all hospitals having to stop rerouting.

**REROUTING EMERGENCY**

**If none of the three hospitals can stop rerouting, then a “rerouting emergency” will be declared and the following procedures will be followed.**

1. Update the GDAHA SurgeNet Web Page
2. All three hospitals will call previously notified agencies and inform them that rerouting emergency has been declared.
3. When a rerouting emergency is declared, Dayton Children's Hospital will remain available to accept patients up to 21 years of age (*no maternity patients*).
4. Squads should transport patients to their assigned reroute emergency “home base” hospital(s) (See Addendum B):

***Note: During mutual aid or out of district transport as aided agency/district.***

When emergency medical service personnel respond to an emergency call and the patient and/or physician requests him to proceed to a hospital which is rerouted, the emergency medical services personnel will have the responsibility of advising the patient and/or physician that “due to overcrowding of the hospital patient care may be jeopardized.” **If the patient and/or physician still requests to be transported to the rerouted hospital, the emergency medical services personnel will contact and consult with a Medical Control physician in the emergency department of the rerouted hospital.**

**All concerned parties should acknowledge the situation in which emergency medical services personnel (in the absence of a physician's judgment) may determine the victim to be in critical need of immediate medical care and decide to transport the victim to the nearest hospital, even though overcrowded conditions exist in the hospital. Any discussion concerning the decision of the emergency medical services personnel should be done privately and after the patient care has been initiated.**

Emergency medical service personnel should use their radios, cellular phone or dispatcher to notify the rerouting hospital in unusual circumstances (critical illness or injury, multi-victim incidents, etc.).

**GREATER DAYTON AREA HOSPITAL ASSOCIATION**  
**POLICY STATEMENT FOR**  
**TEMPORARY REROUTING OF EMERGENCY PATIENTS**  
**ADDENDUM A**

**Geographic Areas:**

1. In the event that overcrowding and rerouting exists at the same time at two (2) hospitals in the list below and a third hospital in the list below needs to reroute, by prior agreement no hospitals will reroute for two (2) hours.
  - a. Good Samaritan Hospital
  - b. Grandview Medical Center
  - c. Kettering Medical Center
  - d. Miami Valley Hospital
2. In the event that overcrowding and rerouting exists at the same time at two (2) hospitals in the geographic groups below and a third hospital needs to reroute, by prior agreement no hospitals will reroute for two (2) hours.
  - a. Greene Memorial and two (2) of the following: Miami Valley, Kettering, Grandview, Southview or Miami Valley Hospital South.
  - b. Upper Valley Medical Center and two (2) of the following: Good Samaritan, Grandview, Miami Valley, or Wilson Memorial Hospital in Sidney.
  - c. Any three (3) of the following: Atrium Medical Center, Southview, Sycamore, Kettering and Miami Valley South.
  - d. Wayne Hospital, Good Samaritan and Grandview.

PKB/pbt  
8-24-09

**ADDENDUM B**  
**GREATER DAYTON AREA HOSPITAL ASSOCIATION**

**REROUTE EMERGENCY**  
**EMS – HOSPITAL PROPOSED PAIRING**

Reroute Emergency is declared when three or more hospitals in the same geographic area are extremely overcrowded and none of the three hospitals feel that they can stop rerouting. When a rerouting emergency is declared the following procedures will be followed.

1. The third rerouting hospital will coordinate communications with the designated administrative person in charge, at the other rerouting hospitals.
2. **Each GDAHA hospital** will notify the home base EMS agencies assigned to them, as well as other squads that they normally notify out of the GDAHA service area, and inform them that a **Rerouting Emergency** has been declared. Squads should transport patient to their assigned “home base” hospital. Only Good Samaritan Hospital will notify Harrison Township. Only Miami Valley Hospital will notify Dayton Fire Department. Only Sycamore Hospital will notify Miami Township.
3. Following notification of EMS, hospitals able to maintain Normal Operation should not change their status on the web page to Reroute Emergency, until conditions warrant that change.
4. Squads should CONSIDER utilizing outlying hospitals or other hospitals in normal status.
5. Dayton Children’s Hospital will remain available to accept patients up to 21 years of age. *(No maternity patients.)*
6. Rerouting Emergency **DOES NOT** apply to the following categories of patients: respiratory and/or cardiac arrest; Trauma, maternity, serious burns, high risk neonatal, dialysis patient, air medical transport, hyperbaric, **cardiac or stroke** alert patients, or recently discharged patients (48 hours).
7. **After a maximum of two (2) hours all hospitals in Reroute Emergency must reevaluate their status.**
8. ***Squads should transport patients to their assigned reroute emergency “home base” hospital(s) as follows:***  
***Note: During mutual aid or out of district transport as aided agency/district***

**Good Samaritan Hospital**

Brookville  
Clayton, Englewood, Union  
Dayton Fire Department #16  
Eaton  
Harrison – Turner Road  
New Lebanon  
Lewisburg  
Trotwood  
West Alexandria  
North Central  
Phillipsburg

**McCullough Hyde Hospital-Oxford**

Camden

**Upper Valley Medical Center**

Miami County Squads



**Greene Memorial Hospital**

Cedarville Township  
Cedarville University  
Central State University  
Jefferson Township  
Miami Township  
New Jasper Township  
Silvercreek Township  
Spring Valley  
Xenia  
Xenia Township

**Grandview Medical Center**

Box 21  
Butler Township  
Dayton Fire Department #2, 8, 13, 14  
Harrison – I-75 & Needmore  
Vandalia

**Kettering Medical Center**

Dayton Fire Department #15, 18  
Kettering (4 units)  
Miami Valley Fire District #55  
Moraine (4 units)

**Miami Valley Hospital**

Dayton Fire Department #11, 10  
Jefferson Township  
Oakwood  
Riverside  
University of Dayton Public Safety

**Miami Valley Hospital South**

Bellbrook  
Kettering #36  
Sugarcreek (2 units)  
Washington Township #44

**Southview Medical Center**

Clearcreek Township  
Miami Valley Fire District #52  
Washington Township #41, 42, 43, 45  
Wayne Township

**Sycamore Medical Center**

Farmersville  
Miami Valley Fire District #51, 53, 54  
West Carrollton  
Germantown  
JEMS

**Springfield Reg. Med Center**

Hustead EMS  
Madison Township  
Harmony Township  
Springfield Township

Pleasant Township  
SFRD Medic  
German Township  
Pike Township  
Bethel Township  
Mad River Township  
Moorefield Township

**Wayne Healthcare**  
Darke County Squads

**Wilson Memorial Hospital**  
Shelby County Squads

**Atrium Medical Center**  
Gratis  
Lebanon  
Mason  
Monroe  
Turtlecreek  
Middletown

**Clinton Memorial Hospital-Wilmington**  
Massie Township

**Reid Hospital-Richmond, Indiana**  
NW Fire – New Paris

**Huber Heights Emergency**  
Huber Heights  
New Carlisle  
Bethel Miami

**Soin Medical Center**  
Beavercreek  
Fairborn

Pkb/pbt  
8-24-09

## **ADDENDUM C**

### **GREATER DAYTON AREA HOSPITAL ASSOCIATION EMS REROUTE PAGER**

A summary of the hospital reroute status is sent every 15 minutes. The following is an explanation of the abbreviations used

#### **HOSPITAL NAME ABBREVIATIONS**

**DCH** – Dayton Children’s Hospital  
**GSH** – Good Samaritan Hospital  
**GVH** – Grandview Medical Center  
**GMH** – Greene Memorial Hospital  
**KMC** – Kettering Medical Center  
**SRMC** – Springfield Regional Medical Center  
**MVH** – Miami Valley Hospital  
**MVS** – Miami Valley Hospital South  
**AMC** – Atrium Medical Center, Franklin  
**SVH** – Southview Medical Center  
**SYC** – Sycamore Medical Center  
**UV** – Upper Valley Medical Center  
**VA** – Department of Veterans Affairs Medical Center  
**WAY** – Wayne Hospital, Greenville  
**WMH** – Wilson Memorial Hospital  
**WP** – 88<sup>th</sup> Medical Center, WPAFB

#### **HOSPITAL STATUS ABBREVIATIONS**

**NORM** – Normal Operations  
**ALL** – Reroute all Emergency Patients  
**MTO** – Reroute all but major trauma (Major Trauma Only)  
**ICOR** - Reroute Intensive and/or Coronary Care Patients Only  
**FO** – Forced Open  
**EMR** – Emergency Reroute  
**CALL** – Special Situation Call the ED  
**LOCK** – Internal Emergency ED is Closed

PKB/pbt  
8-24-09

## HOSPITAL CAPABILITIES CHART

HOSPITAL	Trauma Center	Burn Center	Interventional Cardiac Cath	Stroke Telemedicine	Stroke Primary	Stroke Comprehensive	L & D
Atrium Med, Mason	A 3		Cardiac	Y	Y		Y
Atrium Med, Middle							
Bethesda Arrow Spr				Y			
Bethesda Butler Hos				Y			
Children's Hospital South							
Dayton Children's	P 2	Y					
Fort Hamilton			Cardiac	Y	Y		Y
Franklin Emer Ctr				Y			
Good Samaritan Hosp			Cardiac	Y	Y		Y
GSH North				Y			
Grandview	A 3		Cardiac	Y	Y		
Greene Memorial Hosp	A 3			Y			
Huber Heights Emer Ctr				Y			
Jamestown				Y			
Kettering Medical Ctr	A 2		Cardiac	Y	Y	KMC	Y
McCullough-Hyde Hosp				Y			Y
Mercy Memorial Hosp				Y			
Miami Valley Hosp	A 1	Y	Cardiac	Y	Y	MVH	Y
MVH South				Y			Y
Preble County Emer Ctr				Y			
Reid Memorial Hosp			Cardiac	Y			Y
Soin Medical Ctr	A 3			Y	Y		Y
Southview Medical Ctr			Cardiac	Y	Y		Y
Springfield Regional MC			Cardiac	Y			Y
Sycamore Medical Ctr				Y	Y		
Upper Valley Medical Ctr				Y			Y
Veterans Admin Med Ctr							
Wayne Health Care				Y			Y
West Chester Hosp	A 3		Cardiac	Y	Y		Y
Wilson Memorial Hosp				Y			Y
WPAFB Medical Ctr							Y

**Notes:** Comprehensive stroke centers have the capability of endovascular intervention 24/7.  
Primary stroke centers have CT and tPA capabilities and focus on evaluating patients for intravenous tPA.  
Telemedicine with tPA ready offers immediate access to Neurologist.

Hospitals in **bold type** ask to be called for every patient.

HOSPITAL	PHONE	FAX
Atrium Medical Center, Mason	513-229-3672	513-770-2741
Atrium Medical Center, Middletown	513-424-3924	513-420-5133
<b>Bethesda Arrow Springs</b>	<b>513-282-7222</b>	<b>513-867-2581</b>
<b>Bethesda, Butler County</b>	<b>513-893-8222</b>	<b>513-893-8321</b>
<b>Cincinnati Children's Stat Line</b>	<b>513-636-8008</b>	
<b>Dayton Children's Hospital South</b>	<b>937-641-4444</b>	<b>937-641-4880</b>
<b>Dayton Children's Hospital</b>	<b>937-641-4444</b>	<b>937-641-5301</b>
Fort Hamilton	513-867-2144	513-867-2581
Franklin Emergency Center	937-458-4728	937-458-4737
Good Samaritan Hospital <b>Maternity</b>	937-275-9722 <b>937-734-7579</b>	937-276-8217
Good Samaritan Hospital North	937-540-1067	937-734-5977
Grandview Hospital	937-723-3419	937-723-4609
Greene Memorial Hospital	937-372-2297	937-352-3501
Huber Heights Emergency Center	937-558-3301	937-558-3349
Jamestown (MVH)	937-374-5274	937-374-5275
Joint Town Mem Hosp Grand Lake	419-394-7333	419-394-1902
Kettering Medical Center	937-395-8080	937-395-8347
<b>McCullough-Hyde Hospital</b>	<b>513-524-5353</b>	<b>513-523-0144</b>
Mercy Memorial Hospital	937-484-6160	937-484-6183
Miami Valley Hospital <b>Maternity</b>	937-208-2440 <b>937-208-2408</b>	937-208-8030 <b>937-208-2651</b>
Miami Valley South Hospital <b>Maternity</b>	937-438-2662 <b>937-438-5817</b>	937-438-2262
Preble County Emergency Center	937-456-8328	937-456-8377
Regional Hospital Notification System	937-333-8727	
<b>Reid Memorial Hosp, Richmond, IN</b>	<b>765-983-3161</b>	<b>765-983-3038</b>
Soin Medical Center <b>Maternity</b>	937-702-4525 <b>937-702-4525</b>	937-702-4509
Southview Medical Center <b>Maternity</b>	937-435-1832 <b>937-401-6850</b>	937-401-6447 <b>937-401-6861</b>
<b>Springfield Regional Medical Center</b>	<b>937-523-1400</b>	<b>937-523-1950</b>
Sycamore Medical Center	937-384-8766	937-384-8729
Upper Valley Medical Center Maternity	937-440-4600 937-440-4181	937-440-4346 937-440-4340
<b>Veterans Admin Medical Center</b>	<b>937-262-2172</b>	<b>937-267-5364</b>
<b>Wayne Health Care, Greenville</b>	<b>937-547-5777</b>	<b>937-569-6291</b>
<b>West Chester Hospital Maternity</b>	<b>513-298-7777</b> <b>513-298-7777</b>	<b>513-298-8978</b>
Wilson Memorial Hospital	937-492-4457 937-492-4512	937-498-5300
<b>WPAFB Medical Center</b>	<b>937-257-3295</b>	<b>937-656-1673</b>

Hospitals in **bold type** ask to be called for every patient.

Updated: November 2017

**Greater Dayton Hospital Association and Greater Miami Valley EMS Council**  
**Infectious Disease Exposure Reporting Policy Template**

**A. PURPOSE**

This document provides public safety personnel (including fire, EMS, and law enforcement) and hospitals with a set of standard guidelines and expectations for defining, responding to, and following up on an infection control exposure incident involving an emergency response provider.

**B. BLOODBORNE EXPOSURE**

**1. DEFINITION OF A BLOODBORNE EXPOSURE**

An EXPOSURE incident that may place a public safety worker at risk for Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), or Human Immunodeficiency Virus (HIV) infections or other blood borne pathogens that includes:

- a. A percutaneous injury (e.g., a needle stick or cut), **or**
- b. Contact of mucous membrane or non-intact skin (e.g., exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue, or other body fluids that are potentially infectious.

What is NOT an exposure?

- a. A percutaneous injury with a clean or sterile needle or instrument.
- b. Intact skin splashed with potentially infectious blood, body fluid, or tissue.

**2. POST EXPOSURE PROCEDURE**

- a. An exposed public safety worker should take the following immediate “first aid” action steps:
  - ☒ Immediately irrigate the involved area.
  - ☒ Flush eyes with copious amounts of IV fluids, if indicated.
  - ☒ Wash skin vigorously with soap and water. If soap and water is not available, rinse area with another available solution such as IV fluids or a water-based liquid. Waterless hand cleaners are not recommended for post-exposure gross decontamination, but can be used when other options are not available.
- b. Employee shall report the exposure incident to the receiving hospital and to their immediate supervisor.
- c. Exposed employees are **REQUIRED** to register as a patient at the receiving hospital (same receiving hospital as the source).
- d. Once at the receiving hospital, the exposed employee should locate and complete the “Request for Information by Emergency Care Workers (RIECW)” form (see Appendix A). When completed, the form should be submitted to the nurse handling the exposed employee’s care in the Emergency Department (ED).
- e. The EMS Coordinator for the receiving hospital can serve as a liaison between the organization and the hospital. The department’s infection control officer (ICO) or designated supervisor <sup>1</sup>should, upon receiving notification that there has been an exposure incident, notify the receiving hospital’s EMS Coordinator.

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<sup>1</sup> For the purpose of this policy the “*department’s Infection Control Officer (ICO), designated supervisor, or designee*” refers to the person responsible for reporting and coordinating an exposed employee’s incident within that Public Safety entity.

- f. Follow-up care/exam(s) will be provided to each employee involved when indicated. All follow-up care/exam(s) will be coordinated through your employer.

### 3. TESTING THE SOURCE PATIENT

- a. A blood sample is required to determine whether a patient has HIV, HBV or HCV. Blood/Body Fluid (B/BF) testing of a source patient includes the following (MMWR, June 29, 2001):
  - ☒ HIV antibody
  - ☒ HBV surface antigen (HBsAg)
  - ☒ HCV antibody
- b. If the source patient is TRANSPORTED to a hospital:
  - 1) The ED obtains patient consent and the blood specimen for testing.
  - 2) In the event that the patient refuses to or cannot give consent (e.g., due to an altered level of consciousness) a hospital's "infection control committee... or other body of a health care facility performing a similar function" has the authority to obtain the HIV screening when there has been a significant exposure (Ohio Revised Code §3701.242).
- c. If the source patient REFUSES TRANSPORT to a hospital:
  - 1) If the patient refuses to give consent for blood sampling and refuses transport, the public safety worker must follow up with their ICO or designee. At this point it is a legal matter to obtain the source patient's blood for testing (Ohio Revised Code §3701.247). Following a significant exposure in which the source patient refuses to provide a blood sample and refuses transport, the employee should seek immediate medical evaluation and counseling for themselves (MMWR, Sept. 30, 2013).
  - 2) In cases where the patient refuses transport, or in exposure incidents where the source patient is unknown, an exposed employee should follow the steps outlined in Section 5- Patients Not Transported to a Hospital.
  - 3) EDs or hospitals will not run source patient blood samples if the source patient is not a patient at their hospital.

### 4. SOURCE PATIENT (TRANSPORTED TO HOSPITAL) RESULTS

- a. Hospital-run HIV test results should be available within an hour (may be longer for "stand alone" or smaller EDs); HBV and HCV results may not be available for several days.
- b. The exposed employee is expected to remain a patient in the ED until they have received the results of the rapid HIV test and any additional counseling from the attending physician.
- c. The employee is expected to communicate his/her follow-up needs to your department's ICO or designated supervisor.
- d. Written notification of positive test results shall be provided directly to the affected employee by the hospitals designated infection control point of contact within three (3) days after oral notification (Ohio Revised Code §3701.248).
- e. Confidentiality of the source patient and public safety worker information shall be maintained at all times. Only information pertaining to source patient results will be released to the organization's ICO or designee and/or an employee who is still present in the ED as described above. The department ICO or designee and the public safety worker shall not disclose any medical information publicly about the source patient.

### 5. PATIENTS NOT TRANSPORTED TO A HOSPITAL BY EMS

- a. Employees should notify their immediate supervisor, and their immediate supervisor should notify the organization's ICO or designee. Federal regulations dictate that, "following report of an exposure, the employer shall make immediately available to the exposed employee a confidential medical evaluation and follow-up" (OSHA 29 CFR, 1910.1030(f) (3)).

- b. Exposed employee should be directed to any ED for treatment.
- c. Employee shall locate, complete, and sign the Request for Information by Emergency Care Workers (RIECW) Form (Appendix A), which should be available, completed, and submitted to the nurse handling care in the ED.
- d. If the public safety worker is aware that the patient went to an ED by other means, the employee's supervisor may call the ED charge nurse of the patient's destination and notify them of the exposure, with a request to obtain baseline testing of the source patient. The written Request for Notification of Test Results shall be faxed to the ED charge nurse as soon as possible by the employee or the department's ICO.

## 6. PROPHYLAXIS FOR BLOOD/BODY FLUID EXPOSED PUBLIC SAFETY WORKER

- a. Post-exposure prophylaxis (PEP) treatment may be offered to the public safety worker by the ED or workplace health provider in accordance with current clinical guidelines and local PEP protocols. Additionally, the employee may wish to consult their personal physician.
  - 1) The decision to take PEP includes a risk-based assessment based on known or unknown source patient and type of exposure.
  - 2) Employees receiving PEP treatment should be followed up within 72 hours of starting treatment.
  - 3) The PEP treatment decision should consider laboratory results when available.
- b. HIV prophylaxis:
  - 1) Decisions about chemoprophylaxis can be modified if additional information becomes available.
  - 2) Public safety workers must register as ED patients to receive HIV prophylaxis from the hospital.
  - 3) HIV PEP should be started as soon as possible.
  - 4) Consideration should be given by the ED for expert consultation and guidance on HIV PEP (e.g., infectious disease physician, MMWR, 2011) or the National Clinicians' Post Exposure Prophylaxis Hotline @ #888-448-4911).
  - 5) Counseling should be made available through the agency's employee assistance program (EAP) or by contractual agreements. Hepatitis Prophylaxis:
- c. Hepatitis Prophylaxis
  - 1) Hepatitis Prophylaxis is dependent on the public safety worker's vaccine status. A small percentage of immunized individual's protection from the vaccine declines over time, which may require Hepatitis B Immunoglobulin (HBIG) and additional doses of the Hepatitis B vaccine to protect against both the current exposure and future exposures. The results of the HBV Surface Antibody test will demonstrate the employee's immunity to HBV, but are not typically given in the ED as the results of the HBV Surface Antibody test are usually not available immediately. Employees must follow up with his/her organization's workplace health provider for related prophylaxis as soon as possible.
  - 2) There is no prophylaxis for HCV at this time. In cases of positive source HCV results, the employee should follow up with his or her workplace health provider for medical evaluation and care.

## 7. PUBLIC SAFETY WORKER BASELINE TESTING

- a. Baseline testing of the exposed public safety worker is the employee's choice. Agencies should maintain signed statements of employees who decline baseline testing/evaluation at the time of an exposure.
- b. Baseline testing is the term given to the set of initial laboratory tests that should be drawn on an exposed employee. This data may be used to compare future assessments in determining if an infectious disease was contracted. Baseline testing is not emergent; however, evaluation



- for PEP as discussed above should be considered urgent and care sought immediately.
- c. In cases where PEP was determined not an appropriate emergency treatment, the public safety worker should seek follow up care as instructed. This follow up should be by the organization's workplace health provider. This follow up should optimally occur the next day and no later than seven days post exposure (MMWR, 2001).
  - d. In cases where the source patient testing is negative but the public safety worker still wants further testing, the employee is encouraged to follow up with their private physician or your department's workplace health provider.
  - e. Public safety worker baseline testing includes at minimum:
    - 1) HIV antibody
    - 2) Hepatitis B surface antibody
    - 3) Hepatitis C virus antibody
  - f. A positive Hepatitis and/or HIV test of the SOURCE PATIENT should trigger viral load testing of the SOURCE PATIENT.

### C. RESPIRATORY EXPOSURE

1. Respiratory exposure is defined as contamination with an infectious agent through the respiratory tract. This occurs via one of two routes (CDC, Rationale for Isolation Precautions in Hospitals, 1996):
  - a. Via airborne infectious agents with small-particle residue [ $5\ \mu\text{m}$  or smaller] of evaporated droplets containing microorganisms that remain suspended in the air for long periods of time (example is tuberculosis, rubella, and varicella virus).
  - b. Via droplet infectious agents which are propelled a short distance (less than three feet) through the air by coughing or sneezing: these droplets are acted upon rapidly by gravity (examples are meningitis, pertussis and influenza).
2. Respiratory exposures may not be immediately known by the public safety worker, especially if the patient is not overtly symptomatic.
3. IMMEDIATE ACTIONS OF THE AIRBORNE-EXPOSED PUBLIC SAFETY WORKER
  - a. Don PPE as soon as possible at the scene or during transport if the patient is known to have a respiratory infection or is coughing or spraying secretions.
  - b. If secretions are splashed or coughed into the eyes or other mucous membranes, flush with copious amounts of IV fluids as soon as possible.
  - c. The public safety worker who suspects a respiratory exposure or is notified of such an exposure should:
    - ☒ Notify the department ICO that an exposure occurred
    - ☒ Notify the ED charge nurse of the exposure upon delivery of the patient
    - ☒ Complete the *Request for Notification of Test*. In these cases being checked in as an ED patient may or may not be necessary.

Upon receipt of the source patient's diagnosis, follow-up care and prophylaxis may be necessary for those exposed. At this point exposed employees may have to return to the receiving hospital and be checked in as a patient to receive care. In other situations follow-up care and prophylaxis may come from your department's workplace health provider.
4. PROPHYLAXIS FOR THE AIRBORNE-EXPOSED PUBLIC SAFETY WORKER
  - a. If an exposed employee needs prophylaxis, prophylaxis should be coordinated thru the receiving (or notifying) hospital or when immediately available at the department's workplace health provider's clinic.
5. TESTING THE SOURCE PATIENT

- a. Source testing for respiratory exposures is done by the hospital based on patient symptoms.

## 6. SOURCE PATIENT RESULTS

- a. The hospital ICO or designee will notify the department ICO or designee of the infectious agent as soon as possible after symptoms of clinical presentation, or within 48 hours of a positive infectious agent determination.
- b. Your organization's ICO, possibly after consulting with your department physician, will assess the potential exposure of the employee based on the interaction history with the source patient and the agent involved.
- c. Confidentiality of source patient and the employee's information shall be maintained at all times. Only information pertaining to source patient results will be released to the department's ICO.

## D. BLOOD or BODY FLUID & AIRBORNE EXPOSURES BY CORONER'S CASES

1. In cases where there is a public safety worker exposure during resuscitation efforts, it is recommended that crews transport the patient to the hospital where source testing can be performed, rather than follow field termination procedures. However, in some incidents, exposure of a public safety worker may occur from a deceased victim who must remain at a scene for a period of time pending a coroner's investigation.
2. Immediate actions of the exposed provider:
  - a. Decontaminate self as described in previous sections.
  - b. Notify the department ICO or designee that the exposure occurred.
  - c. At the direction of the department ICO or designee, seek treatment at an ED or at your organization's workplace health provider.
  - d. Consider prophylaxis based on the index of suspicion.
3. Actions of the ICO or designee:
  - a. The Coroner or Coroner's Investigator shall be notified as soon as possible by the department's ICO or designee that an exposure has occurred.
  - b. A *Request for Information by Emergency Care Workers* form (Appendix A) shall be forward to the Coroner's Office as soon as possible after notification.
4. Testing the source patient:
  - a. The Coroner shall make every effort to test a source patient by the next business day of being notified of the exposure. In some cases, the Coroner may elect to send a specimen to an outside lab for testing. The public safety worker shall not wait for testing results from the Coroner to seek medical evaluation.
5. Source patients test results:
  - a.** The Coroner or Deputy Coroner shall notify the department ICO or designee of source patient test results as soon as possible. Oral notification of source HIV status (positive or negative) shall be provided to the department ICO or designee within two days of test results, and written notification of positive test results shall be provided within three days after oral notification (ORC §3701.248).

## APPENDIX A

REQUEST NO. **10349**

### REQUEST FOR INFORMATION BY EMERGENCY CARE WORKERS

**PLEASE PRINT - Use Blue or Black Ink - PRESS HARD**

This form is for use by emergency care workers to request information on the presence of a contagious or infectious disease (if known) of a person, alive or dead, who has been treated, handled, or transported for medical care by an emergency care worker.

Before you can be provided with this information, you must believe that you have suffered significant exposure through contact with the person about whom you are requesting the information. A significant exposure means:

- (1) A percutaneous (break in skin or needle stick) or mucous membrane exposure (eyes, nose, mouth) to the blood, semen, vaginal secretions, or spinal, synovial (joint, bone, tendon), pleural (lung), peritoneal (abdomen), pericardial (heart), or amniotic fluid of another person; or
- (2) Exposure to a contagious or infectious disease.

You may expect to receive a reply to this request within 2 days after contagious or infectious disease testing results are known. This may be longer than 2 days after you submit your request. A written notification will follow. Your supervisor will also be informed.

Deposit top (white) copy in designated area or with charge nurse. Submit yellow copy to your agency or employer. Retain pink copy.

The requestor should follow his/her agency's or employer's exposure control plan for post-exposure follow up.

#### **PLEASE PRINT CLEARLY**

1. Your Name: \_\_\_\_\_
2. Your Home Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_
3. Your telephone number: Home: \_\_\_\_\_ Work: \_\_\_\_\_ Pager: \_\_\_\_\_
4. Have you completed more than two (2) injections in Hepatitis B series. Yes \_\_\_\_\_ No \_\_\_\_\_
5. Employer or volunteer agency for whom you were administering health care when exposure occurred:  
Employer or Agency: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/State/Zip: \_\_\_\_\_ Phone: \_\_\_\_\_
6. Name of your supervisor at above listed place of employment or volunteer agency: \_\_\_\_\_
7. Regarding the exposure, what was  
Name of Source Patient: \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Place: \_\_\_\_\_  
Manner of exposure:  
\_\_\_\_ Dirty Needle Stick \_\_\_\_\_ Broken Skin Exposure  
\_\_\_\_ Splash - Eye, Nose, Mouth \_\_\_\_\_ Unprotected Mouth to Mouth  
Other: **Describe the Incident (be specific)** \_\_\_\_\_

This is to attest that the above statements are true and correct to the best of my knowledge and belief.

Your Signature: \_\_\_\_\_ Date: \_\_\_\_\_

#### **ACKNOWLEDGEMENT**

Name of Health Care Facility/Coroner: \_\_\_\_\_

Name of Person Receiving Request: \_\_\_\_\_

Signature of Person Receiving Request: \_\_\_\_\_

Received: Date \_\_\_\_\_ Time \_\_\_\_\_

White: Hospital/Coroner

Yellow: Agency/Employer

Pink: Requestor's Copy

## APPENDIX B

### RESPONSE TO EMERGENCY CARE WORKER REQUEST FOR MEDICAL INFORMATION

REQUEST NO. \_\_\_\_\_

THIS INFORMATION HAS BEEN DISCLOSED TO YOU FROM CONFIDENTIAL RECORDS PROTECTED FROM DISCLOSURE BY STATE LAW. YOU SHALL MAKE NO FURTHER DISCLOSURE OF THIS INFORMATION WITHOUT THE SPECIFIC, WRITTEN, AND INFORMED RELEASE OF THE INDIVIDUAL TO WHOM IT PERTAINS, OR AS OTHERWISE PERMITTED BY STATE LAW. A GENERAL AUTHORIZATION FOR THE RELEASE OF MEDICAL OR OTHER INFORMATION IS NOT SUFFICIENT FOR THE PURPOSE OF THE RELEASE OF HIV TEST RESULTS OR DIAGNOSES, DISCLOSED ON THIS FORM.

1. Date of oral report: \_\_\_\_\_ Person giving report: \_\_\_\_\_  
Report given to worker ☐ Supervisor ☐ Supervisor's name \_\_\_\_\_  
Written report will be given to worker and supervisor within 3 working days following oral notification of final results.

2. Date of written report: \_\_\_\_\_ Person sending report: \_\_\_\_\_  
Report sent to worker ☐ supervisor ☐ Supervisor's name \_\_\_\_\_

3. Your request for information has been received.

a. \_\_\_\_\_ The request has been rejected because: \_\_\_\_\_

Presence of a contagious or infectious disease at this time is unknown due to:

- b. \_\_\_\_\_ No tests were performed. c. \_\_\_\_\_ The source person in question has refused HIV testing.  
d. \_\_\_\_\_ Source patient discharged home. e. \_\_\_\_\_ No blood available  
f. \_\_\_\_\_ Source patient discharged to health care facility/coroner's office/funeral home.

Address of facility/coroner's office/funeral home (if known): \_\_\_\_\_

g. The following tests were performed on source patient with **negative results**: \_\_\_\_\_

h. Testing on source person in question was **positive for**: \_\_\_\_\_

Comments: \_\_\_\_\_

4. Written and oral report included:
- |   |  |
|---|--|
| <input type="checkbox"/> Name of disease              | <input type="checkbox"/> (Medical) precautions necessary to prevent transmission |
| <input type="checkbox"/> Signs & symptoms of disease  | <input type="checkbox"/> Recommended prophylaxis (if any)                        |
| <input type="checkbox"/> Date of Exposure             | <input type="checkbox"/> Suggested treatment                                     |
| <input type="checkbox"/> Incubation period of disease | <input type="checkbox"/> Appropriate Counseling                                  |
| <input type="checkbox"/> Mode of transmission         |  |

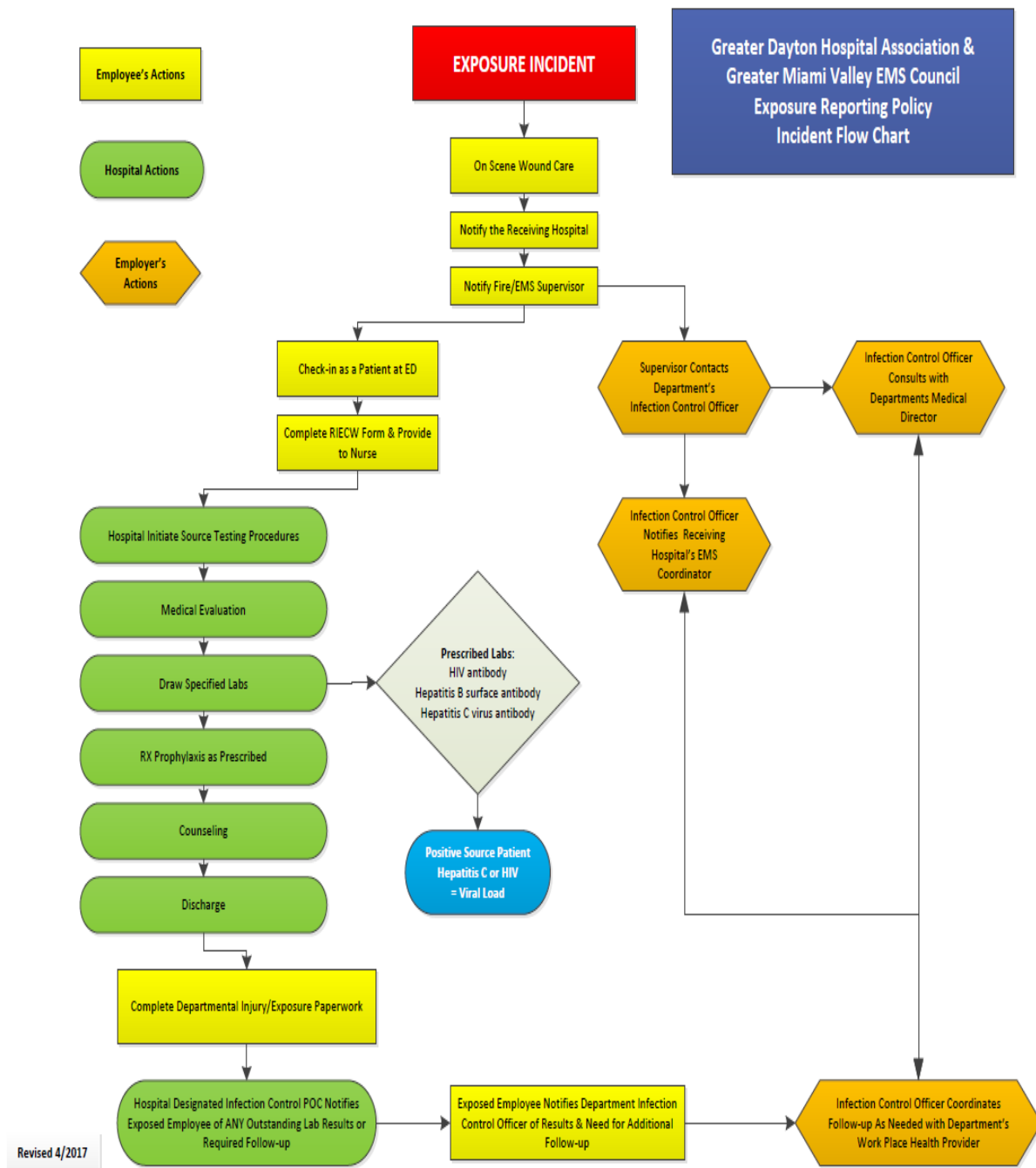
5. Sources of materials provided regarding disease: \_\_\_\_\_

6. It is expected that the emergency care worker will consult a physician in cases of true disease exposure. It is understood by provider of report and recipients that decisions related to prophylaxis, treatment, and counseling will be at the discretion of that physician.

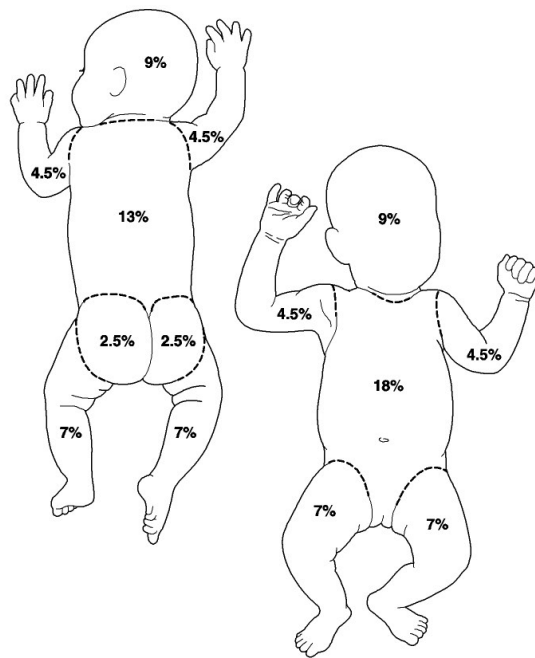
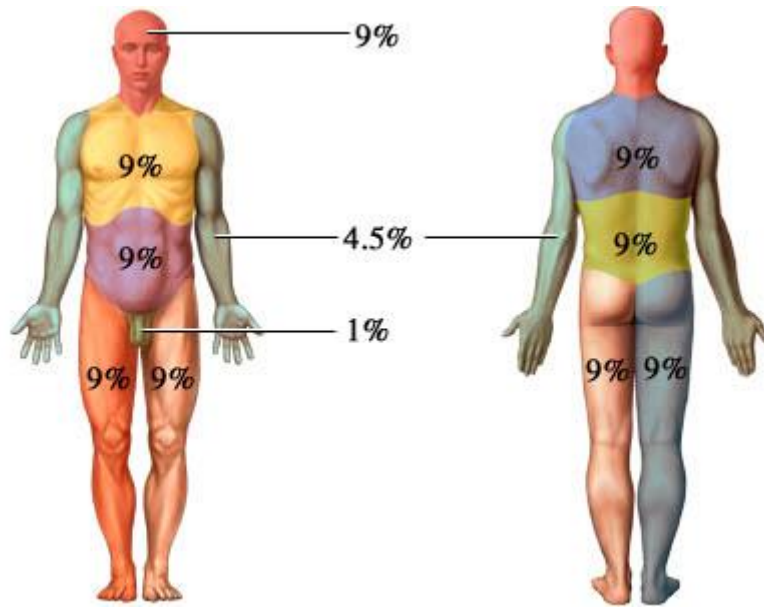
**THIS RESPONSE PROVIDES ALL INFORMATION AVAILABLE AS OF THE DATE OF THIS WRITTEN RESPONSE. ANY ADDITIONAL REQUEST WILL NEED TO BE SUBMITTED FOR ANY FUTURE INFORMATION REGARDING THIS PATIENT.**

White: Requestor's Copy    Yellow: Agency/Employer    Pink: Hospital Infection Control Committee/Coroner

4-2014



## RULE OF NINES



## 2017 PARAMEDIC CHANGES

### **THE ONLY MEDICATIONS TO BE ADMINISTERED THROUGH AN ETT ARE ALBUTEROL AND ATROVENT**

- p. 1 Added Hypoglycemia, ALTE, PAT, Sepsis, Infectious Disease Exposure
- p. 2 Any patient in respiratory distress on oxygen shall remain on oxygen until care is transferred to the hospital.
- p. 5 Field termination conditions have been modified
- p. 6 Replaced normal saline with IV fluids. Done throughout the manual as pH of normal saline is 5.5 and pH of normosol is 6.6 which is closer to neutral.
- p. 7 Added PAT
- p. 8 Deleted qualifier of age 70. Deleted immobilization devices for penetrating trauma to the neck and torso.
- p. 9 Added a new SMR chart
- p. 10 Changed the initial dose of Fentanyl to 50-100 mcg, added Ketamine to pain control protocol, changed time frames for repeats, preferred order of Fentanyl for peds, deleted MCP for repeat routes of Fentanyl
- p. 15 Modified humeral IO insertion angles.
- p. 17 Deleted Cardiac Arrest: Smoke Inhalation, see Burns, Smoke Inhalation
- p. 17 Several additions and deletions from Hs and Ts: trauma and hypoglycemia were removed by ACLS
- p. 17 Changed title to 2015 CPR Guidelines
- p. 17 Changed compression rate to 100-120 per min.
- p. 18, 67 Added MCP for administering Calcium Chloride to a renal dialysis patient in wide complex bradycardia
- p. 21, 23, 91 Changed max drip of Norepinephrine to 45 drops per minute
- p. 23 Retitled pulmonary edema sections
- p. 23 Added Sepsis section
- p. 26 Added, "Open skull fracture," to anatomy of injury criteria per state change
- p. 26 Changed intubation criteria in Physiological Adult to, "Needs ventilatory support," per state change
- p. 26 Added, "Respiratory rate less than 20 per minute in infants less than 1 year old," per state change
- p. 27 Changed intubation criteria in Physiological Geriatric to, "Needs ventilatory support," per state change
- p. 27 Added, "Vehicle telemetry consistent with high risk of injury," to Mechanism of Injury per state change
- p. 29 Deleted time frames for crush syndrome. Call MCP immediately when a crushed patient is encountered and prior to relieving the load.
- p. 29 In crush protocol, changed sedation to MCP for Ketamine.
- p. 29 Deleted use of Versed in Crush protocol.
- p. 29 Corrected verbiage for tourniquet application.
- p. 32 Modified Smoke Inhalation protocol.
- p. 33 Clarified that Hydroxocobalamin is infused over 15 minutes in pedi pts.
- p. 35 Improved statement for indications of CPAP
- p. 35, 36 Modified weight ranges for administration of Epinephrine
- p. 36 Changed dose of Epinephrine for persistent hypotensive anaphylaxis to Epinephrine 1:10,000, 0.1 mg every 3 minutes for a total of 5 doses.
- p. 35, 36, 99 Added solumedrol for asthma, emphysema, COPD and allergic reactions
- p. 36 Added hypoglycemia section
- p. 37, 38 Removed Diazepam from protocol for seizures and crack cocaine OD
- p. 38 Added additional routes for initial Naloxone administration.
- p. 38 Renamed Cocaine OD to Stimulant Overdose

- p. 38 Clarified Tricyclic OD treatments
- p. 39 Absolutely no pregnant patients to DCH
- p. 39 Emphasized the need to perform and document abd. exams on pts with abd. pain
- p. 44 Added ALTE
- p. 45 Changed headings to Adult and Pediatric Abuse
- p. 46 Added excited delirium patients under combative patients
- p. 47 Added call for orders for Sodium Bicarb if excited delirium patient goes into arrest.
- p. 55 Changed pounds to kgs for administration of atropine.
- p. 67 Under requires MCP, corrected spelling of renal
- p. 71 Made Diazepam a JITSO order
- p. 87 Added Solu-Medrol to drug sheets
- p. 92 Added condition for norepinephrine: use in the non-trauma patient.
- p. 93 Added two new IV fluids intended to replace NS
- p. 142 Added L&D capability to McCullough Hyde
- p. 146 Added Infectious Disease Exposure Protocol
- p. 148 Changed name to Dayton Children's Hospital throughout



## 2018 PM Changes

P. 2 Added requirement that you must pass skills & CBT before using new protocol.

P. 3 Moved the note to the beginning of the section to bring attention to the facts that both adults and peds can meet non-initiation of care, as well as the fact that efforts may stop if they should not have been initiated.

P. 4 Added the statement under permitted treatments, or any intervention that will provide comfort.

P. 4 Clarified DNR, Living Will & DPA-HC

P. 5 Moved the note at the end of Field Termination to the beginning of, “Non-Initiation of Care.”

P. 6 **Normal Saline is being phased out as the crystalloid of choice** in favor of balanced electrolyte solutions such as **Normosol, Plasmalyte, and Isolyte**. These solutions have a pH of 7.4 and electrolyte levels that are more in line with what is normal for humans. They do not contain calcium and are compatible with blood products and all of our emergency medications. They do contain a small amount of potassium but this is not felt to be of significant concern even in the patient with hyperkalemia. Within a couple of years we expect the medics will no longer be carrying NS. Why the change?

NS is relatively acidic (pH 5) compared to Normosol (pH 7.4) which may be important to the patient with metabolic acidosis.

No risk of hyperchloremic acidosis. Surgeons have known this about NS for years, which is where LR came from. High chloride levels lead to chloride being dumped in the urine, which impairs their ability to reclaim bicarbonate, further impairing the bicarbonate buffer system.

NS is no longer recommended by the Committee on Tactical Combat Casualty Care for resuscitation of trauma patients. Data shows that they are much better with blood products, and if crystalloid MUST be given (far forward prehospital setting) then it should be a balanced solution.

Newer data suggests that septic patients treated with balanced solutions do better than those who get NS. This hasn't been studied as part of the initial ED fluid choice. The study looked at 60,000 ICU patients with sepsis. Both groups got 2L NS in the ER, then the treatment arm was started on the balanced solution and the control arm stayed on NS. The treatment arm had lower in-hospital mortality.

We do carry Isolyte, which is located in the fluid warmer by the trauma bays.

We replaced dopamine with levophed in the field several years ago because of data showing better mortality with levophed compared to dopamine in all forms of shock (including cardiogenic shock, interestingly). This is really no longer controversial. It is also easier for the medics to use without calculations. Add 4 mg to 250 cc of NS and run with a 60 gtts/cc set at 30-45 gtts/min to get 8-12 mcg/min.

There is no such thing as a “sepsis alert” since sepsis is our bread and butter in the ED and there is no need to mobilize additional resources for the management of these patients. We figured another alert would contribute to alarm fatigue without significantly improving care. EMS only needs to talk to medical control if they need an order for more fluid or levophed.

P. 6 Added a more detailed description of the only time to hyperventilate.

P. 10 Made repeat dose Fentanyl consistent with 1<sup>st</sup> dose.

P. 11 **Changed from LMA to supraglottic airway is recommended as the primary airway except in extreme cases such as airway edema.**

P. 12 Added age restriction for performing surgical crics. They must be  $\geq 12$  y/o.

P. 14 Removed tibia as site for adult in arrest.

P. 15 Added ranges for IO needles

P. 17 Moved Maintenance of Medication Pumps to P. 39

P. 18 Correct bullet to **A** for Calcium Chloride in Renal Dialysis Cardiac Arrest

P. 18 Clarified dialysis pts who are bradycardic or in arrest should be given both medications: Calcium chloride and sodium bicarb.

P. 19 Changed order to obtain 12-lead after ROSC under VFib protocol.

- P. 19, 41 The routes of narcan administration during cardiac arrest ( asystole or PEA) are limited because of inadequate blood flow.
- P. 20 Improved order of algorithm for cardiac chest pain and clarified verbiage for administration of aspirin, nitro, and fentanyl
- P. 20 Repeat AICD Activations section added.
- P. 22 Added Sodium Bicarbonate to Wide Complex Bradycardia
- P. 25 Listed Primary Stroke Centers and improved verbiage for stroke times and documentation of Stroke Alert.
- P. 25 Added oxygen administration for stroke patients.
- P. 27 GCS moved this page
- P. 30 Changed Transport Guidelines to Trauma Transport Guidelines and changed index page
- P. 30 Added statement, “**Pediatric patients should be transported in an appropriately sized child restraint system.**”
- P. 30, 41 Added, “rapidly” to transport of pregnant trauma patients
- P. 30 Added apply positive pressure ventilation to flail chest and stabilize with gloved hand.
- P. 31 Added albuterol to crush syndrome. Aids in controlling hyperkalemia.
- P. 33 Last bullet under drowning: deleted the words, “Near Drowning.” The term , “Near Drowning,” no longer applies.
- P. 37 The word “any” was deleted from phrase any other drugs in Solu-Medrol bullet.
- P. 38 Clarification of Epi, Benadryl, & Solu-Medrol administration for allergic reactions. Removed the word severe from the order for Epinephrine. Any reaction can change and providers need to pay attention.
- P. 41 Clarification on administration of Narcan
- P. 45 Changed wording for when to suction newborns
- P. 46 Added definition for viable fetus
- P. 49 Added, And or for the use of Versed with Ketamine. They have two different mechanisms.
- P. 49 Changed competency to capacity
- P. 58 All references to Mark 1 auto-injectors have been removed. The Mark 1 has reached its expiration date.
- P. 60 Deleted list of hospitals participating in RHNS
- P. 66 Added all 4 Albuterol for hyperkalemia
- P. 81 Corrected ranges of Fentanyl and repeat time frames
- P. 91 Deleted crush syndrome from indications for Versed
- P. 121 Deleted Mark 1 Kits from complex medications
- P. 122 Added solumedrol to complex medications
- P. 126 Changed meeting schedule from March and September to as needed for Drug Bag Exchange Program
- P. 126 Under Operating Guidelines explained the limits of use of the drug bags
- P. 127 Deleted date for necessary requirements to participate in the drug bag exchange program. The listed items must now be in place.
- P. 129 Defined time limits for drug bag exchange, must be exchanged within 8 hours.
- P. 129 Under wasted drug procedure changed the wording to, “The second witness can be a member of the EMS crew as many hospital employees are no longer permitted to witness or sign drug wastage.”
- P. 131 Significantly changed the wording for when to contact the Ohio State Pharmacy Board upon discovery of a theft and added the definition of, “Dangerous Drug.” Removed references to an investigation when a theft is suspected. That is done by the state.
- P. 132 Departments are required to have a tracking system that tracks all drug bag exchanges.
- P. 133 Addendum A was modified. Removed references to an investigation and reiterated the necessity to contact the State Pharmacy Board if suspicion of a theft.
- P. 153 Changed the requirements of baseline testing for an exposure.
- P. 157 Added updated exposure flow chart
- P. 159 Added Rule of Nines

Region 3 EMS Providers,

This Training Manual has been produced as a result of countless hours of work by a diverse cross section of the regional EMS community. The members of the Standing Orders and Continuing Education Committees, and the RPAB have put countless hours into this document. The groups have responded to changes in medication availability, procedural changes and have used your input to improve these documents.

There are companion documents and additional resources that are available for you to either view online or download for further explanation on the Training and Testing process for 2018. The first of these is the “2018 Implementation Guide”. It addresses the new philosophy, CEUs, and other important information regarding the testing. The other is the Ohio Public Safety “Scope of Practice” document. We hope to have additional supplemental material posted on the website soon.

The Training Manuals and processes would not have been possible without the strong foundation left by the many past chairpersons of the Continuing Education Committee and all of the council members. Thank you to all who have volunteered and critiqued these manuals.

I would also like to thank Dr. Randy Marriott and all of the many RPAB members.

Sincerely,

Jack A. Mix  
Standing Orders Co-Chair